

**Increasing Engagement in eHealth Interventions Using Personalization and
Implementation Intentions**
(Technical Report)

A Care Ethics Analysis of the Architecture of the TikTok Application
(STS Research Paper)

An Undergraduate Thesis Portfolio

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By

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Socio-technical Synthesis: Application design of TikTok and MindTrails

My technical work and STS research are connected through revolving around mobile applications (apps) and their user experience and interface design. User experience and interface design involves consideration of the potential users of applications and responsibly designing the app for them. Responsible design is central to both of my projects but the projects differ in how responsible design is executed. In my technical work, my team and I used responsible practices when designing a prototype interface. In my research, I considered an application and its design and how it impacted users. Despite considering responsible application design differently in each, the overarching theme was present across both works.

My technical work revolves around MindTrails, an online e-health intervention program created at the University of Virginia. The program aims to help those suffering from anxiety by lessening the effects through cognitive bias modification for interpretation (CBM-I) interventions. CBM-I aims to reframe the thinking patterns of users as they respond to stressors. My capstone team designed a prototype for a new mobile interface that engages users with a journal to record implementation intentions and goals. Users also have the ability to choose the domain of anxiety (e.g. relationships or health) that they would like to work on. Our goal in this design was to increase user engagement and decrease attrition rates within the MindTrails program, which MindTrails and many other eHealth technologies currently face. The personalized scenarios and implementation intentions will both be further tested in future iterations of the MindTrails Project to determine their effectiveness as a treatment option and whether they increase engagement with the intervention, measured by a reduction in attrition.

My STS research focuses on responsible design in applications, using TikTok as an example and exploring its design. My research explores the architecture and design of the popular short video sharing platform and the adverse effects it has on its users. The application's algorithm is able to learn users interests and preferences in regard to content type and uses that information to provide an endless stream of videos, keeping the user on the app for hours at a time. My claim is that the creators of TikTok did not follow the rules of responsible design by intentionally creating an application that is inherently addictive in order to further their success. My paper explores the morality of the creators based on TikTok's design so that we can discern what other applications have gone too far. The goal of my research is to bring to light the responsibilities and care application creators owe to their users in an increasingly technological world.

Working on these two projects simultaneously allowed me to understand both areas more than I would have if I had worked on them separately, which added great value to the end products. My technical work allowed me to understand the thought process behind application designers and the work and considerations that go into a design. This allowed me to understand designers more. My STS research enabled me to better understand responsible and user-focused design rather than putting my own goals into the design, which led to a better final prototype design for the MindTrails application. Overall, working on both my technical and STS research project this past year has allowed me to gain a deeper understanding of application design and produce better quality work that will positively impact future application users.

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