

How do better motion controllers affect the game experience?

We decided to investigate the effect of the new generation of motion controllers (e.g. Wii MotionPlus and Sony PlayStation Move) on the gaming experience, looking at the following factors:

- **Immersion** – how engaged and immersed they are in the game experience
- **Motivation** – why people play
- **Style of play** – types of movements and amount of movement

To do this, we observed gamers playing a series of games using a Wiimote and Wii MotionPlus. We recorded their movements and attitudes using a full-body motion capture suit and attitudinal questionnaires and interviews. We also used video analysis of their body language and behaviour to support the data.

The research was conducted by Jasmir Nijhar in collaboration with PlayableGames, and formed the basis of a postgraduate M.Sc. project for the UCL Interaction Centre ([http://www.ucl.ac.uk/](http://www.ucl.ac.uk/interaction-centre/)).



Key findings

1. Players tended towards two different motivations for playing motion control games – to ‘achieve’ (win points) and to ‘relax’ (mental relaxation)

We found that players’ style of play was influenced by their motivation. Players whose main motivation was to achieve aimed for a high score, often using the minimal movements necessary. Players whose main motivation was to relax tended to simulate the actual sport, instead of optimizing their style of play towards achieving a high score. These types of player have parallels with the widely applied distinction between hardcore and casual gamers.

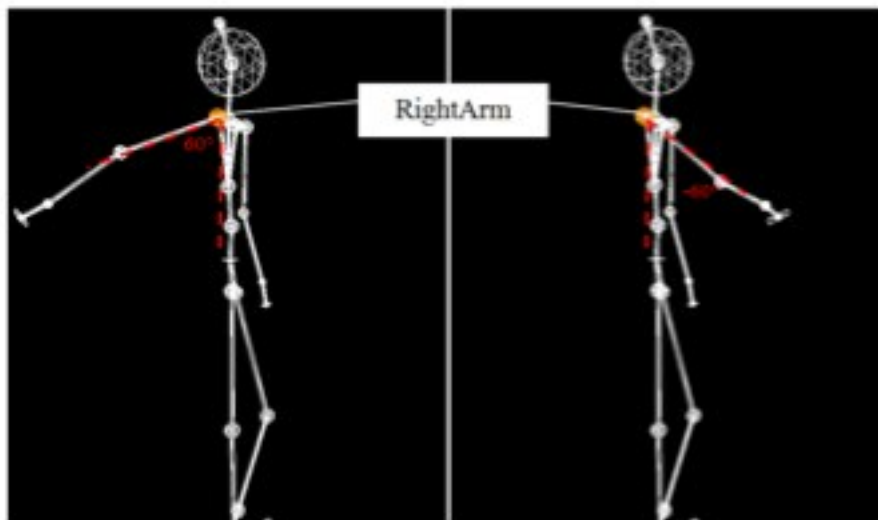


So, how does the controller factor into this? Just because the controller affords more realistic movement, does this influence how gamers actually play?

2. Increased motion recognition accuracy influences players' style of play

The motion capture data revealed that players who were motivated to achieve used a more realistic style of play when using the Wii MotionPlus, as this helped them achieve a higher score. For example, when playing the tennis game, wrist rotation was increased when using the Wii MotionPlus controller, allowing them to perform spin shots in the game.

However, when analysing the video recordings, the level of realism of their movements was still quite low, when using the Wii MotionPlus controller. This could suggest that the controller does not yet offer a fully accurate simulation.



The motion capture suit helped to reveal how gamers were playing the game

Players motivated to relax also used a more realistic style of play when using the Wii MotionPlus, as revealed in video analysis and interviews after playing the game. Players spoke about how the Wii MotionPlus controller was more “accurate and responsive” and there was “less delay” between the players movement and on-screen feedback. In other words, the controller offered a better *perceived* simulation of the sport. However, the motion capture analysis suggested that these players were not necessarily performing more of the additional realistic movements with the Wii MotionPlus across most of the measures collected. For example, there was not a significant difference in the amount of wrist rotation between the two controllers.

3. Increased accuracy of motion recognition increases immersion for both groups of players

Both achieve and relax players were more immersed when using the Wii MotionPlus controller.

Players motivated to **achieve** became more immersed for 2 reasons, as revealed by the immersion questionnaire and interview data:

1. The Wii MotionPlus **required** the player to play more realistically, which in turn made the controller better at meeting the player's expectations. As a consequence they became more emotionally involved, had a better understanding of the controls and were more disassociated with the real world.
2. The Wii MotionPlus also **allowed** additional realistic movements to have an effect in the game (for example, spin shots in tennis), which helped the player to achieve. As a consequence they were more challenged, emotionally involved and cognitively involved.

Players motivated to **relax** also become more immersed when using the Wii MotionPlus. However the increase was not as profound as in those motivated to achieve.

Conclusions

Controllers that match the user's expectation enhance enjoyment, while inappropriate controllers and control mechanisms can create a breakdown in the gaming experience. It is important to gather user feedback on control mechanisms throughout the stages of game development, to ensure that the movements match the users' expectations, keeping them as immersed in the game as possible.

In this study, the improved motion recognition offered by the Wii MotionPlus controller seemed to have a bigger effect on style of play and level of immersion in the players motivated to **achieve**. This suggests that hardcore gamers may particularly benefit from any advances in motion controllers.

About PlayableGames

PlayableGames has been studying (and playing) games for years. PlayableGames consists of a team of highly experienced gamers and user experience researchers, a team that shapes gaming experiences for console manufacturers and publishers in the UK and abroad.

Contact details

Gemma Boguslawski
Senior User Researcher
PlayableGames
T: +44 (0) 20 7421 6484
E: gemma.boguslawski@playablegames.net
www.playablegames.net