Measuring Player Experiences in Digital Games: Behavior, Psychophysiology, and Brain-Based Indicators Symposium

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The game industry has been booming for many years. A wide range of games and gaming devices have been developed targeted to different age and gender groups and to gamers with various play styles. As such, playing digital games has become a highly popular leisure activity. Over recent years, academic research on digital gaming has however been growing in interest. Part of the research is focused on how to measure what people feel and experience when they engage in playing digital games. To date however, research focussed on establishing valid behavioural indicators of people's experiences with digital games have been conducted on a modest scale. Being able to validly and reliably measure these experiences is a prerequisite for sound research and theory building in this domain.

The aim of the symposium is to establish ways of modelling people's experiences with interactive media in a real-time fashion. How can these experiences be measured in a valid way beyond retrospective self-reports, and are there ways of measuring people's experiences with game-play real-time? These questions are central to the presentations in the symposium.

Continuous measures, that are collected as the experience is unfolding, have a number of advantages over retrospective evaluations. For one, they do not rely on memory. As experience is very likely to change dynamically during play, continuous measures provide a richer and presumably more valid evaluations pattern compared to retrospective judgments. Secondly, with the exception of think-aloud protocols, continuous measures generally do not require introspection, but rather make use of objective indicators of experiences and thus nicely complement the subjective self-report based measures. Thirdly, being able to register experiences during game play, without having to interfere with the game play or without having to interrupt the gamer, builds opportunities for directly studying which specific events or episodes in a game evoke the most intense or engaging experiences. To date, however, validated tools that enable researchers to evaluate game experience in a continuous way are rather scarce. While there is a body of research aimed at measuring behaviour in persons to person situations, knowledge about people's behaviour when they play digital games is only beginning to emerge.

In this symposium five papers are presented that advance the state-of-the-art in continuous measurement of digital game experiences, including real-time behaviour tracking, observational coding, psycho-physiological measures and approaches from brain computer interaction. The papers will address a number of questions regarding continuous measures, such as: what indicators of players' experience can be recorded during game play; how are they related to (components of) game experience; what methods can be employed to analyze game experience per se, and in relation to specific game events or episodes.

Symposium contents

A physiological approach for continuously modeling user emotion in interactive play environments
R.L. Mandryk

Think Aloud-method during fMRI to determine neuronal correlates of subjective experience of video game playing
Martin Klasen, René Weber, Krystyna A. Mathiak, Mikhail Zvyagintsev, and Klaus Mathiak

Multi-modal Behavioral Cues from Bodily Interaction in Ambient Entertainment Applications
Anton Nijholt, Betsy van Dijk, and Dirk Heylen

Psychophysiology of digital game playing: The relationship of self-reported emotions with phasic physiological responses
N. Ravaja and J.M. Kivikangas

Towards real-time behavioral indicators of player experiences: Pressure patterns and postural responses
Wouter van den Hoogen, Wijnand IJsselsteijn Yvonne de Kort, and Karolien Poels