Research Traineeships 2015: Cultural Influences on Play Style

1. Title of the Project

Cultural Influences on Play Style (CIPS)

2. Research Team

Coordinators:
Dr.ir. Pieter Spronck (DCI)
Prof.dr. Kutlay Yagmur (DCU)

Advisors:
Prof.dr. Fons van de Vijver (DCU)
Prof.dr. Eric Postma (DCI)
Shoshannah Tekofsky, PhD student (DCI)

Research trainee:
(Research) Master student

3. Project Summary

Research into games and the way people interact with them has seen a considerable increase in interest in recent years. A main reason for that is the rise of "serious games", i.e., games aimed at awareness, training, and education, rather than entertainment [1]. To make serious games effective, they have to be tuned to the characteristics and needs of individual players [2]. Most serious games, however, make no attempt to do such, and just assume that "one size fits all". Developers of entertainment games and other kinds of interactive media have also shown interest in getting grips on who the individuals in their audience are, to be able to adapt to them [3].

In the last few years, several members of the Tilburg School for Humanities (TSH) have investigated whether it is possible to let a digital application determine a profile of a user based on the user's interaction style. As applications, games are particularly suitable for such endeavour, as they allow players a high diversity of ways to express themselves. We have determined that games may give us insights in a player's personality [4,5] and demographics [6]. Moreover, in recent preliminary research, we found that a player's national culture is related to his style of play [7]. A disadvantage of this last research was that it used the game *Battlefield 3*, which is mainly played in Western Europe and North America, which means that for this game only particular (western) cultures could be examined.

For the present proposal, we intend to further our investigation of how a player's culture can be recognized from his play style. We aim to answer the following problem statement: *To what extent can a player's cultural background be automatically derived from his gaming behaviour?*

This problem statement leads to the following four research questions:

RQ1: *How can a player's culture be defined?*
RQ2: *Which gameplay parameters have the potential to express a player's culture?*
RQ3: *To what extent can a player's culture be derived from his play style?*
RQ4: *To what extent are "gameplay culture" and "real-world culture" related to each other?*

Research question 1 will be answered by a brief literature research and discussions between experts in culture and experts in game studies.

To answer the follow-up research questions, a game must be selected for experiments. The game needs to allow us access to play style parameters of large numbers of players, provide the players with many different ways to express themselves, and be played by people from many different cultural backgrounds. Moreover, it must be a massively multiplayer online game, as culture is mainly expressed by the social interaction. One possibility for this purpose is the Real-Time Strategy game *StarCraft II*, which we have used in the past. For this game replays are easily accessible, and it is played intensively all over the world (at least the northern part of the globe). However, a better option might be to use a sandbox game such as *MineCraft*. Other possibilities are the games *League of Legends* and *DOTA2*. In the first month of research we will explore our options in this respect.

Research question 2 will be answered by an exploration of the parameters provided by the game we choose. It will involve variables directly derived from gameplay (e.g., particular actions taken), variables derived from the player's interaction with the game (e.g., use of mouse and keyboard), and compound variables (e.g., actions in a particular category, for instance, "cooperative actions").

Research question 3 will be answered by an experiment in which we will collect data for a large number of players of the selected game. For this part of the research we will employ an early version of the website that we are currently setting up for Shoshannah Tekofsky's PhD research project, which allows us to easily gather gameplay and demographics data and also allows us to employ questionnaires. Experience has shown that by promoting such research in player communities, we can quickly get thousands of players to provide us with their data.

Once the data is collected, we will derive the parameters that we defined in research question 2. We combine those parameters with the demographics data of players, and their answers to questionnaires. We will then analyse the data statistically (using SPSS) and from a player modelling perspective (using data mining software).

Research question 4 concerns an interpretation of the results derived in answering the third research question, from the perspectives of both cultural science and information science. It will be answered using literature and expert discussions. Our goal is to determine whether "gameplay culture" and "real-life culture" can be mapped onto each other, or whether "gameplay culture" is fundamentally different from "real-life culture" (and if so, in which way). We expect that fundamental differences will be found, which can be a lead-in to future research.

The research trainee will be involved in all stages of the project. The results of this research are potentially so innovative that they may lead to two journal publications, one in cultural sciences (*Human Relations* or *International Journal of Cross Cultural Management*) and one in game studies (*IEEE Transactions on Computational Intelligence and AI in Games*). We aim to have the research trainee take the lead on one of these papers, under supervision of the coordinators.

4. Project timeline

The project will last 12 months, starting January 2015. It is expected that the research trainee will not work on the project homogeneously distributed over the full research period; in particular, it is expected that he or she will not need to spend much time on the project between May and July.

Month 1 and 2 will be spent on answering RQ1, selection of the game to use for the research, and preliminary tests of suitability of that game.
Month 3 and 4 will be spent on answering RQ2, and preparing the data collection phase.
Data collection will take place in months 5, 6, and 7 (May, June and July).
Months 8, 9, and 10 will be spent on formatting and analysing data, answering RQ3.
Months 11 and 12 will be spent on answering RQ4 and writing papers.

5. Research Trainee Profile

The research trainee should be a master student or research master student. He or she is mainly responsible for data collection and analysis, and should therefore have strong skills in data analysis, using both statistical and data mining techniques. Knowledge of programming, to set up the experiments is also required. An interest in games, in particular the interaction of humans with games, is a pre. To assist in making the link between culture descriptions and gaming culture styles, it is useful if the trainee has followed a course on cultural differences, such as *Intercultural Communication* or *International Business Communication*.

6. Applications

Candidates for the position of research trainee for this proposal should send their CV, with a brief motivation letter, to both coordinators (p.spronck@uvt.nl and k.yagmur@uvt.nl), within two weeks after first publication of this proposal.

References

[1] Prensky, M. (2001). *Digital Game-based Learning*. McGraw-Hill.

[2] Westra, J., Dignum, F.P.M. & Dignum, M.V. (2011). Organizing Scalable Adaptation in Serious Games. *Proceedings of the 3rd International Workshop on the uses of Agents for Education, Games and Simulations*.

[3] Yannakakis, G.N., Spronck, P., Loiacono, D., and André, E. (2013). Player Modeling. *Artificial and Computational Intelligence in Games*, DFU Vol. 6, pp. 45-59. Dagstuhl, Germany.

[4] Van Lankveld, G., Spronck, P., Van den Herik, J., and Arntz, A. (2011). Games as Personality Profiling Tools. *2011 IEEE Conference on Computational Intelligence in Games (CIG'11)*, pp. 197-202.

[5] Tekofsky, S., Spronck, P., Plaat, A., Van den Herik, J., and Broersen, J. (2013). PsyOps: Personality Assessment Through Gaming Behavior. *Proceedings of the 2013 Foundations of Digital Games Conference.*

[6] Tekofsky, S., Spronck, P., Plaat, A., Van den Herik, J., and Broersen, J. (2013). Play Style: Showing Your Age. *2013 IEEE Conference on Computational Intelligence in Games (CIG)*, pp. 177-184. IEEE Press.

[7] Bialas, M., Tekofsky, S., and Spronck, P. (2014). Cultural Influences on Play Style. *Proceedings of the Computational Intelligence in Games conference (CIG'14)*.