







SANC tasked with bridging traditional divide existing between R & D

- intervention projects often have little time or money to research- and university based research seldom has ethical imperative to respond to the 'problems' it uncovers or to change the deficit picture it paints
- explore the Research-Development dialectic in ways that are problem-instigated and solutions-driven where we partner with schools and communities in mutually beneficial ways



We are tasked with dual focus:

- 1. making a difference in the schools, teachers, learners and communities that we work with
- 2. researching ways forward to the many challenges we face in numeracy education.
 - ⊘ i.e. investigate the challenges BUT THEN focus on what is possible within context of challenge.
 - model premise separating R&D is problematic more powerful work is possible in these constantly inform each other.



Working definition for Mathematical Proficiency

Productive disposition – connect with identities and ways of being



A hub of mathematical activity, passion and innovation Engaging, serving and strengthening four key interconnected communities of practice



Development initiatives

- 1. NICLE
- 2. Learner after-school maths clubs
- 3. Grahamstown 'Numeracy Buzz'

Development enabling research and research enabling development

- 1. Growing the research community
- 2. Feeding back into development and sharing and dissemination of research



My research and work in this context

Development



- Prolonged engagement in the field, beyond data collection
 - Access to rich, longitudinal data
- Multiple roles in the SANC project
 - wore multiple hats during my research study
 - these multiple roles could have caused tension

• Reflective journal:

 to document as much about how the roles impacted on each other and on the process of research

> NUMERACY CHAIR PROJECT

○ 'praxis'

- ${\cal O}\,$ a way of doing things or a way of translating theoretical ideas into action
- The habits of reflection and reflective practice were a powerful part of my own learning throughout my study.

O Vygotskian perspective

- data generated through the research process is a social construct developed through the relationship of the researcher, research participants, the research context and the methods of data collection
- the relationship between the researcher and the research context is a highly complex one.
- one that allowed me to reflect not only on how the research process affected teaching and learning in the clubs but also on how the research process affected me as researcher and the context in which I operated



Feedback from examiners about this approach

 The thesis projects a continuous reflexive and critical account of the research process and its products

- In particular I found the description of the work involved in structuring and delivering the math clubs for the purpose of research detailed to the point that I could replicate such work.
- The author explained in detail why she made the choices she did. As a reader I felt as though I was privy to both far reaching decisions and the subtle ones that made only a difference to the study.
- In my view research like this that is grounded in the community and enhances the experiences of children and youth while at the same time advances the knowledge in the field is a model to be held up as exemplary.



Maths clubs as the empirical field

- ⊘ Began with a pilot club in 2011
- Since then our team has run 14 clubs at schools and local development centres
- O Support another 7 clubs run by our NICLE teachers



Developmental foci for learners

- ⊘ Strengthening foundations
- Extending and challenging
- Focusing on efficiency and progression
- Sense making, connection, conceptual understanding



Developmental opportunities for teachers too

- ✓ Used the clubs as mini explorative spaces (or 'labs')
- ✓ To try out:
 - O new activities and games
 - test theories, frameworks and assessments before sharing them with the teachers in the NICLE programme and with in-service teachers undertaking post-graduate mathematics courses
 - ✓ clubs provide a safe space for:

 - ✓ trying new pedagogical approaches



Clubs essential learning spaces for facilitators and researchers

- trial methods/ ideas/ resources for NICLE
- Aha moments
- Encounter key challenges (linguistic; conceptual, contextual)
- Research spaces and opportunity to give something back – ethical commitment with regards to research access



Expanding sphere of influence

- ⊘ 2014 continue to run several clubs (including extension)
- ⊘ NICLE teacher participation in clubs
- Masters students set up clubs for development and research
- ⊘ Interest growing each year
- DoE curriculum planner for FP in the EC continuing roll out of clubs across EC
- ⊘ Continuing workshops for schools and development centres
- Continuing workshops at conferences (AMESA/SARAECE)
- Continually updated website support



Concluding Remark

Combining research with development we see as an ethical imperative given our context – but it is also empowering for members of our communities.

Only downside – each demands 100% so its difficult to achieve a 50-50 balance – but in my experience is its worth it!

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