

Gender Differences in Learning Outcomes on the Mole Concept in a Developing Country: Kenya

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Abstract

The gender gap that results from the differential treatment of boys and girls is still noticeable today in their achievement and participation in chemistry education in Kenya and perhaps in every other developing country. Due to its large concept map and sometimes theoretical nature, the Mole Concept has been recognized as one of the most difficult topics to teach and learn within the secondary school chemistry curriculum. The study compared male and female form four secondary school students' learning outcomes in Mole Concept area of chemistry in Kakamega County, Kenya. The sample consisted of 384 students randomly selected from the three school types: mixed, boys and girls. Two instruments were used viz: Mole Concept Students Attitude Scale (MCSAS) and the Mole Concept Achievement Test (MCAT). Data collected were analysed using t-test. The findings of the research showed that there were significant differences between male and female students in overall chemistry achievement ($t = 4.409$, $p < 0.05$) and attitude to science ($t = 0.387$, $p < 0.05$). The absolute t-values for spatial and mathematical items 4.780 ($p < 0.05$) and 4.094 ($p < 0.05$) respectively were highly significant with boys performing better than girls. It is therefore recommended among others that teachers should use instructional strategies that will enhance gender equality in students' learning outcomes in chemistry especially in major concepts like the Mole.

Keywords: Gender, Mole Concept, Learning Outcomes, Secondary School

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