

Development of the Augmented Reality Home Assessment Tool (ARHAT): A Qualitative Descriptive Study

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PURPOSE: Home assessments are necessary for older adults who want to age in place safely (Davis, 2021). Yet, many older adults, especially those living in rural areas, do not have access to occupational therapists or other qualified professionals to receive a home assessment. Therefore, the purpose of this study is to develop and validate a novel augmented reality home assessment tool (ARHAT) that can be performed asynchronously and remotely as a mobile-based application.

DESIGN: A qualitative descriptive study (Kim et al., 2017) was conducted and guided by the two distinct frameworks: the Housing Enabler (Iwarsson & Slaug, 2001), and the 2010 Americans with Disabilities Act Standards for Accessible Design (2010 ADA Standards for Accessible Design, 2010).

METHOD: Data collection occurred with key stakeholders from across the United States. Five, 60-minute focus groups were conducted with occupational therapists (n=5), housing professionals (n=3), and aging adults and caregivers (n=11). Focus groups were conducted via a secure Zoom platform and open-ended questions were used to guide each of the five focus groups. In-depth feedback was provided in focus groups with respect to benefits, limitations, barriers and facilitators for ARHAT. Thematic analysis of focus group data was completed using NVivo 12 Pro.

RESULTS: The stakeholders' ages ranged from 18 to 85+ and were predominantly female (68%) and White (89%). Variability existed in the amount of education achieved and location of residence, with the majority (94%) attending some college and the majority living in the Midwest. Stakeholders described four central themes to enable optimal home assessments: workflow, style, measurement tools, and impact. Regarding workflow, stakeholders confirmed that the guided measurement and process within ARHAT was not overwhelming. As for style, stakeholders enjoyed the use of color with contrast throughout ARHAT rather than the black and white option, and suggested the use of a non-bolded larger font size. Stakeholders shared suggestions for the use of measurement tools within ARHAT, including the need to add more prompts and how-to instructions through demonstration videos. By incorporating these suggestions, stakeholders stated that all measurement tools could be used more precisely, and that the data collected via these tools would be valuable to share with qualified home assessment professionals to guide necessary modifications. Lastly, stakeholders expressed thoughts on the potential impact of ARHAT, namely, the mobile-based application could be 'seen at so many levels, 'used by any population', and would 'allow aging adults to do some forward planning'.

CONCLUSION: Stakeholder perspectives shed light on how to revise ARHAT and make this application more user-friendly across all populations. Information gleaned from this study may help researchers to adapt other home assessments to include augmented reality. Findings may also help occupational therapists and other qualified professionals understand the impact and potential reach of technology-based home assessments when utilized in their practice. These implications for research and practice will help close the gap in supporting older adults who want to age in place safely, especially those living in rural areas.

References

- Davis, M. R. (2021). New AARP Survey Reveals Older Adults Want to Age in Place. AARP. Retrieved May 20, 2022, from <https://www.aarp.org/home-family/your-home/info-2021/home-and-community-preferences-survey.html>
- Iwarsson, S., & Slaug, B. (2001). The Housing Enabler. an instrument for assessing and analysing accessibility problems in housing. The Housing Enabler. An Instrument for Assessing and Analysing Accessibility Problems in Housing. | Lund University. Retrieved from <https://www.lunduniversity.lu.se/lup/publication/24d71ea6-e1b3-4cf2-a3cb-f18928735c93>
- Kim, H., Sefcik, J. S., & Bradway, C. (2017). Characteristics of Qualitative Descriptive Studies: A Systematic Review. *Research in nursing & health*, 40(1), 23–42. <https://doi.org/10.1002/nur.21768>
- 2010 ADA Standards for Accessible Design. (2010). Retrieved May 20, 2022, from <https://www.ada.gov/regs2010/2010ADASTandards/2010ADASTandards.htm>