

Outcomes of First Year Secondary Students in a Computer-Augmented Physics Program on Measurement

Joel K. Kibossa and Meshach B. Ogunniyi

Abstract

Measurement is a foundational topic in secondary school physics that must be taught to all secondary education students in Kenya. The secondary level offers education for students who are aged between 12- and 18-years-old. Physics teachers in the Rift Valley province identified the topic of measurement as an area that is difficult to teach through traditional methods. This study explored the effectiveness of a computer-augmented physics (CAP) program on teaching the topic of measurement to first year secondary students. A total of 118 secondary education students (65 males and 53 females) participated in the study. They were randomly selected and randomly assigned to three similar classrooms situated in three schools easily accessible by the Njoro-Menengai and Nakuru-Marigat roads better and served as the treatment and control groups. Except for the treatment group, all groups received the same course content for a period of six weeks. The findings of the study affirmed the impact of innovation on the students' learning outcomes in that the mean gains of the participants in the CAP treatment were significantly higher than that of their counterparts in the regular program. Also, the results indicated that the mean differences between the experimental group and the control group were statistically significant in favour of the treatment group. The findings also showed no relationship between the participants' gender and their learning outcomes. The study concludes that the use of the computer to augment conventional physics teaching has major implications for secondary physics in this area.

Keywords: secondary students, computer-augmented physics, measurement, Kenya

Fulltext:

https://www.tandfonline.com/doi/pdf/10.1080/17439880500251442?casa_token=yCman8CEqPwAAAAA:6o8rc_y2s3j1pXRHFvXcE4PNT09rsvtvKXC7haOwrD7PyE6Vbp71ZnbDFWwzznp3MJ_fr2wZxXzGQrqjsw