Beyond these shores: The conundrum of the successful graduate who experiences difficulties with maths

Personal Maths Stories

Michael Cross

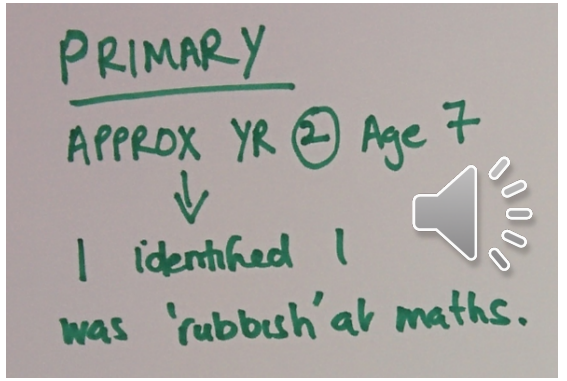
Senior Adviser – University of Bradford
Doctoral Candidate – Leeds Beckett University

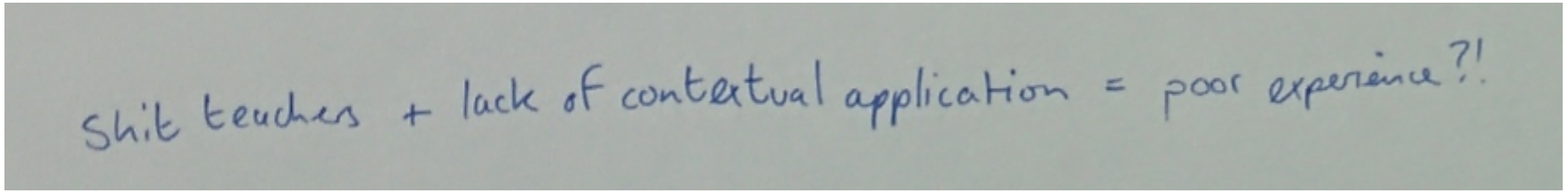
Background information

- Focusing on graduates who work in a field where mathematics skills are a component of their professional accreditation yet they self-identify as having difficulty with mathematics
- Using personal mathematics education timeline as interview focus (Adriansen, 2012)
- Interview split over two sessions (Hollway and Jefferson, 1997 and Yin, 2009, p. 107)
- Convenient sampling, no shortage of volunteers: Thumpston and Coben (1994) found “a queue of people wanted to talk to us” (p. 32)
- 4 participants interviewed so far, aiming for 10 in total

Participants are saying interesting things

"I don't think your maths education prepares you for maths that you need in your life, it's irrelevant. I'm maybe a bit more self-taught … I don't use anything that I learnt at school"





- "No progress"
- "Invisible"
- "Stuck"
- "Blank"

"I think I took longer to understand things than people around me … we need smaller class sizes"

Their stories matter

- Power of the anecdote (the informal case study); a starting point for inquiry. Compelling conundrum: successful and unsuccessful. Special case
- May help to tell their stories to others, including their coping strategies and their suggestions for improvements to education
- Quality of mathematics education has remained unchanged for many years (Ball, 2003) those who have been educated are often far from satisfied and their voices have been rarely heard. They fit the description of possible stakeholders (Bryson 2003, p. 8)
- It follows on from our day jobs! Specifically in HE, the rise of mathematics-support initiatives has been to address the hidden problem of people who progress through ‘the system’ but still have difficulties (Hodgen et al., 2014)

Narrative analysis suits complex scenarios

- Useful for investigative or exploratory case study (Yin, 2009, p. 28)
- mathematics life histories have given insight into the influence of complex social, political and institutional factors at work in education (FitzSimons and Godden, 2002)
- Allows us to respect the individual and take account of their experience and be aware of the environment and influences they are subject to. There is an emotional and social context to learning and to maths skills development (Martino and Zan, 2011, p. 472)
- Can throw up the unexpected (Hodkinson and Hodkinson, 1999).
- Have been linked with aiding change, or even transformation, in others (National Numeracy, 2013; Forrester, 2012)
- Avoids 'rushing' into use of statistical techniques which can 'inflate' results, particularly in the social sciences (Ioannidis, 2005 and Open Science Collaboration, 2015)

Back to the interesting things being said

- Learning pit – the emotions of learning need to be articulated
- Don't put **unnecessary** pressure on people who don't cope well with it – there is a social context to learning that can be ignored
- Learners need to master the basics or they get stuck and can't move on
- Really address the question of why is this being taught – what is the value. Give opportunities for demonstrating the application
- When you are in the 'know' with maths it is very easy to talk a language that students don't understand (as educators, be aware of our assumptions)
- Teaching and learning methods that suit one person won't necessarily suit another. We need inclusive learning
  (e.g. putting people on the spot vs giving them time to think)

Summary

The key research questions are:

- What is the personal experience of these people with regard to their mathematics educational and work based history?
- Can their experience help others?
- Can we develop our understanding of mathematics education through engagement with this underrepresented group?
- Should voices such as these be acknowledged as stakeholders within the field of mathematics education?

This study will seek to:

- Investigate the utility of these experiences to individuals currently developing their mathematic skills or currently supporting others to develop.
- Tell stories, of and about, their experiences and perspectives.
- Explore why professional graduate voices are not, generally, part of the national debate on mathematics skills.

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