Jonathan Li

Professor Wylie

STS 4600

Apr 18, 2024

Sociotechnical Synthesis

I wanted to find solutions to a general problem: How can user satisfaction with digital

systems be improved? Digital systems have reshaped information and service delivery. Services

once reliant on in-person interactions are shifting to web-based platforms. This digital evolution

raises an issue: accessibility. The U.S. Census Bureau reported that, in 2019, around 41 million

Americans identified as having a disability. Accessibility is more than convenience, it represents

a human rights concern. The significance of accessibility extends beyond social inclusivity.

Critical tasks, such as bill payment, job applications, healthcare access, and online education,

now rely on digital systems. But, a substantial portion of the U.S. population encounters barriers

that hinder access to these services. This results in a digital divide that biases against individuals

with disabilities, limiting their inclusion and opportunities. Inaccessible digital systems exclude a

significant demographic, violating principles of inclusivity and equitable access. Furthermore, it

restricts the potential customer base for businesses neglecting accessibility in their digital

interfaces. Legislation such as the Americans with Disabilities Act (ADA) in the U.S. has

established accessibility standards and emphasized access for individuals with disabilities.

Nevertheless, a disconnect persists between legal mandates and practical implementation.

To bridge this gap and enhance user satisfaction, organizations typically follow established

accessibility standards like the Web Content Accessibility Guidelines (WCAG).

Improving user satisfaction with digital systems is more than convenience; it is an essential imperative. Prioritizing accessibility in design bridges the digital divide.

For my technical problem I asked the question: How can we better prepare computer science students for the challenges of the software industry? Poor user experience in software can be incredibly frustrating. My experience has revealed that many issues leading to such poor experiences stem from a significant gap between the perspectives of software developers and end-users. In the software industry, the end user is always a customer. It's tempting for developers to make decisions based solely on their best interests or what they believe is best. However, this often leads to trouble when the end user's needs and preferences aren't in their top priority. Minimizing this gap requires a shift in focus towards the customer's perspective. In my experience, prioritizing customer-centricity in digital systems vastly improves user satisfaction and empowers developers to create better software. This perspective is crucial, especially considering that most computer science students will eventually enter the software industry and possibly take on roles like project managers. Despite this, the perspective isn't taught in current curricula. Drawing from my brief industry experience, I advocated for better preparing students by including customer-centricity in their education. Introducing miniscule curriculum elements focused on customer-centricity, perhaps through simulated industry scenarios in one class, could significantly benefit students. Such a shift would ensure they enter the industry with a more comprehensive understanding, better equipped to meet user needs and deliver high-quality software tools.

The second issue I delved into was a Science, Technology, and Society (STS) problem, focusing on the evolution of digital inclusivity for the visually impaired. My research journey involved an exploration of stakeholders involved, technological advancements over time, legislative frameworks, and societal influences. Employing a social framework, I traced the trajectory of progress in this domain. Examining historical movements, legislative developments, the establishment of regulatory bodies, and pivotal court cases, my goal was to find insights about the strategies these groups used to advance their agenda. Among my discoveries, one stood out prominently: the most impactful strategy adopted by advocacy groups in advancing digital accessibility was the establishment and enforcement of laws and regulations. By advocating for and citing these regulations, they effectively set a new standard for acceptable web design, thereby fostering a more inclusive digital environment.

I consider my research a step towards a solution of the general problem. We explored two avenues for instigating change: personal anecdotes and a research problem. While the insights are valuable, further research and practical implementation are essential to fully grasp the scope of a solution. Despite the possibility of my technical proposal, it remains unrefined and unimplemented in any curriculum. To delve deeper into its efficacy, experimental trials are necessary, alongside a thorough assessment of its long-term impact on students. In dissecting my STS problem, it became evident that regulatory measures play a significant role in fostering change. However, my conclusions are preliminary. The landscape of digital accessibility is vast, offering numerous avenues for exploration. Future research for this topic requires a deeper dive into data analysis and the involvement of various social actors to paint a more comprehensive picture.

I would like to thank Professor Wylie and Professor Norton for their expertise and help on my STS research. I would also like to thank Professor Vrugtman for helping me with my technical research.