

# **Exploring the Grade 9 maths ANA**

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PSPPD II Research report for CfP1 Grantees  
30 August 2017

KZN

# Overview of the research

- to explore the Grade 9 mathematics ANA: the design, the perceived usefulness and relevance, perceptions of teachers.
- Objectives: To identify ways of improving validity of the Grade 9 maths ANA ; to explore teachers' perceptions of the ANA, and in general about teaching mathematics at Gr 9 level.

# Overview of the research cont.

- To identify conceptual and learner trends in performance in ANA; Compare performance in ANA and in internal school based assessments; explore the extent to which information is being used
- To carry out a Rasch analysis to find out more about how well the items were functioning and to explore reasons why there was misfit if any.
- To look at the ordering of the items to see if they were working as intended.

# Methodology

- Quantitative analysis of 1028 learner scores in 2014 ANA and school examinations- five schools
- Rasch analysis – item level analysis of 1187 learner scripts from seven KZN schools, from different quintiles
- Teacher semi-structured interviews- 36
- Teacher questionnaires: 262
- Learner notebook analysis from four schools

# Methodology cont.

## Limitations of research.

- A retrospective analysis was done, using available scripts for 2014 run, because the test was not written in 2015
- Not able to get learner scripts retrospectively for internal examinations to merge items from ANA and internal examinations to do item level comparison across tests.

# Key research findings

ANA was too ambitious:

- Tool to judge progress in improving learner achievement
- Provides a powerful insight into the health of the education system
  - make inferences about the achievement ... Targeting interventions to schools that need them most.
- Provide information to make reports to learners and parents
- Diagnostic function- find out more about what the individual student is struggling with and what they can do in particular topics
- Serves summative function- find out what they know overall
- Exposing teachers to best practices in assessment; can inform continuous improvements in the design of assessment

# Key research findings : summative?

Function: Tool to judge progress in improving learner achievement. However the reality:

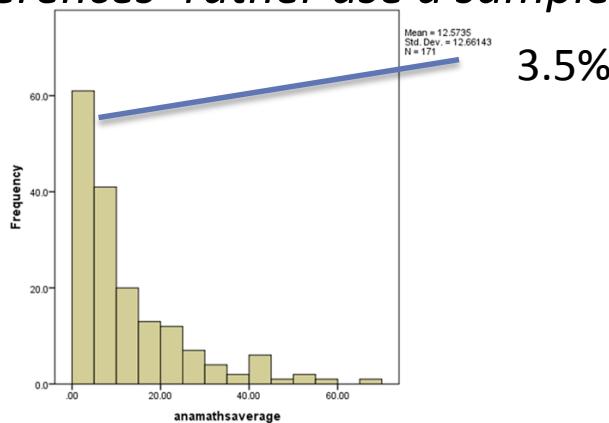
- *it does not count towards the school based assessment mark( not taken seriously by learners)*
- *timing in September – cannot cover all work done in year*
- *ANA categorised more learners on the 0-39% levels wrt final examination. Classified far fewer learners with outstanding achievement, wrt final exam*
- *Difference between means of school summative assessments and the ANA- 7, 8, 8, 10 and 17 points!*

# Key research findings cont.

Provides a powerful insight into the health of the education system - information to make inferences about the achievement  
... Targeting interventions to schools that need them most.

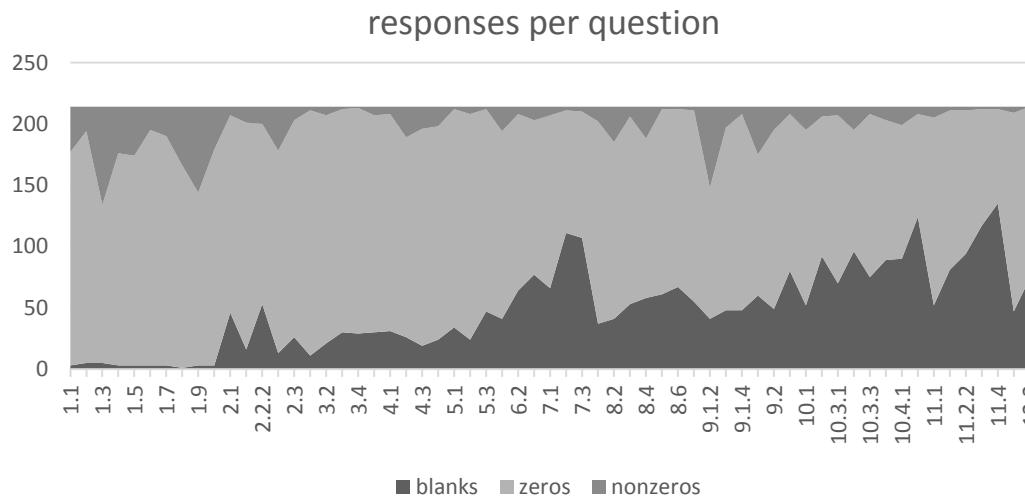
However:

- *Too many schools doing too poorly to enable the targeting of interventions*  
– one district: 61 schools below 5%, distribution too low to make inferences- rather use a sample



# Key research findings: Detailed individual reports?

- At this level, no information of levels of performance or reports of value to parents can be made.
- No diagnostic value
- can only distinguish between zeros, blanks, non-zeros:



# Key Research findings

Exposing teachers to best practices in assessment; can inform continuous improvements in the design of assessment. But:

- *teachers are feeling overwhelmed; feel that DoBE is out of touch with their everyday reality*
- *tired of being criticised- feel that there is a curriculum overload - 76% said not possible to complete the Grade 9 curriculum*
- *Involvement in ANA led to increase in workload, not decrease because after all that work, marks were not considered in SBA*
- *Moderation process not clear- often no explanations for changes*
- *No structures in DoBE allowing for feedback from teachers about the things they have to do. One way flow of instructions.*

# **Key Research findings: ways of working**

- The extent to which mathematics teachers work together as a team in school differs according to the quintile of the school. The Quintile 5 schools worked more strongly as teams, than the no-fee schools. Plan together, set assessments together
- Disparities have more to do with the ways in which the subject head supports teachers, than actual resources. If you feel part of a team you work more efficiently -tasks are shared ; joint responsibility instead of individual accountability. Schools need help on an individual basis to carry out basic functions.
- Different schools need different support- cannot put in new interventions and expect all to participate. Subject heads need more than just content knowledge but require training about how they could encourage their teachers to collaborate, share responsibilities, and plan and work together collectively.

# Conclusions & Policy implications

The ANA grade 9 mathematics in its current form is not working to achieve the aims it was set out for. It is recommended that

- Make decisions on what the purpose of an assessment at that level should be. It cannot serve both a diagnostic and summative function
- Timing must be matched with its function. If summative, then closer to end of the year and it must serve a substantive role in the SBA, or as an external mark.
- If diagnostic, must be simplified, and shortened .
- To enable co-operation with teachers, the participation in the programme must lead to an easing of their load- cannot be an

# Conclusions & Policy implications

- Curriculum for Grade 9 mathematics needs to be interrogated, 76% teachers could not complete it
- DoBE must look at ways to help teachers feel better supported in their schools- teachers are stressed and frustrated with inefficiencies in the education system and the increase in administrative demands
- Need to create spaces where innovation and creativity is valued. Instead of focus on compliance and monitoring, should be reciprocal responsibility.

# Acknowledgements

**PSPPD for the funding and support**

UKZN, for enabling us to do this work

The 262 teachers who filled in the questionnaire, and 36 teachers who were interviewed hoping that their participation would lead to improvements in the system.

Subject advisors and researchers in KZN and Eastern Cape who assisted in data collection.