Sociotechnical Synthesis

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On my honor as a University Student, I have neither given nor received
unauthorized aid on this assignment as defined by the Honor Guidelines
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Moral distress is a major problem facing healthcare professionals around the world, and it has only been exacerbated by the pandemic. This portfolio documents two research projects that aim to better understand and treat the psychological phenomenon of moral distress in nurses. The science, technology, and society (STS) research project addresses how a mobile application can act as an effective method of intervention for moral distress in nurses. The technical research project is focused on the development, implementation, and testing of a mobile application for moral distress intervention among nurses in the University of Virginia (UVA) Health System. Both projects require a complete understanding of moral distress and the factors contributing to the problem. The two projects have a mutualistic relationship, where each project helps improve the other. Not only does the development of a mobile application act as a case study to better answer the STS research question, but the information found through the STS research project will likely be applied to the application in order to improve its effectiveness in reducing moral distress.

Healthcare professionals have repeatedly identified moral distress as a serious problem requiring urgent attention yet are still met with a lack of adequate solutions (Pauly et al., 2012). The consequences of untreated moral distress among nurses include greater negative perception of provided patient care, increased danger to patients, and, eventually, burnout (Henrich et al., 2017). Moral distress intervention mobile applications are one method of quickly reporting moral distress, however little research has been conducted to determine the effectiveness of this method. In order to evaluate how mobile applications can incite the institutional change necessary for treatment of moral distress, the following research question must be addressed: how is a mobile application an effective solution for moral distress intervention for nurses?

When considering the complex institutional problems at the root of moral distress cases, it is evident that there are many stakeholders and artifacts involved. Actor Network Theory (ANT) will be utilized to understand how these stakeholders interact with one another to better understand the problem. Due to the complexity of the networks involved in moral distress in a healthcare environment, it is expected to be found that although a mobile application cannot single handedly solve moral distress, it can streamline the intervention process by presenting the problem to the experts qualified to fix it. Utilizing ANT to analyze moral distress within nurses will provide the STS community with an increased understanding of the organization behind healthcare systems, allowing researchers to assess solutions to healthcare problems like moral distress.

The technical project will focus on the software development of a mobile application. Moral distress is notorious for having a lack of support services, which is why this application will be targeted toward helping solve ethical dilemmas and the associated problems (Epstein & Delgado, 2010). This application will serve as a point of contact between nurses and higher-level hospital staff, as well as provide real time strategies to alleviate problems associated with moral distress. More specifically, the application will streamline moral distress reports to the Moral Distress Consult Service (MDCS) at UVA, where healthcare professionals trained in moral distress intervention can decide the best course of action to solve the problem. Reports through the application will provide nurses with a level of anonymity that is currently impossible with the current method of reporting. In a world built around communication, speaking out about mental health often creates a negative portrayal of the speaker to their peers (Stuart, 2006). The anonymity that is supported through the application will help to increase the number of reports and ensure a healthy workplace environment. This technical project, and the communication

with nursing staff required to complete it, will provide the research community with an increased understanding of what causes moral distress and how a mobile application can make intervention more effective.

The process of completing the two research projects of this portfolio alongside one another provided many important insights. Conducting research about how mobile applications can be an effective intervention strategy at the same time as developing such an application demonstrated the importance of fully understanding a problem before trying to solve it. Through the development process of the technical project, many alterations were made to the application when the STS research process gave insight as to how an application can be most successful. Having research to support the implementation of a mobile application helped the team ensure that the application can be more than a technological fix and has the potential to incite institutional change if implemented correctly. Additionally, through the technical process many ethical and regulation standards had to be examined and understood in order to develop the application. The STS research provided an opportunity to examine those standards and question whether they are practical and ethical. Overall, working on the two research projects simultaneously highlighted the necessity of having a complete understanding of a problem when aiming to solve it, and that it is the obligation of engineers to consider how their technology can be developed in the most ethical manner.

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