Concerns: Request for Additional Funding for an Interventional Study on Child Development Through Art

Introduction

The development of cognitive skills in young children at the beginning of their schooling remains largely unexplored. The period between 6 and 10 years, marked by the progressive development of logical thinking according to Jean Piaget, is crucial for the personal, academic, and social success of individuals, who will form tomorrow's society. This study aims to analyze this process and identify the most effective strategies to promote it.

Background and Study Objectives

The study is conducted by the Geneva School of Health Sciences HES-SO University of AppliedSciences and Arts Western Switzerland, the University of Geneva, the University of Teacher Education of the Canton of Vaud, and the Lausanne University Hospital. The study protocol has just been published open access (https://doi.org/10.1186/s12906-024-04433-1). It is an innovative study on the effects of collective music practice, visual arts, and cultural outings on young children's cognitive and cerebral development. Such interventions are presumed to be catalysts for development.

The research is funded by the Swiss National Science Foundation (SNSF), and was among the top 20% of projects selected. the study is authorized by the Ethics Commission and the Schools and Institutions Service of the Department of Public Instruction of Geneva

Among cognitive functions, executive functions, such as concentration, memory, self-control, adaptability, and planning, interacting with emotion management, are essential for academic success and daily life. However, their optimal stimulation between the ages of 6 and 10 is still poorly understood. This study aims to fill this gap by comparing the impact of musical training, visual arts, and cultural outings on the development of executive functions in children.

The main objective of the study is to enhance the cognitive, emotional, social, and cerebral development of young children at the beginning of their academic careers through various forms of art.

The secondary objective is to use artificial intelligence, notably Deep Learning, to better understand and develop a multimodal model integrating behavioral and cerebral data related to the development of executive functions in young children. Such a model is currently lacking but could play an important role in optimizing teaching at the beginning of children's school careers, when their brain plasticity is optimal.

Methodology

We are recruiting 150 children from all public schools in the Canton of Geneva, hoping to reach all strata of society. These children are divided into three groups: one group practicing "Classroom Orchestra," one focused on visual arts, both with 90-minute classes each week, and one active control group benefiting from cultural outings every two months. The interventions will last for two years.

The allocation among the three groups is done randomly, as part of a randomized controlled trial. This is the gold standard method in interventional studies because a choice on the part of the child or family would introduce a motivation bias, preventing an objective assessment of whether and how each artistic intervention brings the most benefits for development. The SNSF experts have praised this approach.

Data will be collected at the beginning of the study, after one year, and after two years, including demographic questionnaires and a battery of behavioral tests targeting executive functions as well as emotional functions and well-being. The tests are age-appropriate and enjoyable for the participating children. Moreover, a battery of structural and functional MRI measurements will be performed, along with regular recording of intervention videos. We will also collect school report cards.

Current status

Interventions and measurements began in April 2024 with an initial wave of children distributed among the three groups who are currently undergoing classes. To reach the necessary number of children for valid conclusions (N=50 children per group), two more waves of interventions will begin at the start of the 2024 school year.

Unfortunately, due to a difficult recruitment start, the study has experienced a delay and the amount allocated by the SNSF is no longer sufficient to cover all our needs. At present, we have managed to recruit the required number of children (n=150). We are now seeking additional funding to successfully carry out this important study optimally, as the SNSF does not modify its initial allocations.

Benefits for Participants

Classes are free, and all materials are provided. Children are supervised by professional artists and culture experts in a playful and non-competitive environment. Communication between parents, children, and the team is encouraged.

Safety and Well-being

Personal data protection is rigorously observed.

MRI is a safe and noninvasive technique. Caring technicians and scientists will continuously monitor children in a secure environment tailored to their comfort.