

**EFFECT OF MATHEMATICS TEACHERS' BELIEFS ABOUT
MATHEMATICS ON THE USE OF TECHNOLOGY IN
CLASSROOM INSTRUCTION IN SECONDARY SCHOOLS IN
BUNGOMA DISTRICT, KENYA**

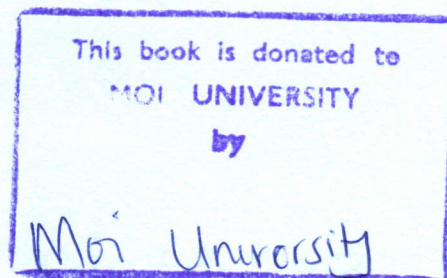
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**A RESEARCH THESIS SUBMITTED TO THE SCHOOL OF
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ABSTRACT

Mathematics teachers' beliefs and conceptions, particularly about the nature of mathematics and about the teaching and learning of mathematics have an impact on the type of mathematics instruction they deliver in the classroom. This study investigated the effect of the mathematics teachers' beliefs about mathematics on the use of technology in classroom instruction in secondary schools in Kenya. According to Ernest (1988), teachers' beliefs about mathematics can be categorized in three groups thus the Instrumentalists, the Problem Solvers and the Platonists. The objective of the study was to determine the effect of the mathematics teachers' beliefs about mathematics on the adoption of the use of technology in mathematics instruction. This study adopted the descriptive survey research design to investigate how teachers subscribing to the three categories of beliefs integrated technology in their instructional programmes. This study targeted all the four hundred and seventy eight (478) secondary school teachers of mathematics in the larger Bungoma District. The sample for the study was two hundred and ninety eight (298) secondary school teachers of mathematics who attended the SMASSE In-Set training at the four in-set centers in the district. Data was collected using a questionnaire that captured the teachers' beliefs, the frequency of their use of new technologies in instruction, their perception of the effect of the use of technology in mathematics instruction and the severity of the factors that affect the use of technology in instruction. Data was analysed using both descriptive and inferential statistics. The descriptive statistics used were mean, frequencies and percentages while the inferential statistic used was the analysis of variance (Anova). The main findings of the study were that there is a significant difference between and among the teachers in the three belief categories regarding the use of technology in mathematics instruction and that there is a significant difference between and among the teachers in the three belief categories in their perception of the use of new technologies in mathematics instruction. It is observed that since mathematics is a core subject in the school curriculum, meaningful reforms in the subject should involve challenging the teachers' strongly held beliefs and how they impact on classroom instructional programmes. It is also observed that as the ministry of education seeks ways of improving the standards of education in the country in line with the vision 2030, emphasis is being put on releasing to the job market graduates who are adaptable to the high technological demands. The research has established that teachers' beliefs may act as barriers towards realizing this national goal of education. It therefore recommended that necessary professional development be undertaken in the teacher education sector to help equip teachers with skills, attitudes, knowledge and values that will promote integration of technology in classroom instructional programmes.