

## ABSTRACT

The study investigated selected teacher variables influencing achievement in mathematics among secondary school students in western Kenya. A comparison was made between teachers holding a master's degree in mathematics education and those with other qualifications. This was accomplished through the objectives: to compare and contrast achievement of students taught by teachers with a master's degree in mathematics education and those who have other qualifications; to establish any differences in attitude towards teaching between teachers of mathematics with a master's in mathematics education and those who have other qualifications; and lastly, to assess and compare the extent of preparedness for teaching between teachers with a master's degree in mathematics education and those who have other qualifications. The conceptual framework was based on Vygotsky's concept of environment and interaction as necessary components in learning. The theoretical framework of the study was based on social constructivism theory in which the role of teachers is to prompt and facilitate learning. Qualified teachers are most likely to create enabling environments for learning hence influence better achievement in mathematics. An ex-post facto research design was adopted. This is because the researcher had no direct control over the independent variables as they had manifested already. All form four students and their mathematics teachers during the 2014 academic year in the region formed the target population. Multistage sampling was applied and a total of 12 teachers who were holders of master's in mathematics education and 12 teachers who were holders of other qualifications other than masters in mathematics education as well as 480 form four students constituted the sample. Data from teachers was collected using a Mathematics Teachers Questionnaire (MTQ) while students' achievement was assessed using a Mathematics Achievement Test (MAT). The MTQ comprised of two parts, the first part was on the profile of the respondents while the second part was on respondents' attitude and the extent of preparedness for the classroom. A pilot study was carried out in 4 schools outside the region of study (county) and the reliability of the MAT was calculated using Kuder Richardson formula 20(KR-20). It yielded a coefficient of 0.92, an indicator that the MAT was a highly reliable tool. The reliability of the MTQ was calculated using Spearman-Brown formula and it yielded a coefficient of 0.83 which also an indicator that the MTQ was a highly reliable tool. Mathematics educators in the University school of mathematics and my academic supervisors reviewed the questionnaire for content, face and construct validity. Their views as well as the results of the pilot study were used to revise the questionnaire items. The three hypotheses were tested using t-test and Mann-Whitney U tests. Correlation coefficients were also determined to support the study conclusions after primary analysis had been completed. The findings of the study showed that there was a statistically significant difference in achievement of students taught by teachers with a master's degree in mathematics education and those with other qualifications. There was a statistically significant difference in attitude held by teachers of mathematics with a master's degree in mathematics education and those who had other qualifications. A statistically significant difference was also found between the extent of preparedness for teaching by teachers who had a master's degree in mathematics education and those who had other qualifications. The findings of this study are significant in the following ways: they will contribute to the intellectual debate and the literature on the impact of teachers' quality on students' achievement; and will avail empirical data to guide educational planners and curriculum developers on designing mathematics teachers' training curriculum for secondary schools. The study recommended that, teachers without a master's in mathematics education qualification be advised to pursue the programme as this may improve their teaching method in order to improve the performance of students in mathematics.