

The Effect of Science Process Skills Teaching Approach on Secondary School Students' Achievement in Chemistry in Nyando District, Kenya

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Abstract

Science process skills are central to the acquisition of scientific knowledge which is useful in solving problems in society. In Kenya, students' achievement in chemistry in the Kenya Certificate of Secondary Education (KCSE) is generally low. The low performance could probably be attributed to lack of exposure to science process skills. This study investigated the effect of science process skills teaching approach (SPSTA) on students' achievement in chemistry. Solomon Four Group Quasi experimental design was employed. Purposive sampling was used in selecting four district secondary schools having equal number of boys and girls. The sample size was 153 Form Three students. The Form Three classes were randomly assigned to two experimental and two control groups. The study covered two topics selected from the KCSE Chemistry syllabus namely, Volumetric analysis (Titration) and Qualitative analysis. Chemistry Achievement Test (CAT) consisting of simple calculations, True and False items, and Fill in blanks were used as a pre-test. After the administration of treatment, which lasted five weeks, the same test was administered to the four groups as a post-test. The reliability coefficient of the CAT estimated using Kuder-Richardson (K-R21) formula was equal to 0.88. The data were analyzed using descriptive statistics, t-test, ANOVA and ANCOVA. Hypotheses were tested at $\alpha = 0.05$ level of significance. The results revealed that SPSTA had a significant effect on students' achievement in Chemistry. The outcome of this study may provide an insight for designing instructional strategies that aim to enhance students' performance and contribute to the improvement of teaching and learning of chemistry in secondary schools.

Keywords: Science process skill, Teaching Approach, Achievement, Chemistry

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