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The effect size of an intervention focusing on the use of previous national senior certificate mathematics examination papers

Cyril Julie, Monde Mbekwa and Marius Simon

Abstract
This study reports on an intervention that emanated from a concern a mathematics teacher had about the unsatisfactory performance of grade 12 learners in the school-based mid-year examination. The intervention was based on distributed practice and the effect size of the intervention was determined as an indicator of the effectiveness of the intervention. Different effect sizes are reported and the reasons for their acceptance or non-acceptance are presented. Overall the results indicate that if all the different effect sizes are taken into account, the intervention had a medium to high effect. Given that the intervention was driven by aspects of teaching and was done at school, it is recommended that more attention be accorded to those aspects of teaching that enhance achievement in Mathematics.

Introduction

Interventions for the improvement of achievement in the National Senior Certificate Mathematics examination abound. Rarely are the interventions designed with inputs from teachers who teach Mathematics in grades 10 to 12. In addition the interventions are generally not school-based and normally target learners who are identified as having the potential to be successful. Rarer is the reporting on the effectiveness of the interventions other than descriptive percentage data on the success of learner participants. Furthermore, if effect sizes are reported, the decisions involved for the adoption of a particular effect size indicator are seldom made explicit. This study reports on the use of previous examination with a particular strategy, spiral revision, and uses effect sizes to determine whether the implementation of the strategy was significant.

The use of previous examination papers for preparation for high-stakes examinations such as the National Senior Certificate (NSC) examination is a well-grounded practice in schools. In fact the Department of Basic Education (DBE) in South Africa makes previous question papers available and encourages teachers and learners to use them for revision purposes. It states on its website:

Old examination papers are a great way to revise and prepare for upcoming NSC examinations. This way you can find out what you already know and what you don't know.

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