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Influence of digital games on the short-term memory of university students

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ABSTRACT

Introduction: Multiple recent studies, namely laboratory-based systematic review articles and applied or experimental research, have indicated the association, particularly in young or adult users, between results in measurements of short-term memory with the frequency and intensity of playing games using various forms of electronic support, globally known as digital games.
Objectives: This study aims to examine the impact of intensive digital game use on short-term memory performance in university students, through a comparative experimental design involving two groups - intensive users and non-intensive users of digital games - assessed using an adapted digit span task from the Wechsler Intelligence Scale for Adults.
Methodology: An experimental study was applied to the assessment of short-term memory among university students, based on a comparative analysis between two groups, one of intensive users of digital games, and the other not, statistically comparing the two results. The starting hypothesis holds that it is possible to statistically demonstrate that subjects who intensely use digital games present, when tested in a laboratory context, higher results in short-term memory tests. A self-assessment scale for the use of digital games was used to define the experimental groups and, for data production, a subtest from the Wechsler Intelligence Scale for Adults measured for the Portuguese population, the digit span (or digit memory), experimentally adapted from a program produced using stimulus presentation software, SuperLab6. It was developed with 164 university students, with identical gender distribution, from a higher education institution.
Results: The results of the student t test indicated the presence of statistically significant differences between the groups. There are significant differences between the groups regarding short-term memory according to the direct or reverse order digits and sequencing digits.
Discussion: In this study, in comparison with intensive users of digital games and non-intensive users of digital games, differences were found in the task performed, which seem to predict comparative changes in the research groups regarding short-term memory, perhaps allowing for the prediction of better cognitive performance in short-term memory in key regions of the cortex responsible for visual processing, attention and memory. With a specific experimental instrument applied to a sample of two groups of university students, which showed good receptivity as a voluntary collaboration activity in an experiment in a laboratory context, the data obtained determine statistical relevance between subjects who intensely use video games in the short-term memory results compared to the group of those who do not use them at all or little, which is in line with the empirical proof of the main working hypothesis.
Conclusions: The potential applicability of the short-term memory assessment program to different groups and objectives is concluded, particularly in an experimental context, and suggests its possible adoption as a Psychology tool in the areas of cognition.

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