## RESEARCH PROPOSAL

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| 1. **Background**   In the last decade, video games have earned a spot as one of the top entertainment methods worldwide. Such change in the number or people playing games on electronic devices has encouraged people to try and figure out, whether they can be used in other ways, not just entertainment. Since a high percentage of games require some sort of fast decision making, it did not take long for people to start wondering – are video games linked to reaction time/decision making, and more importantly, can we use video games to get faster reaction times, without decreasing the accuracy? One of the many research papers in this field “Increasing Speed of Processing With Action Video Games” (2009) links reaction time with accuracy and claims that action video games in fact increase reaction time speed and that “there is no speed–accuracy trade-off”, similarly to another paper in the same field of work “Not scene learning, but attentional processing is superior in team sport athletes and action video game players” (2020), which argues that video game players and athletes “show faster and more efficient results than controls”. Many papers and studies have been done, without reaching a unified conclusion, therefore this study will try to contain every kind of test and participant. |
| 1. **Research questions**  * Can (action) video games be used in training to decrease reaction time? * Does decreasing reaction time mean decreasing accuracy? * Is it possible to decrease reaction time without sacrificing accuracy? * Are (action) video games as effective on gamers as they are on non-gamers? |
| 1. **Data collection**   200-400 people of all backgrounds and ages will be gathered to participate in this study. This will be achieved by sending out registration forms, so we can randomly choose around the same amount of people regarding their gaming background and age. We will ask all participants to complete a number of tasks, all ranging from easy to hard. These tests will be completed three times in total: at the start of the study, once in the middle of the study (three months in) and once at the end (six month mark). Since the tests will be done online, they will have the corresponding data: reaction time; accuracy. During the study participants will be asked to play video games provided by us. Most of these games will be action and all of them will require fast decision making, this way participants will train their reaction time without thinking about it. |
| 1. **Methods of analysis**   The data collected (reaction time and accuracy) will be grouped by the participant’s gaming background (gamer/non-gamer) and age (young/mature/old). This will help us find out if people can train their reaction time without sacrificing accuracy, and more importantly – which groups of people are more likely to do so. |
| 1. **Original contribution**   This research will investigate whether video games can be used as something else than just entertainment, in this case – a way of training a person’s reaction time and accuracy. This will help companies and teams extend their ways of learning, training fast decision making, reaction speed, accuracy, as well as help future studies gain a clearer understanding of the video-game experiences and identify which aspects of games are relevant in learning and training. This will allow the development of games that have a wide range of suitability that can be used in clinical as well as educational applications. |

References:

Schmidt, A., Geringswald, F., Sharifian, F., Pollmann, S. (2020). *Not scene learning, but attentional processing is superior in team sport athletes and action video game players.* [*https://doi.org/10.1101/353953*](https://doi.org/10.1101/353953)

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[*https://doi.org/10.1111/j.1467-8721.2009.01660.x*](https://doi.org/10.1111%2Fj.1467-8721.2009.01660.x)