Advancing Digital Health Equity Through Co-Design: The GAMAMM Serious Game for Powered Mobility Device Users Desgroseilliers J, Archambault P, Plante P, Auger C, Savard I, Mortenson WB, Routhier F, Angulo-Mendoza GA, Koch E, Roussel N, Simard A, Henry H, Gilbert MA, Richard C, Gosselin L, Latulippe K. *Gerontechnology* 25(s)

Purpose Out-of-home mobility supports social participation, reduces depression risk, and improves quality of life [1]. Over 150,000 Canadians, mostly aged 65+, use powered mobility devices (PMDs) [1]. Accident rates range from 0.2 to 15 incidents per user per year, highlighting the need for PMD-specific safety training. Serious games offer improved engagement and learning, but may exclude users due to accessibility or digital literacy barriers. The GAMAMM project aims to co-design an inclusive, accessible serious game supporting learning for diverse PMD users [2, 3]. **Method** The co-design process resulted in a free, web-based serious game aimed at reducing installation and access barriers for users with varying levels of digital literacy. Three access modes—magic link, guest mode, and password login—were implemented to facilitate seamless entry. A guiding avatar ("Julie") provides visual and audio cues to support comprehension, navigation, and task progression. Personalization questions at the beginning of the game (e.g., PMD type, control mode, and environment) reflect real-world variability in PMD use. Interface elements and icons were designed to promote intuitive interaction. Implicit feedback (e.g., collision or rebound sounds) and explicit feedback (avatar prompts) were incorporated to reinforce learning and sustain engagement. This work is based on prior research demonstrating the usability and training potential of simulation-based approaches for powered mobility device users [4]. **Results** Providing free web-based access removes installation barriers and increases accessibility for users with varying levels of digital literacy. Three access modes (magic link, guest mode, password login) facilitate seamless entry. The avatar *Julie* guides players with visual and audio cues, supporting comprehension and navigation. Personalization questions at the start of the game (e.g., PMD type, control mode, environment) reflect real-world variability. Icons, interface elements, and interaction cues were designed to promote intuitive interaction. Implicit feedback (collision or rebound sounds) and explicit feedback (avatar prompts) help reinforce learning and sustain engagement. **Discussion:** Based on completed co-design and early usability phases, this work illustrates how participatory design can support digital health equity by addressing accessibility, usability, and digital literacy challenges among older PMD users. The use of a web-based platform and multiple access modes reduces technological barriers, while personalization and multimodal guidance accommodate diverse user abilities and contexts. Design choices focusing on usability, accessibility, and personalization are known to influence technology acceptance, particularly among older adults [5]. By integrating universal learning principles and accessibility standards for older adults, the GAMAMM serious game demonstrates the potential of participatory design approaches to create inclusive digital training tools that promote safe mobility and social participation.

References

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