

‘Mathematical Knowledge for Teaching’: do you need a mathematics degree? Our response

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Kat and Rosie, two teacher delegates, were invited to respond to the discussion in Rebecca Warburton’s session on Mathematical Knowledge for Teaching.

Whether or not a mathematics degree is needed to teach mathematics is an issue that is personal to us; both of us being mathematics teachers with different backgrounds, one in Management and one in Economics. Therefore this presentation and the inevitable debate that followed was definitely on our visit list. It was a much more interactive session than we were expecting, but we both had a lot to say on the subject and thoroughly enjoyed the opportunity to do so. Rebecca Warburton (this volume) presented the research she has done so far into the comparative levels of mathematical knowledge for teaching between mathematics graduates and SKE (Subject Knowledge Enhancement) graduates. The reflective nature of the presentation gave an accurate and insightful picture of the current position of her research and made for an engaging and thought-provoking session.

The discussions of the attendees at the end of the session were valued by Rebecca, and she recorded our responses to help shape the rest of her research. At the opening of the session, Rebecca posed the question of whether a mathematics degree was needed, and opinions were divided as to the answer. The main crux of the argument came down to what a student gains from studying mathematics at degree level, and if this gives them an advantage when going into teaching the subject. On the one hand, some people argued that in order to be considered a mathematics teacher, that person must have studied their subject at a higher level, therefore gaining a deeper understanding of the connections that exist within it. Although we did not disagree with this idea, we argued that a mathematics degree is not the only way to do this. For us, the Sheffield Hallam University SKE course allowed us to study mathematics at honours degree level; it also reignited our curiosity and indeed our enjoyment of the subject, and turned us into budding mathematicians.

We also pointed out that being a talented mathematician at degree level is not a prerequisite for being a successful mathematics teacher. Rebecca’s research is aiming to measure mathematical knowledge for teaching, not just mathematical ability, so SKE students should not be disadvantaged in the study in this respect. However, from our experience, the skill of teaching is something that is developed personally by each individual over a period of time with successful and continual development and training. We would argue that our wider experience working with young people and in a variety of fields has been just as valuable, if not more so, as our mathematical knowledge. Indeed, our colleagues on the Secondary Mathematics PGCE with a mathematics degree have found their training year more difficult than anticipated due to their lack of experience working with young people.

Despite discussing the issues for a considerable amount of time, we did not reach a verdict, which is testament to the difficult and contestable nature of the research. It was a very engaging session that left all its attendees with a lot to think

about. From our perspective, the main thing we took away with us was how much we had enjoyed being part of this intriguing research and that we were keen to maintain this involvement in the future.

References

Warburton, R. (2013). 'Mathematical Knowledge for Teaching': do you need a mathematics degree? *Proceedings of the British Society for Research into Learning Mathematics 33* (2):61-66.