

**Primary numeracy and mathematics teacher experiences of the ANAs  
across Eastern Cape and Gauteng Numeracy Chair projects:  
A discussion document, April 2013**

This document has been prepared with the intention of stimulating discussion among district, provincial and national education deliberations relating to assessment of learners.

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## **Summary of key issues requiring consideration and further investigation and discussion with teachers:**

Four key issues relating to the ANAs are raised for your consideration in this document. These relate to:

- the reading of questions for Grade 3s
- the timing of the ANAs and the relationship to content coverage
- the importance of breadth of questions (not to be confused with content coverage)
- acceptance of a variety of correct methods

## **Background**

In our work as the SA Numeracy Chairs at Rhodes and Wits University we collaborate with teachers in 12 primary schools in the broader Grahamstown area and 10 primary schools in the Johannesburg area. The schools include both township and suburban schools across both Chair projects. The introduction of the Annual National Assessments which began in 2011 has a great impact on the teachers we work with. Across both our projects we found, during 2012 that several weeks of school time were taken up with the preparation and the writing of the ANAs. A range of 1 to 8 weeks and a mean average of 3.97 weeks were reported by our teachers to be taken up on ANAs. In our respective teacher development programs (namely, the Numeracy Inquiry Community of Leader Educators - NICLE and the Wits Maths Connect - Primary) our teachers shared a range of different experiences of the ANAs. Together with the teachers, we decided that it was important to capture the range of views through gathering these in the form of questionnaires that teachers filled in across our projects. The questions asked related to the following range of issues concerning teacher experiences of the ANA's:

- the purpose and value of ANAs
- the use and value (if any) of exemplar papers given before the ANAs
- the administration of the ANAs
- the marking of the ANAs
- teaching time taken up by ANAs (including preparation, administration, marking and preparing results)
- correspondence with topics taught by teachers
- the extent to which ANAs reflect learners mathematical/numeracy competence
- any other experiences/ issues in relation to the ANAs

Participation in the questionnaire was voluntary. 54 teachers from across 21 schools completed the questionnaires. Here we share with you the various key themes that emerged with examples of what teachers wrote in relation to these themes. Thus rather than discuss the entire range of data received we primarily share those recurrent experiences that teachers communicated. We believe that dialogue is important in relation to the effect of the ANAs and our hope is that this will support the ongoing reflection and revision of the ANA process.

A note at the outset is that these views are by no means considered representative of the general population of teachers. Indeed we found some differences in teacher positioning in relation to the ANAs across the two provinces.

In the table below we provide an overview of comparative positive and negative recurrent responses across a range of issues relating to teacher experiences of the 2012 ANAs:

<b>Positive points</b>	<b>Negative points</b>
ANAs are good for: - Standardizing content coverage - Making expectations about what will be assessed explicit - providing information on learners' levels of understanding - Providing guidance on content coverage	Language within questions block access to question meanings for learners with weak reading and writing skills (particular issue at G3 level). The above is linked to lack of time for paper completion for weaker learners Learners needing some 'explanation' of task in order to access question – disrupting validity of assessment of learner understanding.
Predominant view of strong correspondence between content coverage in class and ANA questions	ANA timing in September results in difficult and rushed 4 <sup>th</sup> term content coverage or alternatively in non-alignment with content coverage.
Only one positive comment in this respect related to the smooth administration of the ANAs in his/her school	Bureaucratic arrangements (monitoring another class, seating arrangements within classes, lack of reading out of and explaining questions) – seen as anxiety inducing for FP learners in particular. Disrupts duty of care.

Examples of the kinds of positive points summarized above are as follows:

'The values and purpose of ANA are good because they help educators to do curriculum pacing very well and to cover the content prescribed for that class or grade' (Gauteng teacher)

'Good. They will standardize the content for each grade.' (EC teacher)

'ANA is a good tool to test our learners' ability on how well they are doing in mathematics' (Gauteng teacher)

'The purpose is to assess the learners and to ensure that content of work is covered. And to see where problem areas are.' (EC teacher)

The following comments, whilst buying into the purpose of the ANA, raise implementation issues:

'[The purpose of ANA is] to see if learners know the work and understand it. We need what you call pacesetters at the beginning of the year. The paper is based on the whole year's work. Some of the work we did not cover yet because we are left with the fourth term still.' (EC teacher)

'I think the ANA will be more successful if they had given the pacesetters in the beginning of the year plus example questions. I did not like the idea that we had to facilitate other grades instead of staying in my class.' (EC teacher)

Noting similar concerns in more negative ways, one teacher responded as follows:

'They were not useful because they cover the whole year's work in September; I can't rush to finish everything in September, because in that way I will be teaching the syllabus, not the learners.' (EC teacher)

Language issues were also raised, particularly in relation to learner difficulties with reading and writing demands, and the consequences of this for anxiety:

'ANA is confusing learners, because Grade 1 to grade 3 are very small they are used in their teachers explaining for them so ANA does not allow the teachers to read the instructions for the learners, especially grade 3. These learners are small they still need guidance when writing exams.' (EC teacher)

Of interest, several Eastern Cape teachers pointed to differential value of the ANA for weak and strong learners. For weak learners, comments connected to weak reading and writing skills. For example:

'The 'clever' kids did it with ease, but some learners whose writing and reading is poor needed help.' (EC teacher)

'It helped the clever kids, but for those with writing and reading problems was not easy as they took long to read and write.'

Perhaps some of these comments relate to some of the raw data provided by some NICLE teachers which show that several learners achieve 0% for the ANAs across several grades indicating an inability to access what is required of them. This was not however the case on alternative orally administered numeracy tests that were administered within the broader research project.

Related to the above were a wide range of comments and phrases relating to how the administration of ANAs led to learner anxiety and teacher frustration at not being able to provide care for their learners, particularly in the foundation phase, as they were not allowed to be present in administration of ANAs to their own classes. Phrases such as: 'learners were very anxious/ agitated/ nervous and scared' came up repeatedly. Teachers expressed frustration using phrases

such as: 'my mind was thinking about my own class as their was a stranger in front of them', 'some learners become nervous with a new teacher in their class'. The table below summarises the positive and negative responses in relation to the provision of exemplar ANA papers and the marking memorandums.

<b>Positive</b>	<b>Negative</b>
Useful for: - revision of content - getting learners familiar with format of 'exam' and style of questions; helpful for dealing with learner anxiety - preparation for ANA 'exam' as high degree of overlap between exemplars and ANA mentioned quite frequently - providing teachers guidance on content coverage - some reports of improving performance	Difficulties attributed to: - Need to rush through exemplars - Reading exemplars problematic for many learners - Bureaucratic difficulties with photocopying and access to paper - Some reports of learners not improving in spite of exemplars
<b>Memos</b>	
<b>Positive</b>	<b>Negative</b>
Generally easy to use with fair mark allocations. 'Easy to follow' was a phrase that appeared repeatedly.	Singular methods accepted is a problem – some 'appropriate' alternative methods left out  A few inaccuracies with some ambiguity or lack of clarity of language  Some concerns over mark allocations in some instances

In particular we note that several teachers commented on the high degree of similarity between the exemplar ANA questions and the final paper questions (some as positive and others as negative). For example:

'Learners benefitted a lot from the [exemplar] questions because some of them were in the final exams' (Gauteng teacher)

'Was useful to use because some of the questions repeated to 2012 ANA question paper.' (Gauteng teacher)

'Just a duplicate of the ANA papers' (EC teacher)

'Some, they were useful because they were asked in the pre-ANA & the ANA.' (Gauteng teacher)

A further problem relates to singularity of methods that are viewed as 'acceptable' as correct answers in the memos:

'They were useful because they set a good example of the exact way in which questions were to be asked so it trained my learners ..' (Gauteng teacher)

"multiplication in Grade 3 was difficult to mark as method was given on memorandum and learners did use different methods taught.' (Gauteng teacher)

'I don't think it really helped the learners I was just like drilling them. It only helped them for specifically the exams this term ....' (EC teacher)

The same teacher notes that this similarity between the exemplars and the ANA means that they do not provide a fair reflection of learner competence:

'No. I would only agree if the learner wrote the ANAs in November and no exemplar given.' (EC teacher)

In relation to the memo's while the majority of teachers commented that they were 'easy to follow' some took issue with the stipulation of a specific method of solution in the memo's. For example:

'Question on adding 3 digit nos & multiplication in grade 3 was difficult to mark as method was given on memorandum and learners did use different methods taught' (Gauteng teacher)

### **Concluding remarks**

The power of the influence of national assessments on the teaching of learners not to mention the teaching time that is given to these should not be underestimated. Four key issues are raised for consideration. These relate to:

- the reading of questions for Grade 3s
- the timing of the ANAs and the relationship to content coverage
- the importance of breadth of questions (not to be confused with content coverage)
- Memo should identify and accept a range of correct methods for ANA tasks, rather than only accepting one method for e.g. multi-digit multiplication

We elaborate briefly on these below.

The decision that Grade 3 foundation phase learners do not have the questions read to them (as is the case with Grade 1 and 2 learners) was raised by teachers across both projects as problematic in three ways:

- learners poor language proficiency
- learners poor reading skills (i.e. access to what is required), and,
- care for learners (see quotes above)

The issue of care was particularly pronounced for Grade 3 learners who were not used to assessments like these. Other teachers coming in to assess them and not

having teachers mediate what they are required to do through verbal instruction or reading of questions were noted as particularly problematic. The quote below captures this:

“Anxiety was a big factor. Children were nervous. Learners’ behavior was different as when writing internal tests/exams. I did not like the fact that we did not facilitate our own classes. We needed to shift classes. Children were confused. Especially foundation phase learners. Foundation phase learners need their own educators. I neglected my own assessment for third term...Learners had ‘exam fear’! Poor learners!” (EC teacher)

On the second point the timing of the ANAs must be chosen to correspond with what teachers can be expected to have covered by the time of writing. Additionally some teachers indicated the wish to be given clear guidelines (or pace setters). The quotes above indicate teacher frustration with not being able to complete all the work by September. On the third point, relating to the breadth of question, given the widespread acceptance of the usefulness and purpose of the ANAs (indicated above) special attention must be given to the influence of these on classroom practice. Teacher utterances largely indicate acceptance of ANA questions as valid exemplars of ‘the’ appropriate standard, format, scope and coverage expected of teachers in relation to their teaching. Thus we argue that extremely careful consideration must be given to the choice of questions ensuring both range in format, style, scope and content if we are to avoid a situation of teaching becoming limited to what is assessable within a limited time ANA assessment. Thus ‘reverse recontextualisation’ (Barbosa, 2013), that is considering the imagined effect of the ANAs in the classroom, must be considered. Should ANA exemplars and ANAs over the years be too similar across style, scope, content and format each year there is a danger that while we will see improvements in performance these improvements will not necessarily be matched by improved mathematical learning and competence and several key processes and skills (such as mental arithmetic and investigative problem solving) could disappear from classrooms.

Additionally teachers raised concerns that the ANA exemplar and paper memos did not accept alternative methods for working with calculations. This is problematic given the research evidence that multiple representations are an important part of mathematical learning. In practical terms, it is also highly discouraging for teachers and learners to be marked down for answers that have been correctly produced.

On a final note we hope and trust that this document stimulates constructive deliberations in the ongoing review of the ANA process.

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