Influence of self-instruction on Mathematics achievement among students in secondary schools in Kenya

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Achievement in Mathematics is a challenge to many students at secondary level in Kenya, for instance students in Vihiga Sub County. Despite the government's effort in strengthening the subject, its performance is still wanting. The main objective of the study was to examine the influence of self-instruction on Mathematics achievement among students in secondary schools in Vihiga Sub-county. Self-instruction' was defined as a deliberate long-term learning project instigated, planned, and learned out by the learner alone, without teacher intervention. The Self- determination theory and Achievement Goal theory informed the study. The study adopted Mixed Methods approach and the Sequential Explanatory Design was used. The study targeted 1483 form four students, 35 Mathematics teachers, and 27 teacher counsellors. A sample size of 445 students, 11 Mathematics teachers, and 9 teacher counsellors were selected using stratified random, purposive and purposive sampling techniques respectively. Quantitative data was collected using a Students Questionnaire while qualitative data was collected using interviews from students, teacher counsellors and Mathematics teachers. Student's achievement was assessed using K.C.S.E Exam results of the year 2017. Reliability of the questionnaire was ensured by Cronbachs alpha and a coefficient of alpha ¿0.7 was reported. Normality of data was tested by using Kolmogorov-Smirnov and Shapiro-Wilk (W) tests. Descriptive statistics such as frequencies and percentages were used to analyze quantitative data from questionnaires, while inferential statistics such as Regression Analysis and Pearson correlation coefficient were used to analyze quantitative data. On the other hand, thematic framework was used to analyze Qualitative data. The study found that there was statistically significant between self-instruction and Mathematics achievement(r =.192, n=396, p i.05). The findings showed that self-instruction predicted the achievement in Mathematics among secondary school students. The study recommended that the government in conjunction with the Ministry of Education should provide seminars and conferences for Mathematics teachers as a platform for constant reminder to teachers to avoid traditional modes of Mathematics teaching and embrace self-instruction strategy. This would enable Mathematic teachers to instruct their students in such a way as to enable them to take charge, control and evaluate their learning through self-instruction, hence enabling students to become autonomous learners in Mathematics. This is because the study reported that self-instruction has positive influence on Mathematics achievement among students in secondary schools.

Keywords: Self-instruction; Mathematics achievement; Secondary schools.