

Chapter 4

Rapid Game Development Using LiveCode in SEN and DHH Education

Gwendoline Laurissa Chan
University of Mauritius, Mauritius

Jack Whitehead
University of Cumbria, UK

ABSTRACT

For over 30 years, literacy has been recognized as a key concern in Special Education Needs (SEN) and especially in Deaf and Hard of Hearing (DHH) education. No different in Mauritius, these children struggle to get passing marks in French language at elementary level. Addressing this concern, literature has been reviewed in the context of games for SEN and DHH education. Taking advantage of the potential of gamification, simple letter games have been developed using LiveCode. The games were administered to a sample of 14 SEN and DHH elementary students using the underlying action research theoretical framework. To assess the effectiveness of the games, the students' level of motivation after using the games was measured using the Instructional Materials Motivation Survey (IMMS) based on Keller's (2010) ARCS motivation model. The results demonstrated the potential of using LiveCode to develop timely serious games to support SEN and DHH students' literacy skills.

DOI: 10.4018/978-1-6684-4940-0.ch004

INTRODUCTION

For over 30 years, literacy has been recognized as a key concern in Special Education Needs (SEN) and especially in Deaf and Hard of Hearing (DHH) education. No different in Mauritius, around 25% of children with disability are categorized as severe to profound, and these children struggle to get passing marks in French language at elementary level. The latter subject being a prerequisite to passing the Primary School Achievement Certificate (PSAC) assessment classified as the first level on the National Qualification Framework. Addressing this concern, literature has been reviewed in the context of games for SEN and specially DHH education. Serious games have proved to benefit children with special needs, increasing their motivation level and supporting their literacy skills at the same time. Taking advantage of the potential of gamification in SEN and DHH education, simple letter games have been developed using LiveCode, a cross-platform development tool. This authoring tool allowed for the rapid design and development of the games' prototype for evaluation and testing purposes before the final deployment of the software. The games were administered to a sample of 14 SEN and DHH elementary students using the underlying action research theoretical framework. While the rapid game development stages meet those of the outlining phases of action research, the latter framework served as basis for the methodologies and evaluation protocols employed in this project. To assess the effectiveness of the games, the students' level of motivation after using the games was measured using the Instructional Materials Motivation Survey (IMMS) based on Keller's (2010) ARCS motivation model.

The following sections give an overview of literature, a brief description of the methodology employed and describe each stage of the game development; from gathering users' requirements to prototyping, testing and deployment of the games.

BACKGROUND

Special Educational Needs (SEN) refer to learners with learning, developmental, and physical disabilities; communication, emotional, and behavioral disorders; and learning deficiencies (Bryant et al., 2019). In Mauritius, around 25% of children with disability are categorized as severe to profound, and those children normally attend SEN schools because they need resource assistance or require direct attention from Special Needs teachers (Ministry of Education Tertiary Education Science and Technology, 2017). A sub-category of SEN includes Deaf and Hard of Hearing (DHH) children. The delayed exposure to a first language in DHH children affects language acquisition and the development of a second one (Humphries et al., 2014; Mayberry, 2007).

20 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/rapid-game-development-using-livecode-in-sen-and-dhh-education/327063

Related Content

ICTs for Orientation and Mobility for Blind People: A State of the Art

Pablo Revuelta Sanz, Belén Ruiz Mezcuand José M. Sánchez Pena (2018). *Wearable Technologies: Concepts, Methodologies, Tools, and Applications* (pp. 1177-1203).

www.irma-international.org/chapter/icts-for-orientation-and-mobility-for-blind-people/202007

The Effects of Instagram Hashtags on Social Capital and Online Civic Engagement

Eun Jeong Lee (2017). *International Journal of Interactive Communication Systems and Technologies* (pp. 48-58).

www.irma-international.org/article/the-effects-of-instagram-hashtags-on-social-capital-and-online-civic-engagement/203599

Time and Timing in Cross-Media Production: A Case Study from Norwegian Television

Roel Puijk (2007). *Interactive Digital Television: Technologies and Applications* (pp. 262-280).

www.irma-international.org/chapter/time-timing-cross-media-production/24518

A Robust Interactive Narrative Framework for Edutainment

Samiullah Parachaand Osamu Yoshie (2012). *International Journal of Interactive Communication Systems and Technologies* (pp. 18-35).

www.irma-international.org/article/robust-interactive-narrative-framework-edutainment/68808

A Top-Down Framework for Modeling Routing Design Complexity

Xin Sun (2015). *Handbook of Research on Redesigning the Future of Internet Architectures* (pp. 214-236).

www.irma-international.org/chapter/a-top-down-framework-for-modeling-routing-design-complexity/131367