



THE USABILITY OF VIRTUAL REALITY PLATFORMS IN IMMERSIVE ENVIRONMENTS (EXERGAMES) - A PILOT STUDY IN CHILDREN WITH CEREBRAL PALSY

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AIM OF THE STUDY

Assess the usability of Exergames in PEPE platform and its impact on cognitive abilities, specifically the attention sustained with CP population

Usability

Cognitive functions – Attention Sustained

Background: Virtual reality is an emergent technology in neuro rehabilitation. In this study, we explore the effect of Exergames in cognitive and motor capacities in children with cerebral palsy (CP). The literature states that the use of virtual environments in rehabilitation promotes the neuronal reorganization of the functional and sensory motor areas in children with CP. The approach of our project based on the use of the interactive platform PEPE (Portable Exergame Platform for Elderly) to keep the users engaged in the exercise through motivational techniques, and develop their abilities.

METHODS

Sample: N=10 children (average age: 8 years; 6 Male, 4 female; all Cerebral Palsy diagnosed; GMFCS – level I / II; MACS- level II; Pictorial Test of Intelligence (PTI-2)-below average; participated in 10 weekly sessions with Exergames PEPE platform)

Assessments were made before first session and after last one:

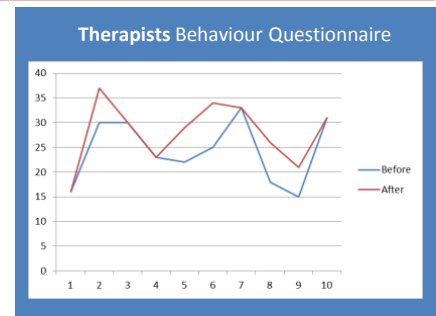
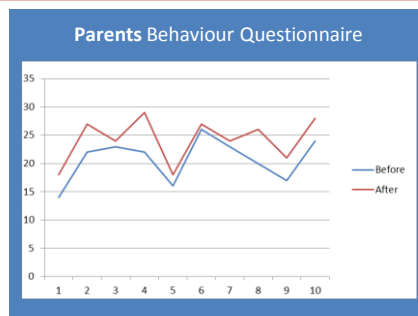
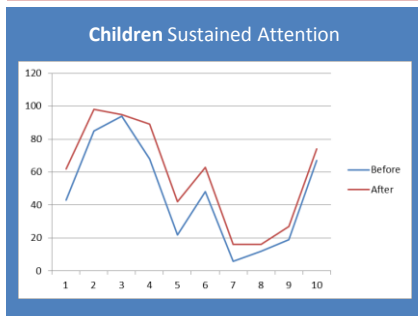
Children - Sustained Attention - Leiter International Performance Scale-Revised (Leiter-R); Satisfaction to Exergames with a questionnaire adapted to their abilities

Parents and therapists -Behaviour appreciation questionnaire.

Applicators - System Usability Test (SUS)



QUANTITATIVE RESULTS (cases on x axis/raw score on y axis)



QUALITATIVE RESULTS APPRECIATION

Children

- Really enjoyed and had fun
- Enjoyed the competition part of the challenge, most importantly the enthusiasm of winning the game

Parents

- Children were more focused
- Improved overall performance
- Increased children's joy
- They had more fun and involved during the games

Professionals

Therapists :

- Children were motivated
- Effortless engagement from children
- It's a useful tool in addition to conventional intervention

Applicators Exergames usability assessment:

- The product is technically easy and intuitive for applicators; Fast learning
- The children get easily immersed in the activity
- It motivates the children, self-regulates and improves attentional performance

Conclusion: The results are as expected, regardless a small sample, it stimulates the investigators to research and develop new Exergames to develop and diversify intervention strategies. This tool can be a great motivational system for cerebral palsy children. This study will also proceed with a larger sample and a control group.

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