Department of Industrial Design
Technische Universiteit Eindhoven University of Technology

In-Depth Observation of Video Gamers

In this poster we present the observations results of video gamers playing Halo 3 on the X-Box console. We report on the data we have gathered thanks to a Noldus Observer system. These data relate to gamer behaviour, game actions and basic biofeedback.

Keywords: Game, gamer observation, Behaviour, physiological data

Jorge ALVES LINO, Ben SALEM *jorge@jorgelino.com*

1 Introduction

Current research demonstrates that the video game industry has been increasing its presence in the field of Entertainment, more and more overcoming the supremacy that before the Film Industry had, this is for example very clear in the US [1]. The audience of video games is becoming more diverse: gaming is no longer an exclusive entertainment activity by male young adults, while elderly and women are becoming more proactive as video game users and players [2]. Video games are becoming a major part of our entertainment habits. However we feel little has been investigated on the way people actually play video games. It is crucial to extend and refine the observation of video gamers, up to a level where we can draw correlations between gamer behaviour, character actions, and physiological parameters. We are also interested in assessing differences if any between genders, socio-cultural and age groups.

2 Method

We propose to conduct video game sessions, where players should go through a stage of the game. During this playing experience, we will observe simultaneously the gamer behaviour, character actions as directed by the gamer and physiological parameters, and compare the different correlations between these factors.

3 Installation

We used the GameLAB facility of the Department of Industrial Design of the Eindhoven University of Technology. The installation set for the gaming observations includes the following equipment: 42-inch LCD Display, Microsoft X-Box, sound system with 4 speakers and 1 sub-woofer, the Biopac, 3 observing cameras, Noldus Observer, Noldus Acknowledge, Microsoft Halo 3

Fig. 1. Our GameLAB installation

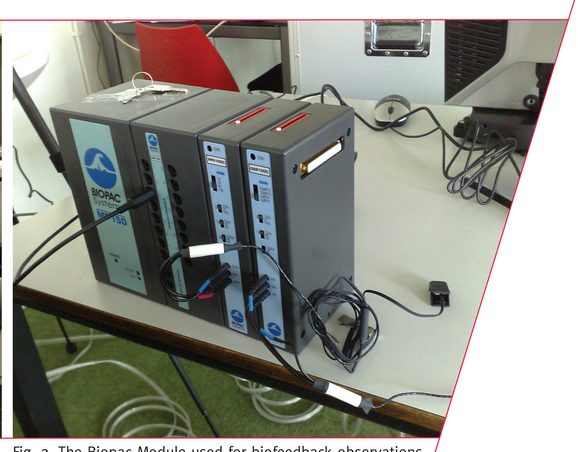
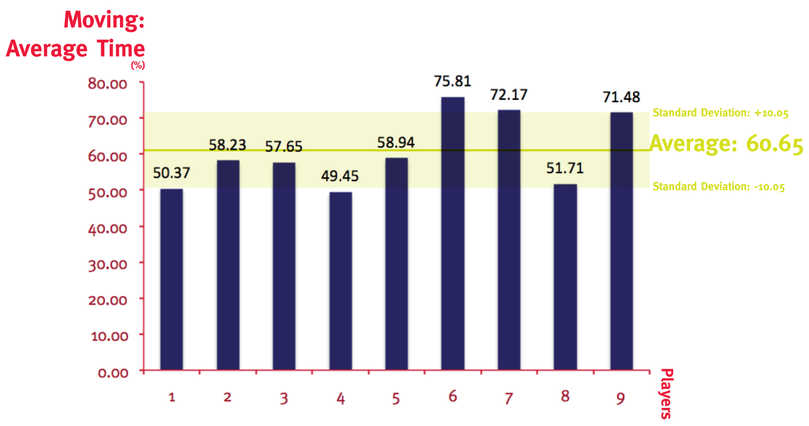


Fig. 2. The Biopac Module used for biofeedback observations

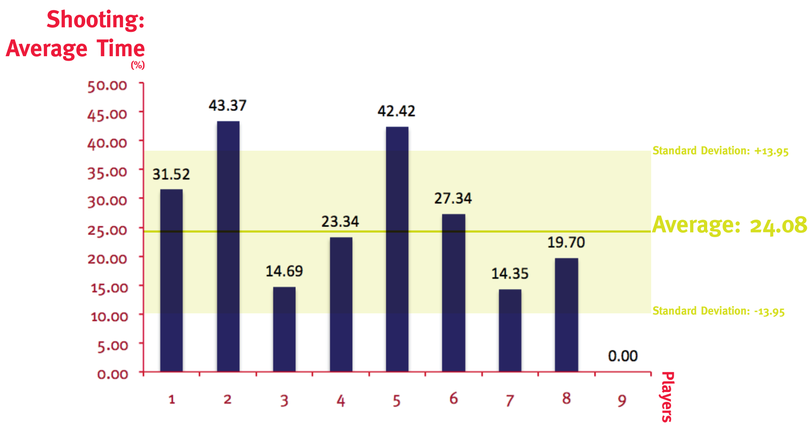
4 Observations

Subjects between 20 and 30 both male and female are asked by the test moderator to participate in the survey, they are individually taken to the GameLAB, where a previously prepared A4 sheet with the game instructions is provided, and they are installed in the facilities and connected to the observation system. Subjects are asked to play a 2 minute trial to experience the different instructions. Before starting the moderator fixes sensors on the fingers and ear of the test subjects. While this trial period is going on, the test moderator checks if the observation system is well connected to the subject, and working properly. Once basic understanding of the task is achieved, and the observation system is checked, subjects initiate a campaign, where they perform as real players. Using the observation software Noldus Observer allowed us to observe simultaneously biofeedback, namely subjects' heart rate and galvanic skin conductance, and the gaming experience itself (thanks to 3 cameras).

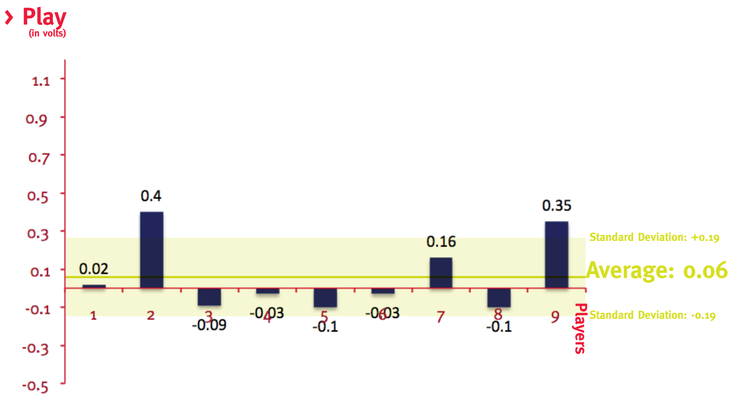
Moving: Average Time



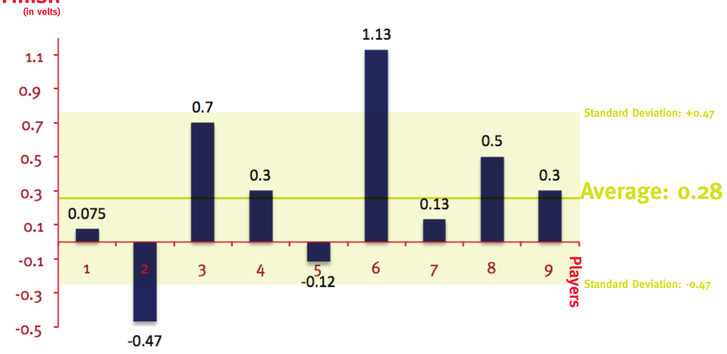
Shooting: Average Time



Galvanic Skin Conductance: Differencial Start › Play



Galvanic Skin Conductance: Differencial Play › Finish



5 Results

Regarding the game behaviour, we observed that there are two different strategies: one we call the pro-active and one we call the explorative. In the pro-active strategy, subjects have a direct approach to dangerous situations within the game, by going straight forward to the action point of the game and starting shooting. In the explorative strategy, players adopt a defensive and cautious strategy, by approaching the action point of the game with prudence, and hidding behind scene features.

Players spend more time exploring than shooting!

They spend the majority of time moving: average moving time 60.65% of playing time (std 10.05%).

There is a wide variety amongst players of time spent shooting, between 14.35 % to 47.42% of playing time (average 24.08%, std 13.95).

Playing makes you sweat!

There is an average increase of GSC for players between trials and start of play (average increase 0.06V) and also between start and end of play (average 0.28V).

The increase is greater for the later phase of the observation.

For all the players, we did not observe a change of heart beat during the different phases of our observation.

References

1 Davis, J. P., Steury, K., Pagulayan, R.: A survey method for assessing perceptions of a game: The consumer playtest in game design. International Journal of Computer Game Research, Volume 5, Issue 1 (2005)
2 2008 Essential facts about the computer and video game industry. Entertainment Software Association, Washington, DC, USA (2008).