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INFLUENCE OF COOPERATIVE LEARNING INSTRUCTION ON
SECONDARY SCHOOL STUDENTS' ACHIEVEMENT AND SELF
CONCEPT IN MATHEMATICS IN KENYA

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Requirements for the Award of Degree of Doctor of Philosophy in
Mathematics Education of Masinde Muliro University of Science and
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DECLARATION

CANDIDATE'S DECLARATION

This thesis is my original work and has not been presented elsewhere for a degree or any other award.

Signature..... *Wgogoall5* Date..... *12th / 06 / 2015*

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SUPERVISORS' APPROVAL

The undersigned certify that they have read and hereby recommend for acceptance of Masinde Muliro University of Science and Technology a Thesis entitled; "Influence of Cooperative Learning Instruction on Secondary School Students' Achievement and Self-Concept in Mathematics in Kenya".

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ABSTRACT

Performance in mathematics at secondary school levels in Kenya remains poor and one reason blamed for this is the predominant use of teacher-centered approaches over student-centered instructions. This study therefore, investigated the influence of cooperative learning instruction on secondary school students' achievement and self concept in mathematics in Kenya. Objectives of the study were: to determine whether cooperative learning instruction is more effective than conventional methods in learning of mathematics; to examine the difference in performance in algebra and trigonometry between boys and girls taught using cooperative learning; to determine students' self-concept in mathematics when taught using cooperative learning instruction; to find out the difference between boys and girls self concept in mathematics using cooperative learning. A pre test, post test nonequivalent quasi experimental design was adopted for the study. The study used 402 students that were available in the selected 2 county ranked schools and 8 sub county ranked schools strata. The schools were randomly assigned experimental group and control group from each stratum. Two Mathematics achievement tests and one students' self-concept questionnaire were used to collect data. Piloting of the instruments was done in one of the secondary school in the county which was not under the study to ascertain for the validity and reliability of test instruments. The opinion of academic advisors and experienced mathematics educators was sought for validity of the instruments. Using the split half method, the reliability of mathematics pre test and post test scores were calculated using Spearman correlation coefficient r_s . The reliability coefficient obtained were $r_s = 0.670$ for pre test scores and $r_s = 0.653$ for post test scores which were acceptable. The data were analyzed using descriptive statistics (means, standard deviations, and percentages) and inferential statistics of t-tests, analysis of variance and chi-square at $\alpha = 0.05$. The research findings showed both high level of students' achievement and self concept in mathematics when students are taught using cooperative learning instruction. Therefore, cooperative learning instruction is recommended for use in teaching and learning of mathematics in secondary schools as it improves students' self concept and enhances academic achievement in mathematics.