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Investigating the effect of context-based teaching approach on learner interest and performance in science

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ABSTRACT

The findings of the TIMMS study show that "South African learners have a very poor self-concept in Mathematics and Science compared to pupils internationally" (Howie, 2001, p. 37). This implies that South African learners perceive themselves as not talented enough to do well in either of the subjects, that the two subjects are difficult and that they cannot find any joy in learning them. Research has shown that the notion of self-concept has an influence on attitudes towards learning (Young, 1998).

This study aimed at investigating whether the use of context-based teaching methodology in the teaching of Science is able to assist learners in developing interest and positive attitudes towards the learning of Science, and whether these could lead to improvement in the performance of learners in Science. The study further looked at the kinds of difficulties that could be faced by educators attempting to use the context-based approach in their daily teaching. The latter was investigated because it is difficult to examine how learning takes place in the classroom in isolation from teaching.

The results of the study indicate that learners seem to become more interested in Science learning when learning is based on everyday contexts. They seem also to enjoy participation in different types of group work in the classroom. The level of enthusiasm in the classroom, as observed during the course of the study as well as the interviews held with learners at the end of the intervention, also indicates the willingness (which could be perceived as a change in attitude) that was generated on the side of the learners to participate in Science learning activities, such as practical work. The performance of learners in the test given after the intervention also improved slightly compared to their performance in the test given just before the intervention.

DECLARATION

I declare that

INVESTIGATING THE EFFECTS OF CONTEXT-BASED TEACHING APPROACH ON LEARNER INTEREST AND PERFORMANCE IN SCIENCE: AN INTERPRETIVE STUDY ON SULPHUR AND SULPHUR COMPOUNDS IN GRADE 11 is my own work, submitted to the Faculty of Science, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of Master of Science in Science Education.

_____ _____

(Candidate's signature) Date of Submission

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DEDICATION

This study is dedicated to my wife, Tintswalo, for her unfailing support throughout the process of writing this report and my beloved children, Masingita, Kulani and Masana.

LIST OF ACRONYMS USED IN THE STUDY

Acronyms used to Classify/Code Learner Responses in the Questionnaire

NIG – Not interested Group

QLTG – Quality Learning and Teaching Group

SBG – Science Benefit Group

SOG – Social Oriented Group

SCG – Subject Content Group

Acronyms used to Classify/Code Learner Levels of Motivation during Group Work

COL – Co-operative Learning

CPS – Collaborative Problem Solving

SIT – Situated

SOP – Socio-political

General Acronyms used in the Study

BSc – Bachelor of Science

FET – Further Education and Training

GDE – Gauteng Department of Education

GET – General Education and Training

HDE – Higher Diploma in Education

HSRC – Human Sciences Research Council

IRE – Initiate-Response-Evaluate

LPP – Legitimate Peripheral Participant

NCS – National Curriculum Statement

REDOX – Reduction-Oxidation Reactions

RNCS – Revised National Curriculum Statement

SMT – School Management Team

STS – Science, Technology and Society

TIMSS – Third International Mathematics and Science Study

USA – United States of America

ZPD – Zone of Proximal Development