Sociotechnical Synthesis

Millions of people keep their eyes glued to phones and other devices all throughout the day. With the user experience of modern applications in social and entertainment media, it comes as no surprise that this is the case. With the incentive of raising use, support, and success, developers have made applications which provide users with an enjoyable and desirable experience. Consequentially, we find that some users elicit healthy joy and pleasure in this, while others can become more obsessive. This is a significant dichotomy, and it begs the question of how digital applications can be made as well and as enjoyable as possible to use, without encouraging problematic use patterns that many users could come to have. At the heart of this lies the digital well-being of users with their devices. Additionally, the solution to this problem holds promise towards making the most of app development through maximizing the joy, productivity, and the many other benefits of advancing digital applications and software.

In my Technical Capstone work, I adapted deterministic random Perlin noise for a new way of performing terrain generation. Perlin noise is an algorithm for deterministically generating realistic random noise to generate 2D planes. This kind of software system is useful for the generation of artwork in media and is most predominantly used in the open-world gaming industry. Through the development of my system, I was able to determine that Perlin noise can be adapted and customized better through the use of layered sub-terrains generated in parallel. This gives digital artists and creators of open-world video games depth to the creativity in world and landscape building that they can do. As a result, games and art can be more immersive, and have a more enjoyable user experience. In relation, my STS research studies examples of designs and emphasizes varying human usage patterns in response. Sometimes, designs can initiate productive and attentive usage, and other times, designs can cause a distractive experience. My technical work conforms to the former (in its intended use case), because of how it is purely immersive – only focusing on creating an authentic experience for its users. It does not grab the cognitive attention of the user, thus avoiding being a distractive software. Furthermore, according to psychological and cognitive science, interacting with it has no intermittent dopamine release schedule, and will not draw users back to it in a manner reflective of problematic use patterns.

Despite the harmless nature of my own technical work, there remains a deep level of complexity in experience across the breadth of digital technologies. As well as individual tendencies towards the usage of potentially addictive digital applications. Experience and usage patterns that users have can only be captured in case-by-case psychological analysis. It is evident in the great number of ways that people turn to their devices for entertainment, and creating an assessment and a recovery plan for people who may be addicted needs to be handled with serious care. My STS research acknowledges this and states that it cannot capture the entire breadth of patterns leading to problematic usage without becoming so nebulous that it is useless. When it comes to designing good applications that are enjoyable to use, there is always a potentiality for some users to become constantly distracted by their desires to use the application. For this reason, both design and user intentionality are essential factors is having a healthy usage pattern with digital software.

It is somewhat inevitable that people will experience unique and potentially problematic usage and attention with their digital devices. Nevertheless, my research successfully identifies some patterns and consequences of many modern entertainment and digital applications. An area for further study would be in creating a unified assessment of individual user experiences with addictive technologies obtained by larger-scale interviewing. In my research, I attempted to do this to some extent, but it was not to the level, scale, or depth necessary for compiling enough information. Regardless, I believe that my work justifies a change in improved intentionality towards user support in its design, better transparency from developers, and a greater urgency to the problem of digital addictions.

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