

ABSTRACT

Biology is one of the science subjects taught in Kenyan secondary schools. It provides a foundation subject for the health sciences, agriculture, biotechnology and environmental science. However, secondary school students in Kenya have continued to perform poorly in Biology in the KCSE national examination. This is an indication that most students do not acquire requisite knowledge and skills during Biology lessons. This is partly attributed to the instructional approaches used. The purpose of this study was to investigate the effects of using advance organizers on students' achievement and attitudes towards the learning of Biology in secondary schools in Kilifi County. Solomon Four, Non-Equivalent control group design was used in this study. The study targeted all secondary school students in 249 secondary schools in Kilifi County. The accessible population consisted of all form two students in Kilifi County. Sample size comprised 156 form two students from four co-educational secondary schools in Kilifi County. Purposive sampling technique was used to select four co-educational secondary schools. The four schools were randomly assigned to experimental groups (E1) and (E2) and control groups C1 and C2. The two experimental groups were taught using advance organizers while the two control groups were taught using conventional teaching methods. The instruments used to collect data were the Biology Achievement Test (BAT) and Students' Attitude Questionnaire (SAQ). The instruments were validated by five experts in science education from Egerton University. The reliability of section A and B of BAT were estimated using Kuder-Richardson 20 (K-R 20) and Cronbach's alpha coefficient respectively. They yielded a coefficient of 0.82 and 0.79 respectively. Reliability of SAQ was estimated using Cronbach's alpha coefficient and yielded a coefficient of 0.74. Thus the instruments used had a reliability coefficient above 0.70 which is the acceptable threshold. The data collected was analyzed using descriptive statistics, One way Analysis of Variance (ANOVA) and t-test. The findings of this study show that learners taught using advance organizers performed better than those taught using conventional teaching methods. The findings also indicate that the use of advance organizers improves students' attitude towards learning Biology. It was also observed that Advance Organizers reduce gender differences in achievement and also enhances gender parity in attitude towards Biology. It is, therefore, recommended that the use of Advance Organizers be integrated in the teaching of Biology and other science subjects in secondary schools.