UTILIZATION OF COMMUNITY RESOURCES IN TEACHING AND ITS IMPACT ON ACQUISTION OF TRIGONOMETRIC SKILLS IN PUBLIC SECONDARY SCHOOLS: KITUI COUNTY, KENYA

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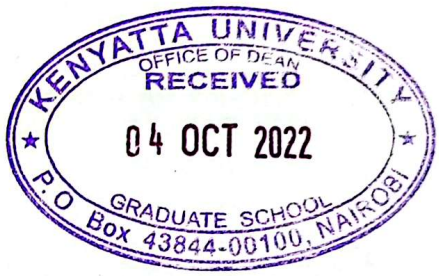

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF EDUCATION (MATHEMATICS EDUCATION) IN THE SCHOOL OF EDUCATION OF KENYATTA UNIVERSITY

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DECLARATION

I declare that this project is my original work and has not been presented in any other university/institution for consideration of any certification.This research thesis has been complemented by referenced sources duly acknowledged. Where text, data, 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

Trigonometry is a very important topic in Mathematics education and trigonometric functions have many applications in fields such as advanced physics, mechanical and electrical engineering, music, astronomy and biology. Any challenges encountered by students in learning trigonometry affect overall performance in Mathematics. Most students have difficulties in trigonometry as reflected by their performance in national examinations. These difficulties emanate from a number of factors including; lack of motivation, abstractness of trigonometric concepts, lack of understanding of fundamental concepts, and students' inability to connect concepts in trigonometry. This study sought to investigate the utilization of community resources in teaching and its impact on acquisition of trigonometric skills in public secondary schools in Kitui County, Kenya. The study was guided by three objectives: (a) to assess statistical relationship between the utilization of community resources and the acquisition of trigonometric skills; (b) to analyze the status of utilization of community resources in acquisition of trigonometric skills; (c) to explore the underlying potentials of community resources in the acquisition of trigonometric skills. Bruner's theory of constructivism constituted the theoretical framework for the study. The study adopted a quasi-experimental research design. The study targeted a total of 4,847 respondents comprising 203 teachers of Mathematics and 4,644 form three students from 49 secondary schools in Mwingi Central sub-County. Stratified and simple random sampling techniques were used to select 485 respondents for the study. The study used questionnaires to collect quantitative data from teachers of Mathematics whereas pre-test and post-test examinations were used to collect data from the students. A pilot study was conducted in three (3) public secondary schools in Mwingi Central sub-County. Validity of the data collection instruments was determined through expert judgment whereas reliability of the questionnaire was ascertained through internal consistency method using Cronbach's Alpha coefficient formula. Statistical Package for Social Sciences (SPSS) version 22.0 facilitated the analysis of quantitative data. Descriptive statistics such as frequencies, percentages, means and standard deviation were used to analyze quantitative data. Findings of the study showed that most teachers of Mathematics utilized community resources at least once per month in teaching trigonometric concepts in public secondary schools in Kitui County. The community resources frequently utilized by teachers of Mathematics to a great extent in teaching trigonometry included trees, buildings, rivers and community resource centres. The study revealed that a significant difference existed in the level of performance between students exposed to the utilization of community resources and those taught using the conventional methods. The study found that most teachers of Mathematics indicated that students accessed community resources mostly through field trips, nearby shops and factories. The study revealed that most teachers of Mathematics agreed that exposure of students to environment improves their mastery of trigonometric skills and that resources in the schools' locality can help students acquire trigonometric skills. From the findings it can be concluded that utilization of community resources enhanced the acquisition of trigonometric skills among students in public secondary schools. The study recommended that Heads of Departments of Mathematics should ensure that teachers of Mathematics utilize community resources in the teaching of trigonometry. All teachers of Mathematics should have practical lessons every week where students are taken outside the school compound to study Mathematics using the community resources available.