Exploring the differences in performance between gamers and non-gamers when completing everyday tasks viewed from a third person perspective

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1 Introduction

The text in this will contain the following:

- What have I done?
- Why did I do it?
- The background to the subject
- What is new in this study

Purpose To investigate if there is a measurable difference in performance between people whom have played games and people whom have not.

Motivation There is often talk about what negative side-effects of playing video games, especially violent ones. My study investigates one of the possible *positive* side-effects.

Contents A thural investigation of if there is a side-effect of playing video games viewed in third-person or not.

Resources The study has been completed using a custom-made rig consisting of a camera, video goggles, carbon fiber booms, 3D-printed parts, batteries and cables. References to earlier work will also be used.

2 Method

In order to see the performance differences between the two groups (gamers and non-gamers) the users will first complete the task just like they do in real life while they are being timed. This time will serve as a baseline for each user. Next up the user will be equipped with a pair of video glasses that are connected to a video camera mounted on a monopod on their back, to simulate the third person perspective that some games offer.

The users will be recorded and timed while they perform a few (1-3 depending on the time required) tasks (tasks may, or may not, include shopping, cooking food, completing an obstacle course, walking/running, riding a bike, practice a

sport, getting dressed etc.). To ensure as high statistical certainty and individual differences all test subjects will be bench-marked against themselves meaning the normal time it took to complete a task (the baseline) will be compared against the time it took with the glasses on.

Both before and after the users will have to fill in a form; the first containing background information (personal, gaming, interest etc.) and the later questions about the what the experience felt like.

This section should contain the following:

- Give an overview/introduction over/to how this study was completed
  - What kind of tasks
  - Rig design
  - Performance benchmarking
- References to earlier works
- Description about things to take into account
- Explaining the form every participant has to fill in

2.1 Test Design

This section will describe the test-rig and the tasks in detail and;

- Number of participants
- The design of the tasks (including figures)
- The design and purpose of the rig

3 Results

This section will cover the results from the tests that where done and;

- The results from the tests
- Diagrams comparing the results
- Results of earlier work
- Compare the performance between the different groups

4 Discussion

A general discussion about the study such as;

- What part/conclusion in my study could be biast/not reliable
- What does my results mean?
- What kind of limitations/problems does my solution have?
- Earlier work, how do they compare to my work and what does that mean?

4.1 Conclusion

As a finish, and a complement to the abstract, the conclusion should contain;

- What to take out from the study
- How this study can be made more in-depth
- Future work

References

[1] Göran Hägg. *Nya författarskolan*. Wahlström & Widstrand, 2012.
There are some interesting parts in this (Swedish) book that basically says that when a reader is reading a book it doesn't matter if its written in first-person or in third-person, the reader quickly adapts. This means that in writing there isn't really a significant difference between the two writing types, at least not for the reader.

[2] Joshua M Knapp and Jack M Loomis. Limited field of view of head-mounted displays is not the cause of distance underestimation in virtual environments. *Presence: Teleoperators and Virtual Environments*, 13(5):572–577, 2004.
There are some very interesting parts in this article, but the most useful is probably the result; ‘‘ This result indicates that the significant underperception of distance observed in several studies on distance perception in virtual environments is not caused by the limited field of view of the head-mounted display ‘‘. This means that it shouldn't really matter what quality and FOV the video glasses I use for the study. Of course this is something that needs to be tested.

[3] Ricardo Nakamura, Lucas LM Lago, Alexandre B Carneiro, Anderson JC Cunha, Fábio JM Ortega, João L Bernardes Jr, and Romero Tori. 3pi experiment: immersion in third-person view. In *Proceedings of the 5th ACM SIGGRAPH Symposium on Video Games*, pages 43–48. ACM, 2010.
As this article focuses on AR mostly it is not that relevant to my study. Although I find the method very interesting, especially since they target games with this study.

[4] Richard Rouse III. What's your perspective? *ACM SIGGRAPH Computer Graphics*, 33(3):9–12, 1999.
Even though this is a very old article about games I still think it is very relevant. It talks about different perspective in games and the benefits from each some thing that is very interesting since the 1990:s where when graphics in computer games grew more and more powerful.

[5] Patrick Salamin, Tej Tadi, Olaf Blanke, Frédéric Vexo, and Daniel Thalmann. Quantifying effects of exposure to the third and first-person perspectives in virtual-reality-based training. *Learning Technologies, IEEE Transactions on*, 3(3):272–276, 2010.
This study is *very* similar to mine in many ways, especially how the test the third-person view building a similar rig as I plan to build. It does not however focus on the performance differences between gamers and non-gamers

[6] Patrick Salamin, Daniel Thalmann, and Frédéric Vexo. The benefits of third-person perspective in virtual and augmented reality? In *Proceedings of the ACM symposium on Virtual reality software and technology*, pages 27–30. ACM, 2006.
In my early experiments building the rig I've notice a very disturbing outer-body-experience that is hard to put into words. Even though I can see my own limbs it is very hard to understand that the limbs I see are my own. When reading this article on VR and AR I noticed they described this very well.

[7] Mike Schmierbach, Michael P Boyle, Qian Xu, and Douglas M McLeod. Exploring third-person differences between gamers and nongamers. *Journal of Communication*, 61(2):307–327, 2011.

This study also focuses on some differences between gamers and non-gamers but it doesn't (at least not to my understanding) focus on trying this out. It is more based on surveys than hands on testing. I should say that I have not yet read the whole article since it's so long.