Reading Summary

Course: CEN4721 Human-Computer Interaction

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Reading: User-Defined Gestures for Surface Computing

The author challenged the traditional input, such as using the keyboard, for surface computing. They argued that surface computing input needs to be user-centered to maximize human motion for meaningful human-computer dialogue (Wobbrock et al., 2009). However, user-centered surface computing requires designers to have a deep understanding of human gestures. To better learn the complex and unpredictable nature of human gestures, the authors employed a "guessability study methodology that presents the effects of gestures to participants and elicits the causes meant to involve them (Wobbrock et al., 2009)", which can be use for future surface computing design.

The methodology used by the authors consisted of a think-aloud protocol and video analysis for user mental model construction, and a custom software for data collection and performance measurement. Through this methodology, the authors were able to characterizes the user-defined surface gestures using taxonomy and a user-defined gesture set over 1080 gestures. Additionally, the methodology allows insight to users' mental state and a general understanding of implications for surface computing and user-centered design (Wobbrock et al., 2009).

This report did an incredible job of generalizing behavior and allowing for non-bias input. It collected data from a balanced set of individuals, and prioritized user response over a set of predetermined responses. However, this open ended study has some significant limitations. First, any specific application of gesture-based tasks will only use a subset of the results from this report, which will dramatically reduce the confidence in the conclusion that one gesture is better than another. Second, any application developed for tech-saavy user will not be representative of this data, as the participants of this study were non-tech-saavy. Finally, for implementing a new service into an existing system, the results of this study may be too different to pose any value to system designers who need to understand which gestures are the most popular and favored.

Despite the limitations of the study, the methodology used opened a door for future studies and applications that prioritize user feedback and preference over predetermined

protocol. Open response studies make for innovative discoveries and grant designers the opportunity to see how users want things to be done rather than how they are required to get tasks done. The paper concluded best, it "brings interactive surfaces closer to the hands and minds of tabletop users."

Reference:

Wobbrock, J. O., Morris, M. R., & Wilson, A. D. (2009). User-defined gestures for surface computing. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. https://doi.org/10.1145/1518701.1518866