Thesis Project Portfolio

Satori: A Course Management System

(Technical Report)

Virtual Office Hours In Times Of Need

(STS Research Paper)

An Undergraduate Thesis

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Sociotechnical Synthesis

My technical project and STS research paper are very closely related to each other. Briefly, my technical project is a website used in place of the office hours system being previously used by 'CS 2150: Program & Data Representation' in times of COVID. This was necessary because not only was the previous system slow, but it was also riddled with bugs and was just generally very outdated. During COVID it became clear that the old system needed to be revamped to suit the new needs of the students in CS 2150. My STS research paper is on the purpose and potential benefits that could be seen by using a virtual office hours system as opposed to simply using the regular method of in-person office hours. It is focused on all of the different users of the technology and how their different perspectives can lead to different ideas of how the technology should be used and be designed. The motivation for this research came from the development of Satori for my technical project. During Satori's development (during my third year at UVA), we had a strong focus on making it as accessible to students as possible. I decided to research how a system such as Satori could be made more accessible and put the users first.

CS 2150: Program and Data Representation, currently hosts the third largest number of computer science students at the University of Virginia (393 students in the Spring 2022 semester) but lacks a modern course tool to enhance student's learning experiences. Specifically for office hours where students must enter an outdated online queue in order to be helped by a teaching assistant, this results in long queue times for students waiting for help. This technical report outlines the work done to create a modern web application to better assist with students seeking help with the course work. The web application was written using the Django framework and hosts a multitude of features that allows for less waiting for the students and less stress for

the Teaching Assistants who lead office hours. The current web application has proven useful for handling the workload of CS 2150.

The research in my STS research paper is regarding both the efficacy of different styles of office hours (in-person and virtual) and how they should be optimized to suit the needs of the students coming in for help. Something which I investigated for the research is how efficient different delivery methods of office hours can be. Some examples being video, audio, and text-based office hours in the case of virtual office hours. The goal was to gain a better understanding of the office hour users and how the system could be improved to suit them regardless of mental or physical ability. By improving the experience of the office hour users there should be an increase in attendance and in turn student grades. There are three main topics regarding office hours and virtual office hours which I focused on for my research: The correlation between students' grades and their attendance in office hours, the benefits that can be seen from using a virtual delivery method of office hours, and the different ways in which the online format could be improved for the user.

I did my technical project during my third year of school at UVA and I did my STS research paper in my fourth year. Having created a website to host the students in the office hours which I was TAing for helped to give me an idea of how students were acclimating to the new system and gave me a look into their different perspectives. By being around so many different people using the system I was able to get an idea for the importance of developing something which is highly generalizable and accessible to anyone that wants to make use of it. Seeing the development of Satori from the ground up helped inspire my research to focus a bit more on how different development methods can result in a more thorough understanding of the

users that the technology is being built for and as a result, yield something much more accessible to those users.