Course: CS179: Design of Useful and Usable Interactive Systems

Course Level: Upper-level undergraduate

Course Description: "The course covers skills and techniques necessary to design innovative interactive products that are useful, usable and that address important needs of people other than yourself. You will learn how to uncover needs that your customers cannot even articulate. You will also learn a range of design principles, effective creativity-related practices, and techniques for rapidly creating and evaluating product prototypes. You will also have several opportunities to formally communicate your design ideas to a variety of audiences. You will complete two large team-based design projects."[1]

Module Topic: Inclusive Design

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Semesters Taught: Spring 2020

Tags:

design principle [CS]
interactive system design [CS]
inclusive design [phil]
disability studies [phil]
social model of disability [phil]
relational model of disability [phil]
participatory design [phil]

Module Overview:

This module is about inclusive design. After engaging the students in a "design critique" activity (see: Sample Class Activity), we begin by introducing traditional inclusive design principles. We then engage in a discussion about different models of disability, and discuss how particular models – namely, social and relational models of disability – undergird traditional inclusive design principles. After gaining an understanding of inclusive design, students then identify and distinguish between different types of reasons for employing inclusive design principles, e.g. reasons related to economics, fairness, legality and beneficence.

Connection to Course Material:

The name of the course is "Design of Useful and Usable Interactive Systems." This module prompts students to ask *Useful for whom? Usable by whom?"* and to consider why these questions are ethically important. As such, this module directly engages the course material, encouraging students to confront questions about the ethical dimensions of their work as designers.

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[1] https://glassmanlab.seas.harvard.edu/cs179.html

Module Goals:

- Introduce students to the principles of inclusive design.
- Introduce students to social and relational models of disability.
- Provide students with an opportunity to practice communicating about the ethical importance of inclusive design.
- Empower students to apply inclusive design principles to their own projects.

Key Philosophical Questions:

1. What is inclusive design and why does it matter from an ethical standpoint?
2. What are social and relational models of disability, and how do these models relate to inclusive design?
3. What are different types of reasons for adopting inclusive design principles? How strong and persuasive are each of these different types of reasons?

Key Philosophical Concepts:

- Inclusive design
- Social model of disability
- Relational model of disability

Assigned Readings:

There are no assigned readings for this module.

Class Agenda:

1. Introduction
2. Lyft App Design Critique
3. Inclusive Design: Principles & Background Theory
4. Back to Lyft Design Critique
5. Why is Inclusive Design Important?
6. Assignment: Writing an Inclusive Design Statement

Sample Class Activity:

At the beginning of the class, before any ethical material or discussion takes place, students are asked to engage in a "design critique." A design critique is an activity where the design of a particular product (e.g. a website, or a physical object like a stove or a chair) is analyzed and discussed. In this module, the product that is critique is the Lyft smart phone application, but other products would work equally well. Students are asked to share their thoughts and opinions on what they think is successful and unsuccessful about the design of Lyft, and the Embedded EthiCS TA writes these thoughts and opinions on the board.

The Embedded EthiCS TA then moves to the main part of the module: a discussion of inclusive design, why it is important, and how it relates to different models of disability. After the main part of the module concludes, the Embedded EthiCS TA returns to the Lyft design critique. Students are asked to share their thoughts and opinions on the success of the Lyft interface design, but this time using what they've learned about inclusive design to inform their critique. The Embedded EthiCS TA writes the new thoughts and opinions on the board, and how inclusive design can inform our sense of what counts as successful design.

Module Assignment:

In the final project for this course, students work in teams to identify a need for a product, develop a product idea, produce and test a prototype, and submit a final report detailing the product development process. The assignment for this module is integrated into the final report and requires students to write a 200-300 word "inclusive design statement" for their product. In the statement, students are asked to do the following: (1) provide and defend a definition of inclusive design; (2) explain why inclusive design matters both more generally and specifically with respect to their product; and (3) explain how their product will be inclusive.

Lessons Learned

Student were extremely engaged in this module, and discussion was energetic and fruitful.

- One distinctive feature of this module is its direct practical relevance. The students learn about inclusive design and then apply inclusive design principles to their own projects. As such, the students have an opportunity to directly integrate ethics into their work, and to gain knowledge and skills that they can use in further design courses and in their careers. Students expressed how much they appreciated the direct practical relevance of this module.
- The design critique class activity (see above) was particularly effective in generating thoughtful discussion. First, it allowed the students to engage in a practical design-focused activity with a strong ethical dimension, thereby serving to bring together the ethical material with the technical material of the class. Second, the fact that the activity begins right at the start of class and then is returned to at the end gives the class a sense of cohesion and interconnectedness, demonstrating to students how their thinking and understanding of design has changed over the course of the module.