ABSTRACT

Kenyan secondary school students have continued to perform poorly in mathematics in Kenya Certificate of Secondary Education (KCSE) examinations. The reason for the poor performance in mathematics has been attributed to several factors, which include: poor teaching methods, lack of teaching and learning resources, and abstract nature of mathematics. Some mathematics topics have been labeled hard to teach and learn by the teachers and the students respectively. Loci is a topic in the form four syllabus that is labeled hard or difficulty to teach and learn. The students' performance in the topics has consistently been poor. This study sought to investigate effects of using Computer Animated technique on Loci during instruction on students' misconception made in the mathematics topic. It was hoped that the use of ICT would improve the sorry state of mathematics misconceptions. ICT has been used in teaching and learning of chemistry with remarkable improvement. The theoretical frame work to guide the study was based on constructionist theory of learning where the students constructed new knowledge from real life experiences. The researcher constructed Computer Animations on Loci concepts to augment the teaching of loci. Solomon Four, Non-Equivalent Control Group Research Design was used. To ensure that there was no interactions between groups a Simple random sampling was used to assign each group to a specific sub-county out of sixteen Sub-Counties in Kitui County. A purposive random sampling was used to choose a school for each group that had graduate teachers teaching form four and had a computer laboratory. The study was carried out in a mathematics classroom setting. The two experimental groups were exposed to Computer Animated Loci technique as the treatment while the two control groups were taught using the conventional teaching/learning methods. The sample size was 207 students consisting of 95 girls and 112 boys. A Mathematics Achievement Tests (MAT), adopted from KCSE past Examinations on Loci was used. Misconception that a student made on Loci concepts in MAT were noted and awarded one mark. The instruments were pilot tested to estimate their reliability. The instrument was validated by experts from the Department of Curriculum, Instruction and Educational Management of Egerton University and mathematics examiners. The reliability coefficient of the instrument was computed to be 0.8157 using K-R 20 formula. A Pre-test was administered to the two groups, one experimental and one control before intervention and then the same MAT was administered to all the four groups after intervention as a Post-test. The Statistical Package for Social Sciences (SPSS) version 21.0 was used to analyse the collected

data. The t-test and ANOVA were used to test hypotheses at Coefficient alpha (ά) level of 0.05. The findings are expected to be useful to students, teachers, Policy makers, teacher training colleges and curriculum developers in secondary schools because they may be able to identify a teaching/learning technique which may improve the quality of education in the country.

Index Terms: Loci, Misconception, Computer Animated technique on Loci,