

Learners' Performance in Physical Sciences Using Laboratory Investigations

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ABSTRACT One of the goals of science is to promote laboratory investigations (LIs) to improve conceptual development and performance. This study focuses on how learners' performance in physical sciences could improve using LIs in under-resourced schools in South Africa. A quasi pre- and post-test research design was used. A total of 51 Grade 10 learners participated: 25 from one whole class was assigned to an Experimental Group (EG) and 26 from another class to a Control Group (CG). The EG was taught using LIs while the CG the traditional approach. Data on learners' performance were collected using a performance test and interviews were employed to collect data on learners' attitudes towards science. The results revealed that the EG performed better than the CG (T-test, $p < 0.05$), (ANCOVA, $p < 0.001$). Girls in the EG performed better than girls from the CG (Mann-Whitney U-test: $U = 34.50$, $p < 0.05$), suggesting that LIs did not discriminate against gender in this study. Furthermore, the results from interviews indicated that learners from EG exhibited positive attitudes towards science, unlike their counterparts from the CG. This suggests that learners from the EG may have been excited to observe phenomena and to handle apparatus.