

## ABSTRACT

Poor performance in mathematics in Kenya has been of concern to stakeholders in the field of education. The low performance has been attributed to many factors such as learner's negative attitude towards the subject and use of inappropriate teaching strategies and resources. Educators and government are searching for teaching strategies that will improve learners' achievement in mathematics. The purpose of this study therefore was to determine the effect of digital content on students' achievement and attitude in mathematics in secondary schools. This study was carried out in schools in Embu West sub-county, Kenya. The study used a Quasi experimental research design. The Solomon's Four Non-Equivalent Control Group Design was used to determine the effect of digital content on students' achievement and attitude in mathematics. The target population was 1500 form two students. Purposive sampling technique was used to select a sample of Co-educational schools in a list of secondary schools in Embu West Sub County, Kenya. From the selected schools, simple random sampling was used to select four schools. The sample size was 154 students. The four schools were then randomly assigned to either experimental or control groups. Instruments that were used to collect data were Mathematics Achievement Tests (MAT) and Mathematics Attitude Questionnaires (MAQ). Reliability of the research instruments was tested using the Cronbach's alpha coefficient. Reliability coefficient for the instruments was 0.760 and 0.812 for MAT and MAQ respectively. A minimum reliability coefficient of 0.7 was acceptable. Both instruments were pilot tested in a school in Embu North Sub County. The validity of the research instruments was determined by incorporating the expert judgment from the Mathematics teachers and supervisors. Descriptive and inferential statistics were used to analyze the data. Descriptive statistics involved the use of means and standard deviations while inferential statistics used were the H-test and an analysis of variance (ANOVA), independent t test and Man Whitney U- test. The study findings showed that during pretest, Mathematics achievement mean score for Experimental Group 1 was higher than that of Control Group 1 but this difference was not statistically significant. However, after the treatment, the differences in achievement between control and experimental groups was found to be statistically significant which implied that use of Digital Learning Materials (DLM) in instruction had a positive impact on students' achievement in mathematics compared to conventional teaching materials (CTM). Mathematics attitude mean ranks for experimental groups were higher than those of control groups during pretest and post-test. However, this difference was not statistically significant which implied that use of digital content in teaching mathematics had no effect on students' attitude in mathematics. During pretest and post-test, males' achievement in mathematics was lower compared to females but the difference was not statistically significant. The implication was that use of digital content in teaching mathematics had no effect on achievement in mathematics based on gender. Mathematics attitude mean rank for Males was higher compared to that of females but the difference was not statistically significant. This implied that use of digital content in mathematics had no effect on students' attitude towards mathematics based on gender. From these findings, the study recommended that: Mathematics teachers should be encouraged to incorporate digital content in teaching mathematics in order to enhance teaching and improve academic achievement in mathematics. Secondly, the study recommended that teacher training institutions should incorporate digital learning in their teacher education programs to enhance the capacity of teachers to use the digital content in schools.