

## **Do South African Mathematics teachers need narrative therapy?**

Professor Mellony Graven, South African Numeracy Chair, Rhodes University  
Faculty of Education, P O Box 94, Grahamstown, 6140, South Africa, [m.graven@ru.ac.za](mailto:m.graven@ru.ac.za)

**Abstract** This paper will argue that ubiquitous stories of mathematics teachers as the root cause of the crisis in mathematics education shuts down the space for meaningful teacher learning. There are many statistics used to 'back up' these stories, for example: South African learners performed worst on the TIMSS 1999 and TIMSS 2003 study. Newspapers are quick to pick up on this in headlines such as: "Teachers flunk maths" (Mail and Guardian, 03/08/08); "Teachers battle with Maths" (news.africa.com 05/04/11 – from SACMEC111). These stories create a cycle of ongoing failure. Of course there are always many other stories that don't get told such as "mathematics teachers have the experience and classroom knowledge needed to inform curriculum change". In this paper I argue that a primary concern of in-service mathematics teacher learning should be 'narrative therapy' – that is a focus on supporting teachers to actively construct preferred realities (Freedman and Combs, 1996). Such construction requires the formation of supportive communities of practice (with a focus on inquiry into mathematics teaching and learning through partnership between 'teacher educators' and teachers) where teachers are supported through active participation in the community to challenge negative stories and to develop and foreground new stories.

### **Introduction**

Do mathematics teachers need teacher educators or do we as teacher educators need to construct teachers as 'needing' through deficit discourses in order to justify our work? This is indeed a challenging question and one teacher educators need to reflect on. Breen (1999) illuminates the interdependence between teacher educators and teachers in his reference to 'fix it' approaches - teacher educators need someone to fix and teachers need fixing. He highlights that such approaches tend to ignore what teachers are actually doing and look for solutions outside of the practice of teaching. The problematic nature of this relationship seems clear. Yet the dominance of teacher development models in which 'teacher educators' (e.g. Department of Education (DoE) district officers, NGO or university employees) position themselves as knowledge-authorities bringing knowledge to less knowledgeable teachers, would suggest that teacher educators have not reflected sufficiently on the nature of their own need in the relationship. Indeed in order to understand the nature of mathematics teaching and learning and to advance this field of knowledge we (teacher educators and researchers) need access to the world of teachers and their classrooms. The right to access is sometimes taken for granted as if participation in what we have to offer will automatically provide rewards for teachers. Yet in service 'development' is often experienced by teachers as disempowering and teachers complain of unprofessional treatment (OECD, 2008).

I would like to argue that this relationship must be changed and that as teacher educators we need to change our stories from 'development on teachers' to forming supportive communities of

inquiry into mathematics teaching and learning in South African classrooms where 'equal' partnerships with teachers are established. The negative stories that teachers themselves often buy into need to be re-narrated as stories that foreground teachers as experienced and of teachers as life-long learners, willing and able to partner with policy makers, the department of education, teacher educators and so forth to find solutions to the challenges faced in mathematics education. Of course 'equal' partnerships are not simply the result of naming the partnership equal but will involve practices that lead to the experience of the partnership as equal and this will take conscious work and time to develop. Equality of course does not mean that the knowledge each partner brings is the same – indeed the reason for the partnership is precisely because each has knowledge (through their participation in differing professional practices and landscapes) that the other does not. The knowledge should however have equal status (at least within the practices of the evolving partnership).

Drawing on Sfard and Prusak's (2005) definition of identity I will argue that deficit stories of Mathematics teachers result in self-fulfilling prophecies and that teacher educators need to become the significant narrators that narrate teachers as experienced professionals, critical partners and life-long learners.

### **Providing an operational definition of identity**

In previous work (Graven 2003, 2004, 2005) I built on Wenger's (1998) notion of identity to analyse teacher learning, but the work of Sfard & Prusak (2005) goes further to operationalise the definition. In doing so, they equate identity with reifying, endorsable and significant stories about a person. While Sfard and Prusak (2005) concur with Wenger's work in terms of linking learning with the construction of identities they argue that the 'notion of identity cannot become truly useful unless it is provided an operational definition.' (15). They highlight that notions of identity as being a kind of person "sound timeless and agentless"; and therefore reject such definitions as "potentially harmful because the reified version of one's former actions that comes in the form of nouns and adjectives describing the person's "identity" acts as a self fulfilling prophecy" (Sfard & Prusak, 2005, 16). Sfard and Prusak (2005, 16) thus choose to define identities as "collections of stories about persons or, more specifically, as those narratives about individuals that are reifying, endorsable, and significant". Reification comes with verbs such as 'have'. (E.g. "Teachers have mathematical weaknesses". Stories are considered endorsable if the identity builder can answer to them being a faithful reflection of a state of affairs (E.g. we use the headline "teachers flunk maths" because a study showed...). Stories are significant if a change in the story changes the storyteller's feelings about the identified person. (E.g. 'teachers are unqualified' to 'teachers are experienced').

Within their definition identities are human made, collectively shaped by authors and recipients. They explicitly highlight that their definition presents identities as the discursive counterparts of lived experiences whereas Wenger (1998, p151) sees such words as only a part of "the full, lived experience of engagement in practice". Sfard and Prusak thus stress "No, no mistake here: We

did not say that identities were finding their expression in stories – we said they were stories” (p.14).

This definition gives increased agency to the learner as it opens the space for the re-authoring of identities. It also opens the space for significant narrators, such as mathematics teacher educators, to deliberately challenge existing negative stories and to reflect on their own authoring of mathematics/ numeracy teacher identities. Reflection should lead to the re-authoring of negative stories that may be obstacles to learning into stories that enhance teacher learning. My assumption here is that every negative story can be countered with a different story that is more conducive to stimulating learning. For example: ‘Teachers are poorly trained to cope with the new curriculum’ can be countered with ‘Teachers, with their wealth of teaching experience, are best placed to make sense of the curriculum and provide feedback’. It is this space for re-authoring that appealed to me.

Sfard & Prusak (2005) continue to identify two sub categories of stories: *current* identities (e-mail correspondence with Anna Sfard (2009) suggests a move away from the term ‘actual’ identities to ‘current’), told in the present tense and formulated as actual assertions, and *designated* identities (narratives expected to be the case – now or in the future). Learning is then conceptualized as closing the gap between *current* and *designated* identities. With this definition of identity as discursive counterparts of one’s lived experiences, the re-authoring of identities is not only possible but could enable and give momentum to learning. This is especially important in cases where identities have been negatively constructed. Indeed this is precisely what narrative therapists enable people to do:

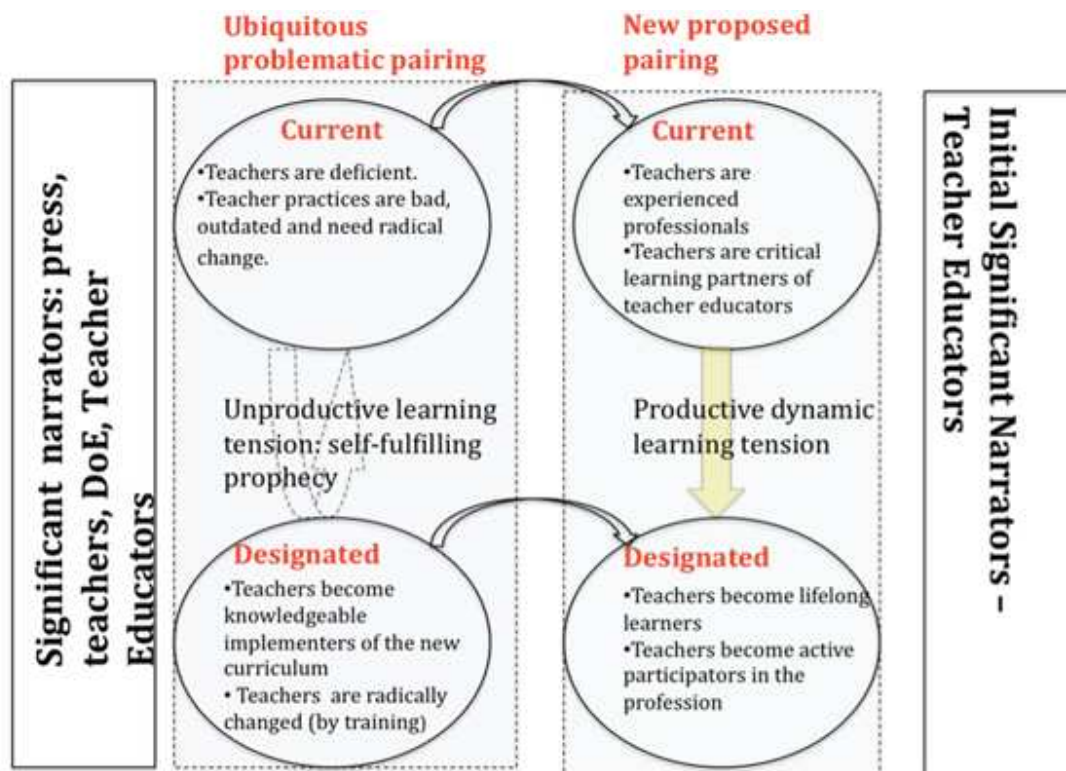
A key to this therapy is that in any life there are always more events that don’t get “storied” than there are ones that do... this means that when life narratives carry hurtful meanings or seem to offer only unpleasant choices, they can be changed by highlighting different previously un-storied events, thereby constructing new narratives. Or when dominant cultures carry stories that are oppressive, people can resist their dictates and find support in subcultures that are living different stories (Freedman & Combs, 1996, p32-33).

The above quote highlights that narrative therapy is not restricted to the domain of individuals and their therapists but extends the opportunity to groups of people in supportive communities or ‘communities of practice’ (Wenger, 1998) which enable ‘living different stories’. In a similar vein Sfard & Prusak (2005, 18) note that “A person may be led to endorse certain narratives about herself without realizing that these are “just stories” and that there are alternatives”. A supportive community of practice, such as those formed in in-service teacher education programs can and should open up these alternatives especially when existing stories ‘carry hurtful meanings’, undermine professional identities or impede learning.

Thus part of what drew me to Sfard & Prusak’s definition of both identity and learning is the increased agency afforded to learners and the opportunity for both learners and significant narrators to deliberately reject negative stories (thus breaking down the stumbling blocks to

learning) and re-author more productive stories which will give momentum to learning. In my experience with in-service mathematics teacher education over the past 15 years, ‘substantial’ teacher learning requires re-authoring of certain negative current teacher identities and counter productive designated teacher identities. It requires the creation of supportive communities which can provide the space and the ‘subculture’ where teachers can challenge these stories and live out more productive stories.

The pairing of ‘deficient’ *current* identities with designated ‘curriculum knowledge authority’ leaves teachers trapped between two conflicting and imposed identities. The hypothesis here is that widespread low morale and retention (of South African mathematics teachers in particular) are partly a result of teachers feeling trapped between two conflicting identities where one’s history and experiences are negated and one’s designated future is unattainable (especially in the context of constantly changing curricula). This gap results in the removal of stimulus for learning. In contexts where teacher morale is low and negative stories predominate, teacher education must involve deliberate re-authoring so as to construct a productive learning tension (gap) between teachers’ current and designated identities. Of course these current and designated identities and the gap between them are dynamic and changes will emerge through the learning process. That is stories become modified, new stories emerge, negative stories become a stimulus for learning (e.g. I have little knowledge of probability and I need to learn about it to teach it), and new designated identities might be added (e.g. I’m a lifelong learner constantly making sense of curriculum initiatives’). A diagram is useful to highlight key *deficiency* narratives that need to be re-authored as *proficiency* narratives by teacher educators:



This re-authored pairing requires mathematics teacher educators to narrate teacher *current* identities as experienced teachers and learners (acknowledging the value of bringing experience and existing knowledge to the learning process) and critical partners in the process of making sense of and reviewing the curriculum. Teacher educators narrate the *designated* identities as life long reflective learners. Linked to this emphasis on life long learning and the value of teachers' experience is the designation as active participators in a range of professional activities such as: engaging with others, providing feedback on the curriculum, attending professional conferences and so on. While teacher educators are the initial significant narrators tasked with the job of challenging previous stories of teachers, with time and through successful learning within in-service programs, other significant narrators (fellow teachers, community members, learners, parents) are likely to reinforce these stories.

From what has been discussed above it is argued that the way forward in working with teachers is to form supportive inquiry communities where teachers and teacher educators partner to both reflect on and learn from teaching practices and to look towards finding innovative ways to strengthen teaching and learning in Mathematics classrooms. The South African Numeracy Chair, Rhodes University is aimed at improving the quality of learning and teaching of numeracy at primary level. This development aspect of the chair is dialectically connected to the aims of researching sustainable and practical solutions to the challenges of improving numeracy in schools as laid down in the concept document of the Chairs Initiative. In my work as the South African Numeracy Chair, Rhodes University, it has been important to develop a conceptualization of 'teacher development' that challenges deficit discourses of teachers and works with a conceptualization of teachers as critical partners. While this was always the intention the need for this became increasingly clear when my colleague, Zonia Jooste, and I visited schools in the Grahamstown area to invite numeracy teacher participation. Teacher histories of 'teacher development' and 'workshops' had not led to a 'we want more' response but rather a skepticism of the value of participation. Explanations that we wanted to partner with them and that in this partnership we would not tell teachers what to do were well received but skepticism persisted. Our launch and orientation focused on what working as partners might mean and the importance that the path for the way forward must be carved from the perspective of numeracy classroom practices in collaboration with researchers/teacher educators rather than the other way round.

Thus we named our partnership with teachers the Numeracy Inquiry Community of Leader Educators (NICLE) where all participants, teacher educators, professors, and researchers would be learners in the community and through participation would provide leadership within their sphere of influence and their overlapping communities. Thus NICLE was conceptualized as a community of practice based community of inquirers where teachers, lecturers, researchers and professors partnered to inquire into looking towards finding solutions to challenges faced in primary mathematics education from a classroom based perspective. In this partnership all are co-learners. By working together each brings different experiences and expertise to share in the community. Through active participation each member of the community will increasingly take on leader roles in primary mathematics education relating to their sphere of influence. For example teachers will run workshops or mathematics competitions in their community of schools, researchers will publish and engage in panels at conferences, teachers and researchers will present their work at teacher and research conferences, teachers will publish their classroom reflections in teacher focused journals and so forth.

## The start of NICLE

Fifteen schools were initially invited to participate in NICLE. Six schools and 19 teachers participated in this launch held on the 26<sup>th</sup> March 2011. Following this word seems to have spread that this might indeed be a different type of learning endeavor and some schools that had declined participation have since committed participation. By the second NICLE session (12<sup>th</sup> April 2011) fifteen schools and 51 teachers attended indicating willingness of teachers to become life-long learners provided their views and experiences are taken seriously. Indeed there will be the challenge of sustaining teacher involvement as well as developing practices that truly support equal partnerships where learning is led from the basis of teacher experiences. Such practices do not follow automatically from the naming of a learning community in this way nor from the removal of deficit discourses. The notion of partnership must come alive in the practices of NICLE. Further research into the nature of learning evolving within this community for all participants will hopefully reveal key elements of NICLE practices that enable or constrain learning so that these might inform future endeavors with numeracy teachers.

## Acknowledgements:

Thanks to the SA Numeracy Chair team, Rhodes University: Zonia Jooste, Varonique Sias, Peter Pausigere, Debbie Stott and to the newly participating teachers and schools for their collaboration in the work of the chair. This work is based upon research supported by the South African Numeracy Chair Initiative of the FirstRand Foundation (with the RMB), Anglo American Chairman's fund, Department of Science and Technology and the National Research Foundation.

## References:

- Breen, C. (1999) Concerning mathematics teacher development and the challenges of the new millennium. *Pythagoras: Journal of the Association for Mathematics Education of South Africa*, no. 49, August 1999, pp. 42 - 48.
- Freedman, J. & Combs, G. (1996) *Narrative Therapy: The social construction of preferred realities*. W.W. Norton & Company, New York.
- Graven, M. (2005) Mathematics Teacher Retention and the Role of Identity: Sam's story. *Pythagoras*, No. 61, June 2005, pp 2-11.
- Graven, M. (2004) Investigating mathematics teacher learning within an in-service community of practice: the centrality of confidence. *Educational Studies in Mathematics*, Vol. 57, pp177-211.
- Graven, M. (2003) Elaborating teacher learning as changing meaning, practice, community, identity and confidence: the story of Ivan. *For the Learning of Mathematics*, Vol. 23, (2), pp28-37.
- Sfard, A. & Prusak, A. (2005) Telling Identities: In Search of an Analytic Tool for Investigating Learning as a Culturally Shaped Activity. *Educational Researcher* 34 (4) 14-22
- Wenger, E. (1998) *Communities of Practice: Learning, Meaning, and Identity*. Cambridge University Press: New York, USA.