

Engaging Student Programmers as Inclusive Designers

How are web programmers like architects?

Traditional web accessibility curricula often focus on technical material such as programming techniques, accessibility standards and code validation. While technical education is necessary, solving difficult accessibility problems requires the ability to **think creatively** to adapt new technologies to a diverse audience. I drew from inclusive design education in **architecture** and **industrial design** to develop an inclusive design course unit that encouraged students to look beyond the technical details and approach accessibility problems creatively. Students participated in a number of classroom activities and completed group inclusive design projects.

Developing an inclusive approach

1 Accessibility first and throughout

Accessibility and inclusion were a central part of the course content and were discussed throughout. The topic of accessibility was introduced on the first day of class and was revisited in the context of course content. Students were expected to produce valid and accessible HTML for their assignments.

2 Encourage design thinking

Students were encouraged to take a design-oriented approach to web development and accessibility. Students designed their projects collaboratively and critiqued each other's work. Assignments utilized familiar design representations such as design patterns and personas.

3 Know the population

Students participated in several activities drawn from inclusive design education in order to better understand the needs of users with disabilities. The class discussed issues of access and inclusion and created a list of potentially excluded populations. Students watched videos of assistive technology in use and simulated the experience of a visually impaired person using a screen reader.

4 Project-based learning

Student groups were asked to select a group of users from around the university and to identify technologies that might exclude that population. Students then analyzed the exclusive aspects of the technology and suggested design changes that would make the technology more inclusive.

Student Projects

Students' inclusive design projects addressed a wide range of technology and disabilities, including:

- A newspaper web site for people with dyslexia
- An online shopping system for color-blind users
- A course registration application for non-native language speakers
- An email application for users with hand pain and tremor
- A photo-sharing web site for users with impaired motor control

About the course

Web Tools and Development is an undergraduate Informatics course that focuses on the design and development of web-based applications. I taught the course during Summer 2006.



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