PEDAGOGY AND VIDEOGAMES: THE SERIOUS GAMES AGE

Francisco Ramos, Ignacio Miralles, Clara Andrés-Roqueta

Universitat Jaume I of Castellon (SPAIN)

Abstract

Nowadays, people reacts differently to the term, word or concept game just depending on whether the played, or not, videogames while growing up. There basically exists a strong generational gap between children exposed to videogames all their lives long, children who have grown up from the eighties until the present, and the rest.

In general, we can define a game as a physical or mental contest, played according to specific rules, with the objective of amusing and/or rewarding the participants. Specifically, the term videogame is usually defined as a game played against, or with, an electronic device such as a computer or mobile phone. In this context, we are enabled to define the concept of serious game: a mental contest, played with a computer according to specific rules that uses entertainment to improve education, training, government, health or public policy, i.e., applying games and simulations technology to non-entertainment environments results in serious games.

Thus, when designing a game, the development team blends story, art and software into a finished product. The design team creates the story, which provides the entertainment component of the game, the art team works on the look and feel and the developers team implements the story requirements by coding the user interface features, connectivity and all the programming work required.

However, serious games require more than story, art and software, they involve pedagogy: activities that educate or instruct, thereby imparting knowledge or skill. This addition features serious games. However, pedagogy must be subordinate to story, we must take into account that entertainment is a priority. Once it has worked out, we can follow with pedagogy.

A human-performance engineering team works with the design team to supervise this pedagogy insertion. The team's lead is part instructional scientist and part subject-matter expert for the domain that the teams are building the serious game.

As use case, we created a serious game for the detection and treatment of social communication difficulties. The elements of the game allow the assessment and training of different pragmatic abilities (e.g. like the use and understanding of indirect and non-literal language, lexical disambiguation, use of referring expressions, narrative, use and comprehension of different speech acts, or the understanding of non-verbal language). Following the dynamic assessment guidelines provided by the subject-matter experts in the field, before and after playing with the game (intervention with feedback), the child will have test and re-test items. The main objective of the game is to establish guidelines for the design of interventions adjusted to the real needs in the area of social communication of children with developmental disorders (ASD, SCD, ADHD), based on the results obtained in the game.

As a conclusion, building serious games takes more than simply handling their development to a traditional game team. In this work, the team interacted with instructional scientist and subject-matter experts in the area of social psychology to successfully add the pedagogical component to a serious game.

Keywords: videogame, serious game, education, web app, social communication, developmental disorders.

ACKNOWLEDGEMENTS

The authors want to thank the financial support from Grant GV/2015/092 by Conselleria de Educación, Cultura y Deporte of Generalitat Valenciana (Spain), and Grant UJI-A2016-12 by Jaume I University of Castellón.