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FIRST-YEAR STUDENTS' DEVELOPMENT OF PHYSICS CONCEPTS: THE EFFECT OF GUIDED INQUIRY LABORATORY ACTIVITIES

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This study investigated the effect of guided-inquiry physics (GI) laboratory activities on students' development of physics concepts. Ninety seven first-year Bachelor of Science physics students participated in this study at a well-established South African university. The students were assigned systematically to control and experimental groups. The control group did recipe-based practical activities, while the experimental group did GI practical activities. At the end of the semester, data were collected using the written practical and hands-on examinations. Follow-up interviews were also conducted. Results indicated that some questions enhanced students' understanding of certain physics concepts while others did not. The control group outperformed the experimental group in many questions, but also performed worse in some of the questions. Overall, there were differences between experimental and control groups, although the differences were statistically insignificant. It was concluded that GI laboratory activities did not enhance first-year physics students' perceptions of physics concepts but it has enhanced positive attitudes towards physics laboratory work. The results of this study however, contribute to the understanding of current science laboratory practices, learning processes and the potential effects of inquiry-based instruction at university level.

Apply to be considered for a student award (Yes / No)?

no

Level for award (Hons, MSc, PhD, N/A)?

phd

Main supervisor (name and email) and his / her institution

Prof W.E.Meyer, walter.meyer@up.ac.za, University of Pretoria

Would you like to submit a short paper for the Conference Proceedings (Yes / No)?

yes

Primary author: Mr BALOYI, Vonani (University of Pretoria)

Co-authors: Prof. GAIGHER, E (University of Pretoria); Prof. MEYER, W.E. (University of Pretoria)

Presenter: Mr BALOYI, Vonani (University of Pretoria)

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