

Teachers' Perceptions on Effectiveness of The KCSE Biology Practical Assessment Approach in Testing Experimenting Skills in Secondary Schools in Siaya County, Kenya

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Abstract

Assessment is an important aspect of teaching/learning process in secondary schools. The Kenya Certificate of Secondary Education (KCSE) biology practical assessment approach introduced in the year 2005 by the Kenya National Examinations Council (KNEC) is one in which out of the three questions tested in the paper, only one question, mostly food tests involve handling apparatus and specimens by the candidates. In the other two questions, the candidates observe photographs and photomicrographs presented in the paper and then answer questions. The approach was adopted with an aim of reducing the problems of cheating in biology practical examinations. However, its effectiveness in the assessment of Science Process Skills has not been ascertained. The purpose of this study was to establish the perceptions of teachers' on the effectiveness of the assessment approach in testing science process skills. Descriptive survey research design was used in this study. The target population comprised all trained secondary school biology teachers in Kenya. Accessible population were a total of 108 secondary school biology teachers in Siaya County. Proportional stratified sampling and simple random sampling was used to select the subjects of study. International Journal of Sciences: Basic and Applied Research (IJSBAR)(2017) Volume 34, No 2, pp 120-136. Proportional stratified sampling was used to ensure the study sample was derived from all the six sub-counties that constitute Siaya County, while simple random sampling was used to obtain study sample from each sub-county. A total of 90 teachers formed the study sample. Biology Practical Teachers' Questionnaire (BPTQ) was used to generate data from the respondents. Five research experts from the Faculty of Education and Community Studies, Egerton University, validated the instruments. The reliability of the instruments was estimated using Cronbach's Alpha coefficient. Pilot-testing was conducted in the neighbouring Kisumu sub-county, Kisumu County. Reliability coefficient for the questionnaire was 0.85. Data analysis was carried out using descriptive statistics which were frequencies, means and percentages. The findings of this study indicated that, in teachers' perception, the assessment of science process skills is not effective in the KCSE Biology Practical Assessment Approach. It was therefore recommended that a lot of hands-on activities, manipulation of specimens and handling of apparatus be reinforced in the testing of biology practical skills. The findings of this study are important in improving the testing of Biology practical paper by KNEC and teaching laboratory lessons by Biology teachers through recommendations.

Keywords: Science Process Skills, Assessment, Experimenting Skill, Photomicrographs, Perceptions, KCSE Biology Practical Assessment Approach, Effectiveness

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