Authoring Tool for Video Game Creation as Research Instrument in Psychology

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Video games have long been used for their contribution as research tools, being either commercial games or custom-made games.

For more than 30 years, a lot of articles have validated their usage in research. However, we must be cautious in the choice of the games used in the studies and choose the appropriate video game that fits the needs of the experiments.

The goal of the research here is the creation of an authoring tool that provides a way – for different research groups in psychology – to create video games without relying on game programmers. The resulting games could be then used in their experiments to study human behaviors.

This tool is composed of features and different game elements with editable parameters. These elements are described in this work, and a presentation of the format that we used to develop and implement them follows.

To address the needs of our work, the tool we created was made through the use of the game engine Unity. We created several editable game elements that can be used to build the structure of a game and fill it with content.

Users of this tool have access to every implemented game element and can fine-tune them by tweaking their parameters, to obtain elements that fit the needs of the experiment. Moreover, they can easily analyse the player's performances by using recordings of in-game events saved during the gameplay experience by a logging system.

With this authoring tool, we were able to produce a playable prototype game, to ensure the technical feasibility of the product. In parallel, psychologists from the PPSA group of the University of Fribourg validated the conceptualization assessment and the modular dimension of the tool by developing various experimental protocols. This work could benefit from a hands-on evaluation to be fully validated.

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