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Intervention in executive functioning with gamification for children with ADHD: Preliminary results

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The main reasons why ADHD is a socio-health priority and with great impact at a psycho-educational level are its high prevalence, along with its disruptive manifestation, which generates important repercussions in the lives of patients (academic: poor school performance, school failure, which can severely affect the child's self-esteem; but also, family, social and emotional). Therefore, having scientifically validated intervention tools that improve cognitive processes becomes a fundamental objective demanded by education and society. In this study, the intervention system that is intended to be validated as a basis for training in executive functions (EF) would work on functions related to: attention, working memory (auditory and visual), planning, inhibition and flexibility. All of this through gamification, machine-learning and artificial intelligence (AI), to adapt to the relevant and current technological advances of new trends in psychoeducational intervention.

It is necessary to make significant progress in the search for intervention measures, scientifically supported, using the appropriate research methodology, with a focus on theoretical and applied research, and promoting transfer to clinical and psychoeducational practice. For those reasons, we analyse the effect of an intervention in EF designed in 16 individual sessions of 20-30 minutes each. The intervention was structure through an App that integrates the intervention sessions using gamification. This App allows the difficulty to be adapted to the profile of each student, thanks to the use of machine-learning techniques and AI. A pre-post intervention design was applied with 25 children with and without ADHD from 8 to 12 years old. Learning potential of EF and reasoning, and some scores on traditional assessment EF tests were measured. Results and implications will be discussed in the conference. The App with the intervention program is expected to be a useful tool, based on the adapted learning profile, which will increase its potential for intervention and monitoring of participants' progress. It will be made available to the psychoeducational community once validated, with great impact of scientific and technical transfer to society.

Keywords: ADHD; executive functions; intervention; learning potential.

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