

Effects of Practical Investigation on Scientific Creativity amongst Secondary Schools Biology Students in Kericho District, Kenya.

Caroline Chelang'at Chumo

Abstract

Changes and developments in the 21st century demand for school leavers who possess creative abilities valuable for personal, social, technological and economic development. . Many science curriculum documents assert that engaging in practical work in science can enhance scientific creativity in students. However, the laid down procedures in Kenyan secondary school biology practical work seem to hinder the development of scientific creative abilities since they do not allow students to design their investigations. This study has been conducted to examine the effect of Practical Investigation laboratory approach on scientific creativity amongst form three biology students in Kericho district. Solomon-four Non-equivalent control group design was used in the study. The population of the study consisted of all form three students in the county secondary schools in Kericho district. A sample from four schools with a total of 180 form three students was selected from the population using purposive random sampling. Two schools were randomly assigned to experimental groups while the other two into the control groups. Biology Creativity Test (BCT) and Scientific Creativity Test in Biology (SCTB) instruments were developed and validated to ascertain their efficacy in the subject area under study. The BCT was used during the pretest and consisted of 8 items designed in an open ended nature. The SCTB was used during posttest and consisted of 15 items also designed in an open ended nature. The items in the two tests were derived from the topics of nutrition, transport and ecology. Four null hypotheses were generated and tested for this study. Data obtained were analyzed using t-test and ANOVA. The results showed that there was a significant difference in students' scientific creativity when Practical Investigation laboratory approach was used as compared to conventional laboratory approach. The study concluded that Practical Investigation laboratory approach could be used to enhance scientific creativity in biology among secondary school students.

Keywords: Scientific creativity, Practical investigation, Creative abilities, Biology, Form three

Full text: <https://www.iiste.org/Journals/index.php/JEP/article/view/11639>