

Help Kiosk

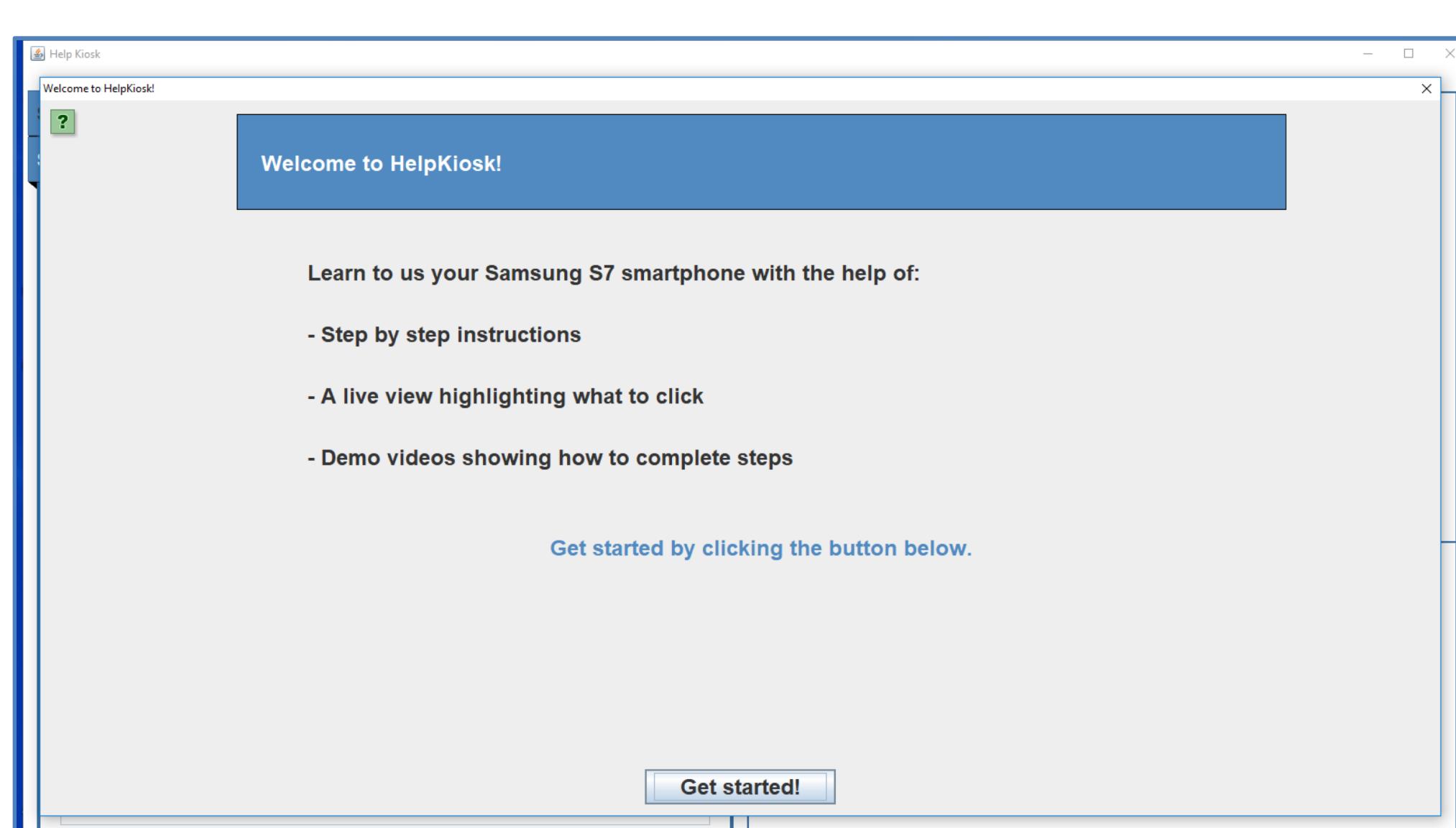
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Abstract

Our work explores the use of a large display to temporarily augment a small phone display to support older adults' smart phone learning episodes. We designed and implemented a learning system called Help Kiosk (HK) which contains unique features to scaffold the smart phone learning process for older adults. We conducted a study with 16 older adults (55+), comparing it to the paper manual. While there was no significant difference in task completion times relative to the manual, we found Help Kiosk gave participants increased confidence in their tasks, and helped minimize attention switching between the instructions and their phone.

Help Kiosk interface

L to R: splash screen; home screen where users select a task; instruction screen with highlighting, Live View and Demo video.



Experiment

2 x 2 Mixed design: 2 learning systems (within subjects: Manual, HK) x 2 task groups (within subjects: A, B). The participants each conducted one of the two task groups (A or B) with Help Kiosk and the other with the manual (properly counterbalanced).

Box plot analysis for each command comparing the time data for both Help Kiosk and Manual

Our quantitative result for performance time measure on each task group comparing between the two systems.

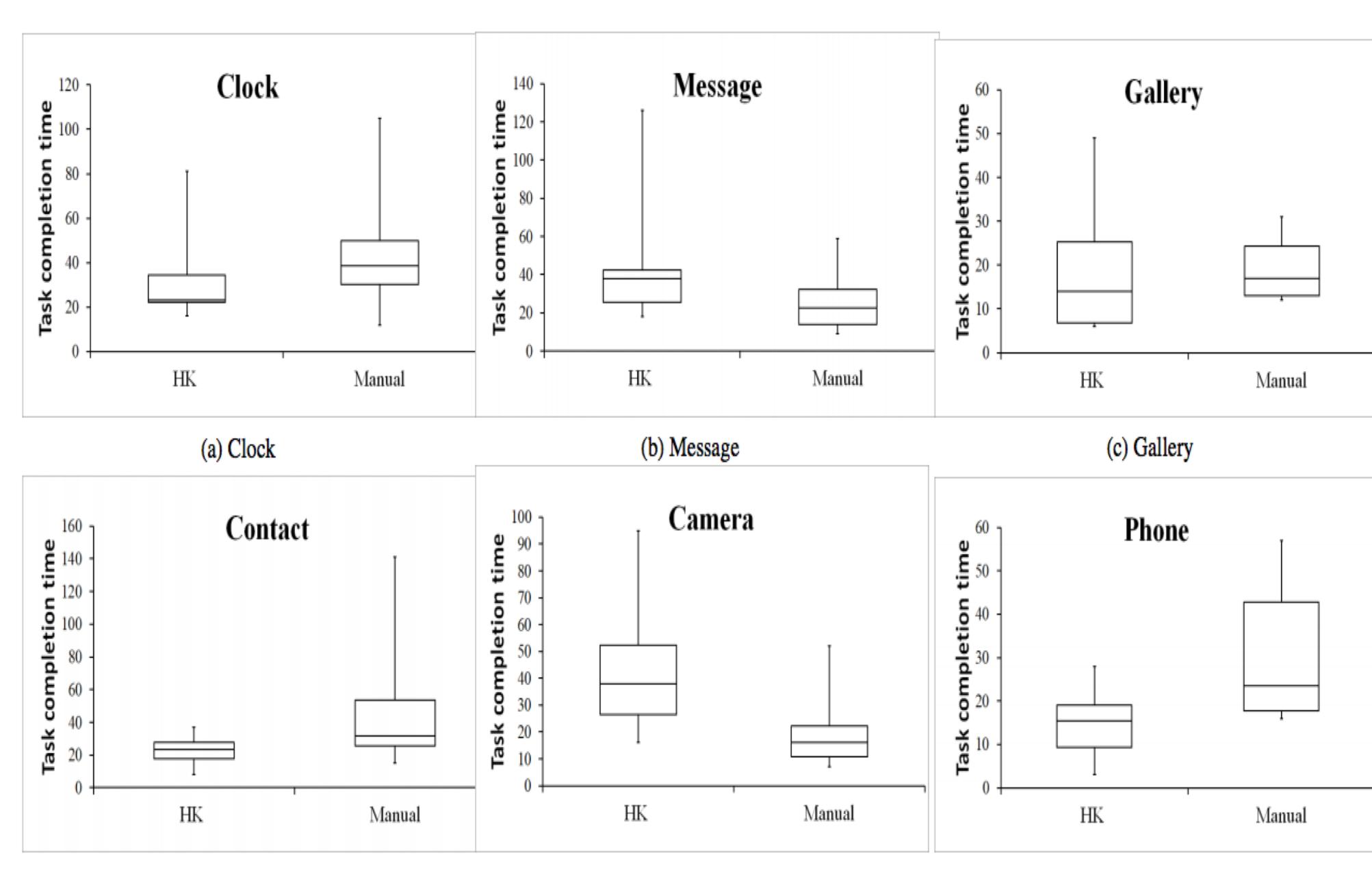


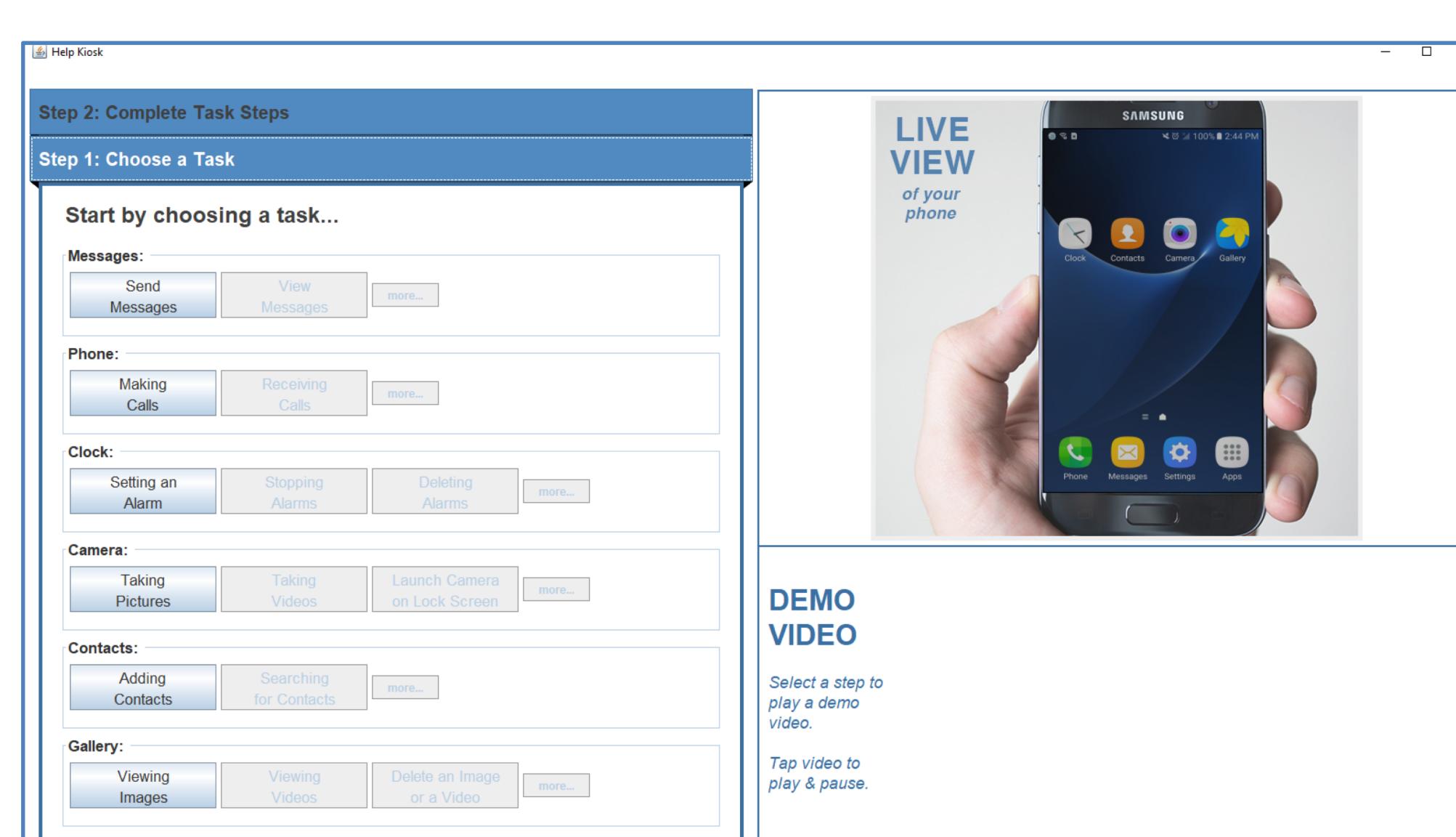
Figure 3. Box plot analysis for each command comparing the time data for both HK and manual systems

Introduction

Older adults have difficulty using and learning to use smart phones, in part because the displays are too small to provide effective interactive help. Due to these challenges, older adults have lower adoption rates for smart phone devices [1]. Based on a survey of learning methods for older adults, Leung et al. found that the instruction manual explaining task steps is the preferred learning method for older adults [2]. This is because manuals support their independent learning and reduce their default learning methods of relying on closed family members and friends.

Help Kiosk Design

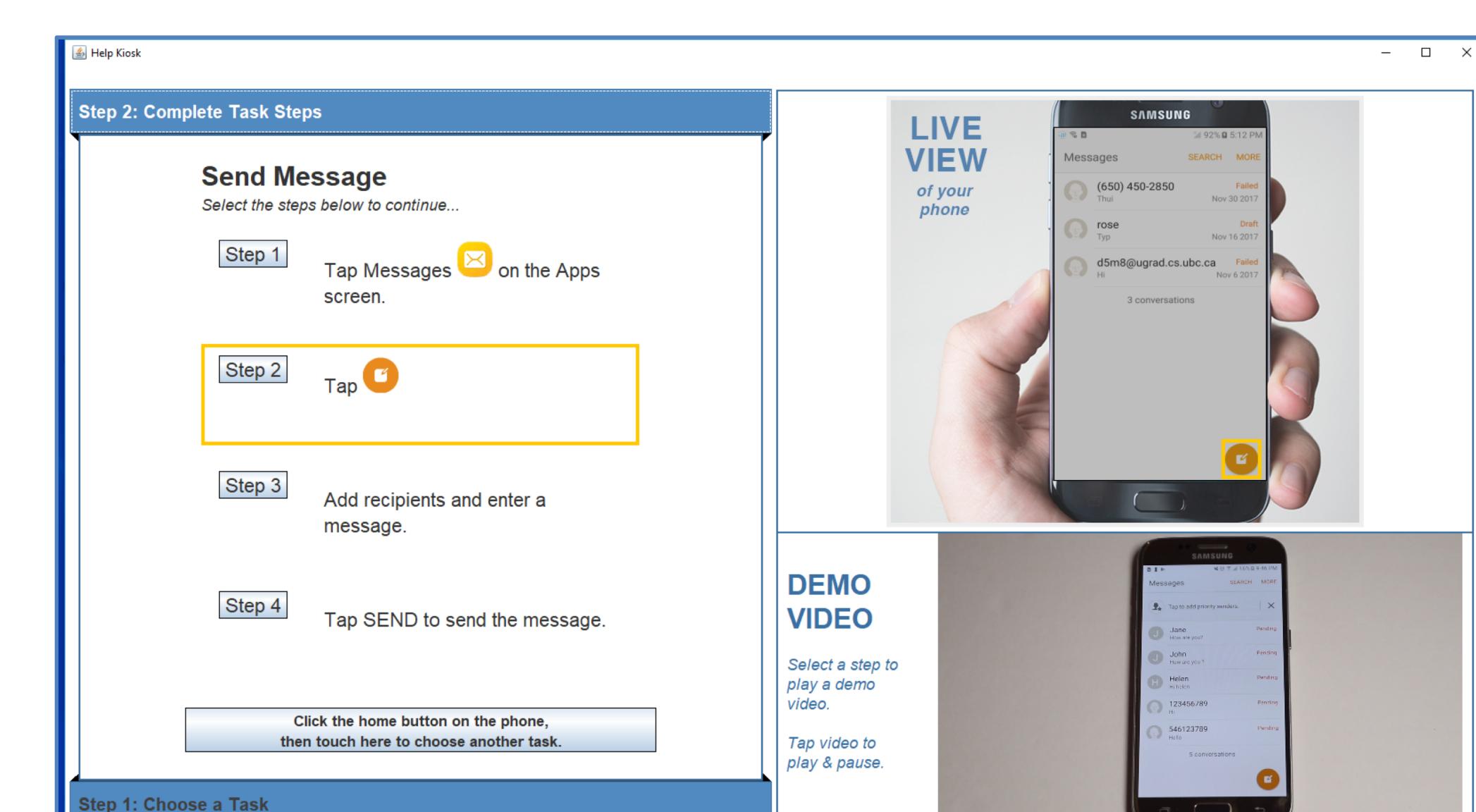
Based on the survey of learning methods for older adults, Leung et al. proposed an approach of augmenting a smart phone's small display with a larger display, such as desktop touch monitor screen, to provide temporary additional screen during learning sessions [2]. The system is based on the concept of an interactive instruction manual with additional supportive scaffolding [3].



Design Principles

We followed four design principles, building upon the previous prototype and existing guidelines:

- Support Self-directed Learning
- Utilize Real-time Device State to Personalized Experience
- Provide both Generic and Specific Instructions
- Minimize Demands on Working Memory



Results

Our qualitative analysis revealed the following:

- HK better supports self-directed learning
- Paper manual is more comfortable
- HK requires less attention switching
- Manual may better support incidental learning
- Desire for advanced task support in HK

Our quantitative results showed no significant difference in time to execute tasks using HK or the manual.

References

1. Michele A. Washington. 2015. *Gathering the Requirements for a Mobile Device Tutorial for Older Adults*. PhD. Dissertation. College of Engineering and Computing, Nova Southeastern University, Fort Lauderdale, FL.
2. Rock Leung, Charlotte Tang, Shathel Haddad, Joanna McGrenere, Peter Graf, and Vilia Ingriany. 2012. How older adults learn to use mobile devices: Survey and field investigations. *ACM Transactions on Accessible Computing (TACCESS)* 4, 3 (2012), 11.
3. Rock Anthony Leung. 2011. *Improving the learnability of mobile devices for older adults*. Ph.D. Dissertation. University of British Columbia.

Conclusion

We found Help Kiosk successfully achieved its design principles to support personalized and self-directed learning. Most importantly, it has feedback system that gives users the confidence that they were doing the task steps correctly. With Help Kiosk, participants found less attention switching compares to the manual; on the other hand, they found paper manual to be more comfortable. Most participants expressed a strong desire to see more advanced tasks supported by Help Kiosk.

We concluded that Help Kiosk shows promise as a system to help older adults learn to use mobile phones, which may lead to increased device adoption and benefit their daily lives.

Acknowledgement

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