

Critical discourse in Mathematics and Science Teaching: Issues from the New Mathematics and Science Curriculum in South Africa

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Abstract

Research shows that learners' outcomes in mathematics and science in South Africa were below expectations and both the public and the Ministry of Education have expressed dissatisfaction with the standards of mathematics and science among the school leavers. Several studies both large and small scale have identified the concerns in mathematics teaching and learning in South Africa. Several attempts were made by the Department of Education to address the standards of mathematics teaching and learning and one of them is the introduction of the New Curriculum 2005. This paper is an outcome of video taped structured interviews (Appendix A) with 39 mathematics and science teachers from 19 high schools in Soweto, South Africa. The interviews required mathematics and science teachers to delineate topics in mathematics and science that they perceived to be problematic to their learners. They were also required to explain why these topics were regarded as difficult and outline the strategies they used in teaching these difficult topics. In a workshop that followed the teachers' interviews, teachers were asked to write down the advantages and concerns with the new mathematics and science curricula. The questions regarding the New Curriculum (Appendix B) were further asked to another set of 18 teachers and broadcast on the national television. This paper reports the outcomes of both the interviews and the workshop and highlights the challenges mathematics and science teachers are encountering with the New Curriculum as well as the initiatives teachers are taking to enhance learning in the New Curriculum.

Implementing Curriculum Change: Addressing poverty, gender equity and optimising learning

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Abstract

This paper is a critical review of current discourse in South Africa regarding the New mathematics and science curriculum. Effectively implementing the new curriculum requires that the teachers are grounded on the content as well as the instructional approaches required to achieve optimum learning. The reviews delineate that mathematics and science teachers have concerns regarding the New Curriculum and that implementing it effectively is a challenge that requires intensive research in order to identify effective instructional approaches, strategies and initiatives that result in high learner performance. To capture mathematics and science teachers' views about the New Curriculum, a questionnaire was administered to 37 mathematics and science teachers to source their opinion. The paper marries the reviews with the analyses of the teachers' responses regarding the areas of concern in the New mathematics and science curriculum and their coping mechanism in attempting to implement it.

Research's dilemmas in collaborative action research: Lessons from mathematics classrooms.

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Abstract

This paper addresses lessons learnt from a collaborative action research conducted by me as a researcher and four mentor teachers in their mathematics classroom. The research question required us to investigate strategies that cooperative teachers can use to effectively support and guide mathematics student teachers during their

teaching practicum. The paper attempts to illuminate the fine line that one navigates in conducting collaborative action research in a classroom that is not ones own but with the purpose and intention of working with the teachers. The issues of identity 'whose research is it anyway?' come into play. The paper starts with the theory around action research and why it is an essential research methodology for teacher and how action research can support curriculum change in a mathematics classroom. It highlights the role teachers can collaboratively play as researcher in their own practice and how action research can enhance teachers' professional development and reinforce their instructional skills.