

Effects of Sequential Teaching Methods on Retention of Knowledge in Biology by Secondary School Students in Kenya

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Abstract:

Despite the importance of knowledge in Biology, candidates' performance at the national examination, The Kenya Certificate of Secondary Education (KCSE) is poor. This could be attributed to the teaching methods. The purpose of this study was to compare differential effectiveness of Sequential Teaching Methods (STM) on the retention of knowledge in Biology by secondary school students. The study was Quasi- experimental using the Non-equivalent control- group 16 study design. The target population comprised students in the 18 old category National Schools in Kenya that were in existence before 2012. Purposive sampling was used to obtain a sample of eight (8) schools and 402 Students. The students in the eight (8) sub-groups were taught the same Biology topic: 'General Characteristics of Enzymes', using different sequences of three teaching methods namely: lecture, slide demonstration and laboratory (student experiment). Group I (ELD) began with experiments, followed by lecture method and was lastly shown, animated slides. The sequence of the three different methods used in the first group was altered in both the second and third groups as follows: The lecture method, slide demonstration and laboratory experiment (LDE) for Group II, and slide demonstration, experiment and lecture method (DEL) for group III. Students in group IV (control group) were taught using (oral-only) lecture method. The teachers gave lectures and performed slide demonstration while the students carried out laboratory experiments. The test was used as a pre-test and also as a retention test that was administered 40 days after the Post-test BAT. This test had 25 objective questions testing knowledge of facts, application of knowledge and problem solving ability. To measure Retention of Knowledge, the researcher used Biology Retention Test (BRT). The research hypothesis was tested using ANOVA at significant level of 0.05. The results and findings of the study show that STM, when efficiently used in instruction enhance immediate retention of knowledge in Biology more effectively than the oratory lecture method predominantly used in Kenyan Secondary schools. Furthermore, DEL sequence was identified as the most effective in comparison to LDE and ELD. The findings of the study will help curriculum developers and teachers to choose the most appropriate sequence to use in Biology.

Keywords: sequential teaching, retention of knowledge, secondary school, Kenya

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