

Abstract:

The growing role of mobile and smart devices in education, especially in mathematics education, offers new opportunities for innovative approaches to teaching and learning. The integration of these devices into mathematics education provides students with the opportunity to learn basic subjects in a modern, interactive way, thus increasing their motivation to learn. The integration of technology into education is particularly important in the early years, from the age of 9, when pupils are at a critical stage in the development of their cognitive skills. It is at this age that they begin to understand abstract concepts and develop the skills that underpin algebraic and computational thinking.

Algebraic thinking, which involves recognising relationships, interpreting variables and equations, and developing problem-solving skills, is essential for further learning in mathematics. Alongside the development of algebraic thinking, there is also a strong emphasis on computational thinking, which allows students to create algorithms, approach problems in a structured way and develop a systematic way of thinking. The development of these skills will also play a crucial role in later programming and mathematics studies, and contribute to students' understanding of the workings and importance of modern technology.

The aim of the research is to explore how mobile and smart devices and robotics can be effectively integrated into mathematics education, with a focus on developing algebraic and computational thinking. The research will focus specifically on the 9-12 age group, as this is the age when it is most important to lay the foundations in mathematics and to stimulate pupils' interest in science subjects. Combining new technologies with mathematics education can help to enrich the learning experience of students and develop the skills needed in a modern, technology-oriented society.