Effectiveness of Activity Based Learning in Grade 10 Science: A Case Study in Maho Education Zone

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Science is an important subject for students in all grades from primary to secondary level. Science is a core subject in General Certificate of Education Ordinary Level (G.C.E. O/L). However, the students' achievement level of G.C.E. (O/L) science is less than the expected level. The aim of this study was to investigate the effectiveness of activity-based learning on Grade 10 science comparison to traditional learning with their motivation towards meaningful learning. The mixed methods approach was used for this study with experimental study design. The sample consisted of 142 Grade 10 students selected from a Type 1AB school and a Type C school. A pre-test was conducted to divide the sample into experimental and control groups. The study was carried out for four selected units in Grade 10 Science using activity-based teaching in the experimental group while using the traditional lecture-based method for the control group. A post-test was given to measure the students' performance after the intervention. Students' motivation towards science was investigated through a questionnaire with Likert scale. Qualitative data were collected through semi-structured interviews, informal interviews and observations. Six teachers and two in-service advisors participated for semi-structured interviews. Paired sample t-test and independent sample t-test for pre-test and post-test marks was conducted to test the difference between students' performance of two groups. T-tests were used to analyze quantitative data whereas content analysis technique was used to analyze qualitative data. The academic achievement for both groups were positively increased with compared to initial level. Moreover, motivation towards science learning of students in the experimental group increased significantly ($p = .000$). The study reveals that activity-based learning has a positive effect on students' performance and student motivation in learning science. Hence, the study suggests to focus on activity-based learning to empower students' meaningful learning in science.

***Keywords*:** Activity based learning; Science; students' performance; Student's motivation