

## ABSTRACT

Secondary school students' achievement in Chemistry in Kenya has been poor. Among the reasons advanced for this is the traditional teaching approaches mainly used by chemistry teachers. The application of Graphic Organizers Experiential Teaching Approach (GOETA) may help improve learners' achievement and self-concept in Chemistry. This study aims at investigating the effects of GOETA on students' achievement and self-concept in Chemistry. The study involved quasi experimental research in which Solomon Four Non-Equivalent Control Group Research Design was used. The study sample comprised Form Two chemistry students in four secondary schools in Nakuru North SubCounty. Purposive sampling technique was used to select the four schools from which a single stream per school was selected by simple random sampling. The streams comprised 53, 51, 57 and 55 students in a class making a sample size of 216 students. The four schools were randomly assigned to two experimental and two control groups coded as E1 & E2, C1 & C2, respectively. In the experimental groups, GOETA was used while Traditional Teaching Methods (TTM) were used in control groups for a period of four weeks. The teachers of E1 & E2 were trained by the researcher on the techniques of GOETA before the treatment. Pre-test was administered to two groups before treatment and a post-test after treatment to all groups. The instruments used for data collection were Chemistry Achievement Test (CAT) and Students' Self-Concept Questionnaire (SCSQ) to measure Student's achievement and Self-Concept in Chemistry respectively. The validity of the instruments was ascertained by a panel of five experts in the Faculty of Education and Community Studies before use for data collection. The instruments were pilot-tested to estimate their reliability. Reliability coefficients of 0.846 for CAT and 0.861 for SCSQ were obtained and were accepted since they are above the threshold of 0.7. Data were analysed using t-test, one way ANOVA and ANCOVA. Hypotheses were tested at  $\alpha = 0.05$  level of significance. The findings show that the students exposed to GOETA had higher achievement and chemistry self-concept than those taught through TTM, while student gender had no significant influence on both achievement and chemistry self-concept. This implies that if the new approach is incorporated into chemistry teaching, the imbalance in performance between boys and girls would be checked hence improving overall achievement of students. The findings may be useful to the Kenya Institute of Curriculum Development, provide for improvement of in-service and pre-service training programmes and may enhance learners' interests in chemistry and subsequent entry into careers that require chemistry skills and knowledge.