Effects of challenge and skill on videogame flow

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Abstract

The purpose of this study is to reinvestigate the concept of flow engagement between expert and novice gamers, with flow being defined by Csikszentmihalyi (1997) as "the place of perfect harmony between expectations and accomplishments". A previous study, conducted by Gascon (2015), concluded that there is a connection between player skill and game difficulty, meaning that players who are adequately challenged based on their skill level are more engaged in the game. The use of video games for this study is ideal, since the level of difficulty can be altered as needed. These results were obtained through a post-game survey based off of the Csikszentmihalyi flow theory model. While the Gascon study provided useful results, newer methods that more accurately measure flow exist and warrant a replication with these new methods. This new study will use Flow State Scale 2 and the Play Experience Scale as outlined in Pavlas (2012) that have been shown to more directly measure flow. This new study also aims to better utilize a distraction task that would have provided objective data of flow engagement that was attempted in the earlier study but was impaired by participants not reaching the distraction stimulus. This task, which provided a picture that would change, would provide evidence of flow if the participant was engaged in the game and does not detect the changing image. This data could have provided further reinforcement to the concept of flow while gaming, but was set up in a way that did not give subjects an opportunity to notice or not notice the task. The new study wants to incorporate this task by tailoring it to the average time previous subjects spent playing the game. This new study is currently in progress and no data has been collected, but the methods outlined will be used to do so. It is important to reinvestigate flow engagement with newer measurements in order to differentiate it between engagement, immersion or other concepts that are closely related to flow. Data collected from this study could assist in reinforcing the importance of flow in videogames, as well as other forms of entertainment.

References

Csikszentmihalyi, M. (1997).*Finding flow the psychology of engagement with everyday life*. (1 ed.). New York, NY: BasicBooks

Gascon, J., & Doherty, S. M. (2015). Investigation of videogame flow: Effects of expertise and challenge. *Proceedings of the 2015 International Annual Meeting of the Human Factors and Ergonomics Society.* Santa Monica, CA: HFES.

Pavlas, D., Jentsch, F., Salas, E., Fiore, S. M., & Sims, V. (2012). The play experience scale development and validation of a measure of play. *Human Factors: The Journal of the Human Factors and Ergonomics Society*, *54*(2), 214-225