

## MEASURING CREATIVITY IN A ROBOTICS-BASED INTERVENTION: A QUASI-EXPERIMENTAL STUDY

T-13

**Enikő Orsolya Bereczki, Boglárka Kiss, Attila Rausch, Borbála Bacsa-Károlyi,  
Anikó Fehérvári**

*Institute of Education, Eötvös Loránd University*

*Keywords:* Educational robotics; Creativity development; Socio-economic status (SES)

The development of creativity has become a priority in the 21st century, driven by a rapidly changing labor market and technological advancements. These changes demand new skills and innovative thinking from learners, which are essential for problem-solving, critical thinking, and maintaining competitiveness (OECD, 2018). Educational technologies, particularly robotics, have been increasingly recognized in education, with numerous studies highlighting their potential for developing students' creative thinking skills (e.g., Hou et al., 2022; Zhang & Zhu, 2022). Previous research indicates that the effectiveness of robotics programs may vary among students from different socio-economic backgrounds (SES). Students from low socio-economic status (SES) often have limited resources and fewer learning opportunities, which may hinder their development (Su et al., 2022). This study examines the impact of robotics-based educational interventions on students' creative thinking, with a particular focus on socio-economic status (SES). A quasi-experimental research design was implemented within an Erasmus+ program, involving 125 elementary students aged 11 to 14 from diverse SES backgrounds. Participants engaged in a six-month robotics-based digital storytelling program aimed at enhancing multiple dimensions of creativity, including figurative, verbal, divergent, and integrative thinking. The findings indicate that the intervention positively affected creativity across all SES groups. Notably, students from lower SES backgrounds demonstrated significant growth in creative thinking, suggesting that robotics-based education may help bridge socio-economic disparities in educational outcomes. The results support the potential of innovative teaching methodologies, such as robotics, to foster creativity and equity in education. This research contributes to the growing body of literature on educational robotics and underscores the importance of addressing SES-related challenges to maximize the benefits of technological interventions in diverse learning environments.

*This project was partially supported by the National Research, Development, and Innovation Office (PD OTKA - PD - 138723) and partially by the ERASMUS+ RIDEX grant No. 2021-1-HU01-KA220-SCH-000029582.*