Videogaming for wayfinding skills in children who are blind

J Sánchez[1], M Espinoza[1], J M Garrido[2]

[1]Department of Computer Science, University of Chile,
Blanco Encalada 2120, Santiago, CHILE

[1,2]Center for Advanced Research in Education (CARE), University of Chile
Periodista José Carrasco Tapia 75, Santiago, CHILE

[2]Faculty of Education, Pontifical Catholic University of Valparaíso,
El Bosque 1290, Viña del Mar, CHILE

jsanchez@dcc.uchile.cl, maespino@dcc.uchile.cl, jgarrido@ucv.cl

[1]*www.dcc.uchile.cl,* [2]*www.ucv.cl*

ABSTRACT

There are several problems faced by people who are blind when navigating through unfamiliar spaces, and especially open spaces. One way to mitigate these problems is by getting to know the spaces prior to actual navigation, through the use of virtual environments represented through audio and haptic interfaces. In exploring the possibilities for further improving navigation through such spaces; it was especially interesting to study the option of simulating the real body movement of a learner who is n during his interaction with a virtual environment. To achieve this the design, implementation and impact evaluation of an audio and haptic-based videogame called MovaWii is proposed, in which a real physical space is represented virtually, where learners who are blind interact through their own body movements and use of the Wiimote controllers of the Nintendo Wii console in order to navigate through unknown virtual spaces. The results demonstrated a videogame that allows for the development of orientation and mobility skills in learners who are blind, as it serves as a supporting tool for the construction of a mental map of the virtual space navigated through the integration of its audio and haptic components. In addition, learners could transfer the information obtained from virtual to the real world physical space, through which they were then able to navigate autonomously and efficiently.