COMPUTER ASSISTED LEARNING AND ITS EFFECT ON SECONDARY SCHOOL STUDENTS' ACHIEVEMENT IN CHEMISTRY: CASE OF MAKUENI COUNTY, KENYA

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DECLARATION

I declare that this thesis is my original work and has not been presented in any other university/institution for consideration of any certification. The thesis has been complemented by referenced sources duly acknowledged. Where text, data (including spoken words), graphics, pictures or tables have been borrowed from other sources, including the internet, these are specifically accredited and references cited using current APA system and in accordance with anti-plagiarism regulations.

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ABSTRACT

Towards the realization of Kenya's Vision 2030 and attainment of Sustainable Development Goals (SDGs), the Government of Kenya (GoK) and other organizations have invested heavily in ICT infrastructure in public secondary schools. This was done to boost learners' mastery of concepts and building of 21st century skills. The study sought to investigate the impact of Computer Assisted Learning (CAL) on students' achievement in Chemistry in public secondary schools in Mbooni East Sub-County, Makueni County, Kenya. The study was guided by the following objectives: determine the difference in achievement in Chemical Bonding between learners introduced to CAL and those taught using conventional methods (CM), establish the gender effect on achievement of learners introduced to CAL, determine the perceptions of learners towards CAL and determine the perceptions of teachers of Chemistry towards CAL. Quasi-experimental design was used in which 180 Form 2 students and 4 Chemistry teachers who administered the treatment in the 4 selected schools with ICT infrastructure participated. The 4 selected schools were categorized either as control or experimental groups, 2 in each case. The experimental group was introduced to CAL using Computer instructional materials developed by Computers for Schools Kenya (CFSK) for 3 weeks while the control group was taught using CM. Data collection was done using Pre-test Chemistry Achievement Test (PRCAT), Post-test Chemistry Achievement Test (POCAT), Learners' motivational scale and teachers' interview schedule. Quantitative data was analyzed using both descriptive and inferential statistics in the form of means and T-test. Qualitative data was analyzed using Frequency distribution, means, Chi-square and thematic approach, where the results from Chemistry teachers' interviews were organized into themes consistent with the study objectives. The findings showed that there was a significant difference in achievement between the students in the control and experimental group ($p = 0.001 < 0.05$). However, gender was found to have insignificant influence on the CAL strategy to teaching and learning of Chemistry ($p = 0.927 > 0.05$) therefore both boys and girls benefit equally when taught using CAL. The use of CAL was also reported by the majority of learners to be enjoyable making learning of abstract concepts easy. The teachers perceived the use of CAL to be a better alternative instructional method with the potential to improve student performance compared to conventional methods. Following the findings, the study recommends intensive application of CAL in the classroom instruction due to the advantage it offers over conventional methods in improving learners' performance.