

Abstract

This study explored teachers' and learners' use of educational technology in mathematics teaching and learning environments. Mathematics is classified as one of the scarce skills subjects in South Africa. Any endeavour to try and improve the teaching and learning of mathematics is seen as a positive contribution towards mathematics education. Technologies are tools that offer possibilities for new approaches to teaching and learning as well as encouraging and sustaining learners' attention in mathematics.

The research focused on the influence of teachers' pedagogical practices and competence in mathematics on their use of educational technology in their classrooms. The research further established factors that influence learners' use of educational technology in mathematics. A mixed method research approach was conducted to understand teachers' and learners' attitudes, behaviour, and practices in the use of educational technology in mathematics. Two schools participated in the study. From school A, one teacher and 43 learners were involved in the study. The second teacher withdrew during the study. From school B, three teachers and 36 learners participated in the study. Data were collected through questionnaires, interviews, and class observations

A Technological Pedagogical Content Knowledge (TPACK) framework and social capital theory were used to help explain the influence of teachers' pedagogical practices and competence in mathematics on their use of educational technology and the factors affecting learners' use of educational technology in mathematics learning. The findings demonstrated that social capital, pedagogical practices, and the school's socio-economic status contribute to teachers' use of educational technology in mathematics. The teachers used desktop computers and laptops in mathematics mainly to present mathematics concepts and carry out the administrative tasks. The findings also showed that learners' use of technology in mathematics is consistent with their teachers' use of technology. Based on these findings it is suggested that teachers' school-based professional development is key

to fostering technology integration in the schools. Also, schools should develop guidelines that exert pressure on teachers to use technology in their classrooms.