

Impact of Pre-Primary Education Duration on Early Elementary Pupils' Executive Functions

Jana Kvintova¹, Jitka Petrova², Lucie Vachova¹, Michaela Pugnerova¹, Sona Lemrova¹, Jan Sebastian Novotny¹, Lucia Lackova¹

¹ Department of Psychology and Abnormal Psychology, Faculty of Education, Palacky University Olomouc

² Institute of Education and Social Studies, Faculty of Education, Palacky University Olomouc

Abstract

Preschool education is considered to lay the foundations for lifelong learning, contributing significantly to the physical, emotional, and social development of children. Executive functions, such as working memory, cognitive flexibility, and inhibition, are crucial for academic success and overall child development. Since these functions begin to develop at an early age, the duration of pre-primary education can substantially influence their initial levels and further development during the early years of elementary school. The aim of this study was to determine how the length of pre-primary education affects the cross-sectional levels and longitudinal trajectories of executive functions among pupils during the first two years of elementary education. The study included data on 896 children from 11 regions of the Czech Republic, specifically from 67 schools. The sample selection was carried out in two stages, initially through random selection and subsequently through purposive selection according to specified criteria. The children were longitudinally monitored from the final year of preschool education through the end of the second grade of elementary school. The key finding is that the duration of preschool education impacts executive functions, with this influence being most pronounced at the onset of school and decreasing over time. Generally, it was observed that with increasing duration of attendance at preschool, most executive functions improved. An exception was noted in the case of inhibition, where the effect was the opposite. Our results thus support the hypothesis regarding the importance and benefits of pre-primary education for the further educational pathways of children.

Keywords: academic success, inhibition, length of preschool education, longitudinal trajectories, working memory