

**An Interdisciplinary Approach to Sports Analytics in a University Setting**  
(Technical Report)

**A Care Ethics Analysis of Prescription Medication System Design**  
(STS Research Paper)

An Undergraduate Thesis Portfolio

Presented to the Faculty of the  
School of Engineering and Applied Science  
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Bachelor of Science in Systems Engineering

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## **Table of Contents**

Socio-technical Synthesis

An Interdisciplinary Approach to Sports Analytics in a University Setting

A Care Ethics Analysis of Prescription Medication System Design

Prospectus

Jacqueline Hoegel

April 24, 2020

STS 4600

### Socio-technical Synthesis: Sports Analytics and Displaying Care through Design

The technical work and STS research that I completed addressed aspects of a socio-technical challenge to support the “great and good” initiatives as defined by President Ryan in the 2030 University of Virginia’s strategic plan. By developing design alternatives for a pan-university sports analytics center that adheres to the strategic plan, we can identify ways to collaborate and share research insights across departments, engage with the surrounding community, and help students participate in meaningful learning opportunities. By engaging in pure research focused on how to use design to serve consumers of technology, I can better understand how the design of technology, centers, and educational projects can either serve or hinder a stakeholder’s access to the strategic goals that President Ryan promotes.

I began a systems analysis in my technical project to better understand the complex nature of the networks and collaborations between schools and institutes at the university. This allowed me to determine the goals of the pan-university center, the values different stakeholders hold, as well as indices of performance, to quantify the success of achieving the goals identified in my analysis. From there my team developed the physical, educational/institutional, research, athletic, and outreach dimensions that are the core components of the pan-university center design. I then ranked the design alternatives for a center and developed a final recommendation to present to university leadership. My pure STS research focused on two different prescription medication label designs, Clear Rx and ScriptPath, that CVS used over the past few years. Applying the care ethics framework, I evaluated CVS’s decision to discontinue Clear Rx and

transition to ScriptPath by looking at the design principles used to curate the information on each label. From there I worked to identify if one label design demonstrated a more responsible and competent understanding of the care CVS patients need through the implemented design choices.

Although my technical and STS projects were not strongly related, it was helpful to work on them concurrently because as I researched prescription medication label designs, I began to discover how designers of all technology can either demonstrate care or hinder it through the choices they make. I found choices in design could measure the care a designer demonstrated in terms of attentiveness, responsiveness responsibility, competence in understanding a user's needs. This discovery directly applied to my project and prompted me to think more about the users and non-users of the pan-university center whom my team could significantly impact with our design recommendation. It also led the team to conduct more interviews with stakeholders across the university to better understand how to best serve the needs of those involved.

Finally, by working on these projects together, I recognized that it is important to consistently make design choices that are in the best interest of the end-user. In the case study of the two prescription medication labels, one consistently executed design principles more responsibly than the other, but CVS kept the lesser design because it was more cost-efficient. Reflecting on our project, it would be easier to recommend establishing the center in only one school to straightforwardly define ownership of the center. This, however, could make it harder for one of the stakeholders, the students, to have access to the material and projects designed for them, especially if they did not belong to that school. This class and paper taught me that even if it requires more thought and strategic work, thinking about the social implications of our designs can have resounding effects in making sure my team's final designs for an inclusive center does, in fact, welcome diverse and dynamic collaboration that support UVA's strategic goals.