Seeing Through the User's Eyes: The Vital Perspective for Crafting Exceptional User Experiences

CS4991 Capstone Report, 2023

Jonathan Li
Computer Science
The University of Virginia
School of Engineering and Applied Science
Charlottesville, Virginia USA
Jhl3xn@virginia.edu

ABSTRACT

In software usage, a poor user experience can be profoundly frustrating for customers. For front-end developers, the best approach is to adopt a holistic perspective that puts the developer in the customer's shoes. Effectively prioritizing the customer's needs involves two critical practices. First, developers should directly or indirectly integrate the customer into the development process. Second, developers should be adept at visualizing themselves as the end user. I propose utilizing this more holistic approach to development, because it places the user experience directly in focus, fostering an enhanced mutual understanding between developers and customers. This leads to an improved experience resulting in a win-win scenario. Those interested in this approach may wish to examine utilitarian user experiences driven by functionality versus artistic user experiences which prioritize creativity and uniqueness. Striking the right balance between the two is a crucial area of exploration.

1. INTRODUCTION

The motivation for this topic came from an internship experience as a front-end developer. I was tasked with designing a console for an Amazon Web Service enabling customers to interact with the service. Despite taking classes relating to web design and knowing technical knowledge, I was not adequately prepared for the realities of the work environment.

The main goal of my proposal is to highlight a learning event that changed my perspective of my role as software engineer in the industry. My second goal is to suggest a better way to refine computer science courses to better prepare students for the environment of the front-end software industry.

We have all been there. We visit a website with such a horrible user interface it makes us frustrated. We often think to ourselves: The programmers should have kept the user in mind when developing the user interface. Many developers fail to realize the importance of having an intuitive user interface. After all, the user interface is the face of a software and the user's initial impressions are based on their experiences with the front-end.

2. RELATED WORKS

Throughout my experience as an intern, findings from both Sauvola, et. al. (2015), and Shah (2006) influenced my project. According to Sauvola, current literature surrounding the approach of customer-centric development adopts the idea that feedback loops to customers are slow, and generating feedback in a timely manner is challenging. This concept captures the ongoing dilemma that software companies face. Sauvola proposed that, since the customer feedback loop is slow, companies instead adopt a product-centric development approach, which places decisions more in the hands of the developers. Consequently, the more product-centric, the less the developer understands the reasons behind customer requirements. The challenge is to balance the speed of product delivery with mutual understanding between developers and customers on design.

Shah (2006) encapsulates a more general approach to customer-centric design involving the business as a whole. Instead of focusing on the relationship between development style and customer satisfaction, this research evaluates the company philosophy including leadership commitment and organizational structure. In Shah's analysis, organizational culture has a profound impact on the success of a company in being customer-centric, suggesting that company culture is vital to success.

3. PROPOSED DESIGN

The proposed design encompasses the lessons learned from personal experiences in the software industry and incorporates scenarios where students experience the environment of the software industry in a classroom setting.

3.1 Learning Experience

When tasked to create the console, I wanted to dive immediately into the technical aspects I had learned about architecture, languages, etc. However, unlike school where assignments are graded based on requirement satisfaction, a corporation's goal is to maximize customer satisfaction. Because of this, my proposed design was immediately dismissed by experienced developers. Instead, they suggested an emphasis on designing around customer centricity. This included gathering polls, researching best practices, and conducting research on the target customer.

3.2 Curriculum Change Rationale

The need for a shift in software engineering education is due to a growing disparity between the skills of recent graduates and the expectations of the software industry. One major disparity is the ability of software developers to work effectively with customers.

3.3 Proposed Curriculum Change

The current curriculum places an emphasis on theory, abstract principles, technical ability, and collaboration with other software developers. While effective in fostering the fundamentals, this approach fails to prepare students for the expectations of the software industry. The proposed curriculum enhancement will incorporate case studies and simulations that mimic industry scenarios. This allows students to work on projects that involve ongoing interaction with customers, emphasizing iterative development and adaptation to requirements, while teaching the importance of a customer-centric focus.

3.4 Customer Centricity

The main goal of the design shift is to place an emphasis on customer-centric software engineering. This means introducing students to the importance of understanding and empathizing with end-users. This is done by continually gathering feedback and implementing this feedback into the development process. A simulated customer involvement, either through role-play or partnerships with students of different majors will be integral to the learning process. In order to succeed, students must constantly prioritize the needs of the customer.

3.5 Soft Skills Development

Success in the altered curriculum is dependent on the student's ability to work with a customer. This includes effective communication, teamwork, problem-solving, and collaboration. Some customers can be more difficult to work with than others. It is up to the students to work with them.

3.6 Assessment and Evaluation

Assessment methods will have to be adapted for the new curriculum. Traditional assessment revolves around requirement satisfaction. The new assessment methods will provide customer feedback in addition to the traditional assessment.

4. ANTICIPATED RESULTS

While the proposed process is not yet implemented and evaluated, I anticipate the following results:

4.1 Customer Interaction Experience

The traditional curriculum has accustomed students to anticipate results dependent on requirement satisfaction. However, this is not how the industry works. In the industry, not every project and customer interaction is a success. Rather than placing an emphasis on completion, students get the experience of interacting with stakeholders to work towards a common goal. This is effective in teaching students the importance of customer-centricity when developing software.

4.2 Adoption of Agile Methodologies

The integration of the customer in the decision-making process defaults to an agile methodology over a waterfall methodology. Agile promotes the development of software in small, manageable increments allowing for the integration of customer feedback. This approach teaches adaptability and maintaining effective communication with the customer. Additionally, agile is widely adopted in the software industry. Despite certain classes offering Agile practice, the curriculum change proposes incorporating a customer in the mix.

5. CONCLUSION

During my time at Amazon, I learned the most valuable characteristic any developer can have is to always place the customer's interest first. In the case of front-end development, maintaining the perspective of the customer and incorporating customer feedback throughout the development cycle is vital in ensuring project success.

Currently, my classes fail to emphasize the importance of customer-centric development, instead focusing more on team collaboration, technical coding, and satisfying course requirements. I contend that incorporating an emphasis on customer-centric development practices in software classes can give students a more accurate depiction of the reality of coding in the software industry and better prepare them for full-time employment.

6. FUTURE WORK

While the proposal represents a step toward bridging the academic and corporate environment, additional steps will be needed before full implementation. First, a detailed assessment of the long-term impact of the design change on students' career readiness is essential. This could involve tracking a particular student and collecting feedback as they progress through the initial stages of their career. Second, a fully comprehensive curriculum with the structure of the curriculum change/class would need to be quantified and qualified. It is important that the structure and delivery of such change be kept consistent to serve as a basis for future analysis.

Last, scalability and adaptability should be considered. The software industry is a rapidly evolving sector with changing technologies and methodologies. This curriculum change should react to the adaptations of the software environment. This would involve consistently updating the curriculum when the software industry shifts. Incorporating seasoned software professionals in a diverse spectrum of software environments in the curriculum design is vital. The reinforcement of relevance and applicability of the curriculum need to be evaluated in real-world industry practices. This future work will help refine the proposed design, ensuring it remains responsive to the software industry and impactful to the student's future career.

REFERENCES

T. Sauvola, *et al.,* "Towards Customer-Centric Software Development: A Multiple-Case Study," *2015 41st Euromicro Conference on Software Engineering and Advanced Applications,*

Shah, D., Rust, R. T., Parasuraman, A., Staelin, R., & Day, G. S. (2006). The Path to Customer Centricity. *Journal of Service Research*, *9*(2), 113–124. Retrieved November 2, 2023 from https://doi.org/10.1177/1094670506294666