

Value Sensitive Design Studio: Prototyping and Values

Background

Value sensitive design consists of three kinds of investigations: conceptual, empirical, and technical. In this design activity, we shall explore how each type of investigation can come together into a single project.

Design Prompt

Your goal is to design mobile phone application for ordering pizza, where the values of “libertarian paternalism” and “fun” are embedded within the application. Within the limits of time, follow a robust value sensitive design process (see below for some scaffolding).

Note: Our focus is on pizza because it is a simple application area. But, the concepts we are going to engage are subtle and enduring in many different contexts. The key idea I would like to you to explore is how particular software and application mechanisms can embody particular values.

Background

Values. “Libertarian paternalism” is an approach to addressing a complex web of values including free choice, self-control, human welfare, among others. In simply terms libertarian paternalism nudges stakeholders toward making choices that are “good” for them while also enabling stakeholders to make their own choices. The concept is defined and extensively discussed in the following paper, which is available on canvas:

Sustein, C. R. & Thaler, R. H. (2003). Libertarian paternalism is not an oxymoron. *The University of Chicago Law Review*, 70 (4), 1159-1202.

Also, you may recall that it was briefly introduced in the paper by Fischer (2017), which we read in week #2.

How you define “fun” is up to you. But, please develop a robust definition. You might want to base your definition of “fun” on the work of others but that’s up to you!

Prototyping. Your design should be implemented as a low-fidelity prototype. That is, first, the application should be constructed with paper, pencil, colored markers, and so forth. Using your sketching and lo-fi prototyping skills, please create the prototype by hand. Second, using a prototyping tool, you should import your sketches and hook them together with invisible buttons. This can be readily achieved with Marvel (<https://marvelapp.com>), although you are free to use any prototyping tool you like.

Constraints and affordances. Keep these constraints and affordances in mind:

1. *Checkout process.* You need not design the checkout process. That is, once the “buy” or equivalent button is pressed please assume that the user will be able to check out.
2. *Toppings, crust, etc.* This is up to you! Make it real; make it fun.
3. *Pizza transaction history.* Assume that a back-end data system has a history of all the pizzas purchased by individuals and that the history includes location information. For example, details of all the pizzas purchased in Wallingford are readily available.
4. *Calorie counts.* Assume that back-end data system can be called to return the number of calories for each ingredient and for the pizza has a whole.

5. *Cost of a pizza.* Assume that the back-end data system can be called to return the cost of each ingredient and the cost of the whole pizza.
6. *Other.* If you would like there to be other constraints or affordances propose them as needed. For example,
 - You might build for a virtual reality interface or a voice interface instead of a mobile phone;
 - You might stipulate a particular context such as a tail-gate party at a football game or a party with friends or some other setting of interest.

Groups

Please divide into groups of three or four for this mini-project. You may choose your own group members.

Process

As you move through this design process, please use the Envisioning Cards to guide and shape your work.

Conceptual Investigation

- (1) *Value definitions.* Provide definitions of “libertarian paternalism” and “fun,” and briefly discuss the meaning of these values. Draw upon scholarly sources appropriately. Discuss your general approach to enacting these values in your application – aim for a clear, elegant approach. Provide rationale for your approach.
- (2) *Conduct a direct and indirect stakeholder analysis.* Identify the direct and indirect stakeholders of your application. Discuss, with rationale, the stakeholders that will be part of your process and those which will not be.
- (3) *Conduct a value source analysis.* Introduce and discuss your designer, stakeholder, and explicitly supported values.

Technical Investigation

- (1) *Prototype design.* Develop your prototype, to be used in Study #2 (see below). See background section above for more information about the prototype.

Key point: Please clearly show how your definition of values are represented in your prototype.

Empirical Investigation

- (1) *Study #1.* Investigate the concept of “libertarian paternalism” through an empirical study where you conduct a **semi-structured interview** with three participants. Scale the interview to be about 20 minutes. Please, if possible, do not involve informatics students as participants.

Your challenge and key questions: How can this value be explored empirically? What questions would make good questions for guiding and shaping your design work? How will you draw design insights from these interviews?

- (2) *Study #2.*

- I.* Conduct a **usability evaluation** of your prototype with two different participants, seeking to learn about the usability of your prototype. *Your challenge:* Develop user goals that will allow you to understand how users engage with and understand your prototype.

- II.* After the usability evaluation component, conduct a **semi-structured interview** where you:

Ask participants about the values “libertarian paternalism” and “fun” that are embedded in the prototype. *Key questions:* Did your participants recognize and experience those values? How specifically might you investigate the stakeholders’ reactions? What questions will be good ones?

Is your prototype “creepy?” If so, how specifically. In your empirical investigation, can you show the “libertarian paternalism” might be problematic because it leads to interfaces that are creepy?

Reporting

Using the report template on Canvas, please write up your project, including the following sections:

Section Heading	Purpose
Title, authors, keywords and abstract	Give your report a descriptive title, include your names, include a list of 3-5 key words, and include a 120-150 word abstract.
Introduction	Briefly introduce this goals of this mini-project (About ½ page.)
Process	In your own words, briefly summarize the VSD process that you followed. Use a table, list, or figure. As appropriate, document your process with a photograph or sequence of photographs of your studio team working. (Less than one page, plus one photograph.)
Conceptual Investigation	Present your conceptual investigation. Finish this section with a list of key commitments that you are seeking to engage in your project.
Empirical Investigation <i>Study #1: Semi-structured interview</i>	Present your semi-structure interview questions, and briefly summarize the key findings from your study. (Given the limited time, I don't expect that you'll carry out a detailed analysis of the data that you collected.)
Technical Investigation	Based on your conceptual investigation and on the results of study #1 briefly report on "aims" or "requirements" for the prototype. Present the key features and flow through the prototype, giving evidence for how it supports the values. Show screen shots and use an Appendix, if necessary, so report more detail. Please include a URL to your prototype.
Empirical Investigation <i>Study #2: Usability Evaluation</i>	Please report on your usability evaluation. Who were the participants? What specific goals were participants asked to do? How were you measuring/studying the performance of your users? What were the results? What did you learn?
Discussion	<p>Please discuss how successful you were at embedding the values into your application. Do you have evidence that participants experienced the app the way you anticipated? Did your approach to "libertarian paternalism" lead to feelings of "creepiness?" What did you learn about "creepiness" through this exercise and your interviews with participants?</p> <p>Include a section called "lessons learned" where you discuss how VSD theory was used to drive your process and contribute to your design. What worked? What did not work? What would you do differently next time?</p> <p>Include a discussion of your use of the Envisioning Cards</p>
Conclusion	Wrap up the report with a brief summary and key takeaway (Less than ½ page.)
Appendix A: Reflections on Design Process	Reflect on your design process. How has this activity contributed to your learning and your skills in reflective practice? You may write this as individual statements ("I voice") or as a single collective statement ("we" voice).
Appendix*	If you really need to include more material please put it into one or more appendices.

Format and Grading

Please use the report format found on the course website. Your report will be graded, generally, with the following criteria:

- (1) *Overall*. All the sections are present in the report. The writing is concise, interesting, and free of spelling and grammatical errors. You use the report template appropriately, employing good style and respecting the format. If necessary you go beyond the format elegantly and appropriately. All figures and tables have concise and clear captions.
- (2) *Process*. You concisely document the process – framing it as a VSD process. The photograph(s) clarify the tone and focus of your work.
- (3) *Investigations*. You report the details of your investigations. *Conceptual investigation* – Clear and thoughtful definitions of values; Direct and indirect stakeholder analysis – you provide an extensive list of direct and indirect stakeholders and you give strong reasons for bringing emphasis to a subset of the stakeholders; You report on and discuss your designer, stakeholder, and explicitly supported values. *Technical investigation* – you report on your prototype and provide key rationale for the design choices made (that is, the logic between the values and the prototype design is strong). *Empirical investigations* – you use finding from study #1 to improve your conceptualization of the values and to drive your design process. You report on all the elements of the usability evaluation and draw out relevant findings.
- (4) *Discussion*. The discussion is concise, clear, and convincing. You take a critical stance and present and present good arguments.
- (5) *Reflections*. The reflections are focused and critical.



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