

Investigating the nature of the linguistic challenges of the Department of Basic Education (DBE) 2013 Grade 4 Mathematics ANAs and learners' and teachers' experience of them.

The underperformance of South African learners in literacy and numeracy is a source of grave concern, especially at the transition from Grade 3 to Grade 4. The challenge that complicates this shift is to some extent linguistic, since at Grade 4 in South Africa the majority of learners begin learning in English, which is an additional language for most. The study adopts a sociocultural view of language and learning. Vygotsky's influential theoretical work on language and learning, in which language is considered central to learning and learning is a social process embedded in sociocultural settings, informs the study. The introduction of the Annual National Assessments (ANAs) across primary and secondary grades in South Africa in mathematics and literacy in 2011 provides the context for this research. It is against this background that the present study aimed, through a case study approach of three Grade 4 classes of English additional language (EAL) learners, to achieve four things, namely: to investigate the linguistic challenges of the 2013 Grade 4 mathematics ANAs; to analyse the learners' written responses to the 2013 mathematics ANA items; to explore the 2013 Grade 4 learners' difficulties and experiences of the 2013 mathematics ANAs, and to investigate the Grade 4 mathematics teachers' perspectives of the language of the ANAs. In order to achieve these aims, the data was collected in four phases. The first phase of the study addressed the nature of the linguistic challenges of the Department of Basic Education Grade 4 mathematics ANAs. Data collection occurred in two parts: 1) Comparing Grade 4 ANAs to exemplars provided and 2) Analysing the language of the 2013 mathematics ANAs. This was done through content analysis and Shaftel et al.'s (2006) linguistic complexity checklist. Findings for part 1 of the study revealed that there were several inconsistencies in the questioning format and language used in the ANAs and in the exemplars. Findings of the content analysis done on the 2013 mathematics ANA test items using Shaftel et al.'s (2006) linguistic complexity checklist and Vale's (2013) Linguistic Complexity Index formula point to many linguistic complexities in several test items, particularly in relation to recurrent use of: 7 or more letter words, homophones, prepositional phrases and specific mathematics vocabulary across the majority of questions. In phase 2, the analysis of 106 learners' written responses for the 2013 mathematics ANA questions revealed that for many of the questions the language used was unfamiliar for Grade 4 learners using English as an additional language. This was aggravated by the inclusion in the ANAs of linguistic forms learners would not have encountered in their workbooks or exemplars intended to prepare the learners for the assessments. Therefore, linguistic complexity of items was a key contributing factor to learners' poor performance in the test. In the third phase, the quantitative and qualitative analysis of the 26 learners' interviews revealed that during the task-based interviews, learners experienced difficulties in the following skills: reading, comprehension, transformation, process and encoding. The greatest difficulties were experienced in comprehension and in reading, especially in the two classes where the learners were less proficient in the English language. The fourth phase, in which two Grade 4 mathematics teachers' perceptions of the linguistic demands of the Grade 4 mathematics ANAs were presented and analysed, the teachers' perceptions indicated that the mathematical language was mostly too difficult for the Grade 4 learners. Teachers also were of the opinion that learners' reading skills were poor and they struggled to comprehend what they read. A dilemma regarding whether teachers should assist learners during the ANAs, satisfying the local needs for mediating the language or whether they should comply with the ANA policy which states that they may not assist learners was expressed by one of the teachers. A range of language challenges that teachers managed with various strategies were raised. These included one teacher's use of code-switching during the teaching of mathematics. The study concludes with implications and recommendations. These include that test designers should minimise the language complexity of test items, especially in the early transition grades of learning in English. Research should be conducted on possibilities for allowing teachers to provide linguistic mediation to ANA questions in these transition years of learners learning in English.

