Avatar identification in serious games – The role of avatar identification in the learning experience of a serious game

Oksanen, K., Van Looy, J., De Grove, F.

iMinds-MICT-Ghent University

Game enjoyment in serious games has been shown to be an essential factor in the learning process (Fu, Su & Yu, 2009). This is often linked with the trend of current learning theories to emphasize the active role of the learner in their own learning process (Boyle, Connolly & Hainey, 2011). From this point of view, enjoyment in serious games should be seen as a prerequisite and trigger for intrinsic motivation and thus for an effective learning process. According to Fu et al. (2009) in an effective educational game, the learners' enjoyment acts as a catalyst encouraging them stay engaged. In most cases, enjoyment and engagement have been explained through concepts such as flow (Csiskzentmihalyi, 1991) and immersion (Ermi & Mäyrä, 2005). However it has been proposed that, in addition to these two concepts, player identification can be an essential mechanism of game enjoyment and engagement.

Identification is a concept which has been used in the context of media research to explore their attractiveness. Identification with fictional characters has been researched for decades and has been found to be one of the main factors why people enjoy the use of different kinds of media (Cohen, 2006). In general terms identification refers to the mental process whereby a media user takes the role of a media character and imaginarily experiences their emotions and cognitions (Konijn & Hoorn, 2005). However, identification in games is a fundamentally different phenomenon from identification in other media (Klimmt, Hefner & Vorderer, 2009). One key factor that differentiates identification with a game character is the interactivity of the game (Hefner, Klimmt & Vorderer, 2007). In a game, the player has the possibility or is even required to act through the game character and influence the progress of the game. Identification with a game character (i.e., avatar identification) in digital games is a relatively new area of interest (Hefner et al., 2007). Klimmt et al. (2009, 351) define video game identification "as a temporal shift in the player's self-perception through adoption of valued properties of the game character".

Identification in the context of games is a multidimensional phenomenon, which can be further subdivided into three dimensions, namely 1) avatar identification, 2) group identification and 3) game identification (Van Looy, Courtois, De Vocht &De Marez, 2012). Avatar identification is related to the player-character bond in digital games. Group identification and game identification are more related to the social dimensions of online game play whereby group identification refers to the player's identification with their in-game groups, whereas game identification refers to player's association with the game itself and, in addition, the community around the game (Van Looy et al., 2012). As the game used in current study is single-player we will not go any deeper into the social identification dimensions, but rather focus on avatar identification, which is further subdivided into three sub-categories: similarity identification, wishful identification and embodied presence.

Similarity identification refers to the process in which the player positions themself into the role of the game character and participates in its experiences (Hoffner & Buchanan, 2005). Wishful identification refers to a process that can extend beyond the viewing situation and which involves a desire of the player to be more like the game character (Konijn, Nije Bijvank & Bushman, 2007).Embodied presence, finally, "refers to the emotion of being embodied in the character" (Van Looy et al., 2012, 202).

As for player identification with their game character, several studies have pointed to its importance in reinforcing affective learning outcomes (e.g., Bachen, Hernández-Ramos & Raphael, 2012; Lewis & Weber, 2009). Despite of these promising results related to the effects player identification to the learning outcomes, variables promoting player identification are still largely unknown. This is a major shortcoming since, as Kiili and Lainema (2008) underlines serious games do not necessarily take the full advantage of potentially enjoyable and engaging features, including identification to the game character. Against this background we agree with Paraskeva, Mysirlaki and Papagianni (2010) and argue that player identification in serious games may have unexplored potential to facilitate learning and its research should receive further attention. By recognizing the antecedents of the player identification and understanding its relation to game enjoyment and learning outcomes, it is possible to make better use of the potential of serious games. Therefore the aim of this study is to empirically investigate antecedents of the player identification and relations between player identification, enjoyment and perceived learning in the context of serious games.

From a first point of interest of the study, results of a large-scale (N = 718) quasi-experiment at the launch of the serious game Poverty Is Not a Game (PING) indicate that of the six covariates used, two proved to have no significant effect on identification: the age difference between player and avatar (B= -.04, SE=.01, p = .5) and gender concordance, whether the avatar had the same sex as the player (B= -.01, SE=.11, p = .9). Further, there is a small yet significant negative effect of being welloff on identification (-.01). Finally, empathy seems to have the largest is positively associated with on identification (.26) suggesting that people reporting higher instances of empathy, on average, score higher on feelings of identification. Another point of interest in the current study was the relation between identification, enjoyment and perceived learning. As expected, results show that both identification (.25) and enjoyment (.46) have a significant direct effect on perceived learning. Identification also has an effect on enjoyment (.39) and through enjoyment, it has an indirect effect on perceived learning (.16). As such, the total effect of enjoyment (.47) and identification (.43) on perceived learning are almost equally strong. Thus we conclude that identification plays an important role in the learning experience of serious games such as PING. In light of these results we argue that player identification should be considered as a relevant area of research also in the context of serious games and in the field of game-based learning in the future.

References Bachen, C.M., Hernández-Ramos, P. F., & Raphael, C. (2012). Simulating REAL LIVES: Promoting Global Empathy and Interest in Learning Through Simulation Games. *Simulation & Gaming, 43*(4), 437-460.

Boyle, E., Connolly, T., & Hainey, T. (2011). The role of psychology in understanding the impact of computer games. *Entertainment Computing, 2*(2), 69-74

Cohen, J. (2006). Audience identification with media characters. In J. Bryant & P. Vorderer (Eds.) *Psychology of entertainment*. Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers, 183-197.

Csikszentmihalyi, M. (1991). *Flow: the psychology of optimal experience.* New York: Harper Perennial.

Fu, F-L., Su, R-C., & Yu, S-C. (2009). EGameFlow: A scale to measure learners' enjoyment of elearning games. *Computers & Education*, 52(1), 101-112.

Ermi, L., & Mäyrä, F. (2005). Fundamental components of the gameplay experience: Analysing immersion. In S. de Castell & J. Jenson (Eds.), *Proceedings of DIGRA 2005 Conference: Changing Views – Worlds in* Play (pp. 15-27). Vancouver: Digital Games Research Association & Simon Fraser University.

Hefner, D., Klimmt, C., & Vorderer, P. (2007). Identification with the player character as determinant of video game enjoyment. Lecture Notes in Computer Science, 4740, 39-49. doi:10.1007/978-3-540-74873-1_6

Kiili, K. & Lainema, T. (2008). Foundation for Measuring Engagement in Educational Games. *Journal of Interactive Learning Research*, 19(3), 469-488.

Klimmt, C., Hefner, D., & Vorderer, P. (2009). The video game experience as "true" identification: A theory of enjoyable alterations of players' self-perception. *Communication Theory, 19*(4), 351-373.

Konijn, E., & Hoorn, J. (2005). Some like it bad: Testing a model for perceiving and experiencing fictional characters. *Media Psychology, 7*, 107-144.

Konjin, E., Nije Bijvank, M., & Bushman, B. (2007). I wish I were a warrior: The role of wishful identification in the effects of violent video games on aggression in adolescent boys. *Developmental Psychology, 43*(4), 1038-1044.

Lewis, M. L., & Weber, R. (2009). Character attachment in games as a moderator for learning. In R.E. Ferdig (Ed.), *Handbook of research on effective electronic gaming education* (pp. 593-605). Hershey, PA: Information Science Reference.

Paraskeva, F., Mysirlaki, S. & Papagianni, A. (2010). Multipayer online games as educational tools: Facing new challenges in learning. *Computers & Education, 54*(2), 498-505

Van Looy, J., Courtois, C., De Vocht, M., & De Marez, L. (2012). Player Identification in Online Games: Validation of a Scale for Measuring Identification in MMOGs. *Media Psychology, 15*(2), 197-221.