

## What do we understand by “excellent” mathematics teaching?

### Judith McCullouch asks what is meant by “excellent” mathematics teaching and wonders if “good enough” teaching will do?

Teachers face persistent rhetoric and demand by policy makers for educators to achieve “excellence” in their teaching. It is an emotive term and is subject to being defined by external criteria and current trends. For example, a teacher deemed excellent in 1965 may not be assessed as excellent in 2014. I wondered what current mathematics educators understood by “excellent” mathematics teaching. I asked four different primary teacher groups, student teachers; experienced teachers embarking on becoming Mathematics Specialist Teachers (MaSTs); MaST graduates and primary mathematics university lecturers) for their interpretation of excellence.

When endeavouring to articulate their understanding of excellence, many considered the difference between good and excellent. They believed excellence to be a quality attracting adjectives such as “outstanding”, and “exceptional”. For them excellence is about being better than good, it is approaching perfection. There were examples given of what was believed to characterise excellent teaching. For example:

Open out maths as something beyond learning a few fractions and a few procedures.

Listen to the child, hear what he (sic) is saying and know what to do.

To have that flexibility in the way they teach in their classrooms to allow and take risks.’

The teachers felt that, for the most part, a “good” teacher would provide appropriate learning opportunities, with the support of well-chosen and well-used resources, so that children could meet the targets set by schools. They suggested that “good enough” teaching would allow children to meet these learning targets:

I don’t think excellence is necessarily necessary, if that makes sense. Children still achieve and do well.

I’m not sure that you need excellence every minute of every day ... in a child’s school career “good enough” will do for some of the time.

These teachers knew they needed to get good results, as judged by external assessments, as that is how they and their schools are judged. A few teachers even said that the children they taught were asked, ~~on occasions~~ **sometimes**, to learn procedurally as they felt that this allowed for quick responses and had led to good examination results.

We’ve still got to do SATS, I can’t scrap all that type of thing totally and do an entirely creative rich lessons - my hands are tied.

As Mason (2012, p. 31) stated, it is commonplace for the “successful completion of routine tasks [to be] taken as evidence that students know how to do something”, implying that success in summative assessments indicates possession of the required knowledge. The teachers thought that by maintaining a “good-enough” approach to teaching, children were subjected to an even-handed, consistent mathematics education. However, even though the targets were met, the teachers were concerned that there were limitations, especially when taking a long-term view. They believed the effectiveness of the short-term strategy to improve attainment would be counteracted by a reduction in engagement, enjoyment and inherent motivation, which will have an impact in the longer term.

You do it on the board, they understand it, they do it in their books, but three weeks later they might not understand it.

Children will tick the boxes and may just go through learning everything but not be curious, not be interested, not be investigating as they grow up

At this point, the teachers seemed clear that they should aspire to be excellent even though “good-enough” would do on occasions. This “excellent” teaching would go beyond the school targets to shine a light into the beauty and aesthetic value of mathematics, or the joy of arriving at an elegant solution.

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They may make progress and succeed but there is no joy.

There was agreement that not all teachers are capable of this, but some were sure that all teachers have the potential to be better than “good enough”, if they are prepared to put in the time and effort. They suggested that at the very least, teachers should be expected to be bold in their approach to teaching mathematics and look to the longer-term gains rather than just short-term, small successes. Whilst they believed that excellence is highly desirable, they wondered if it is essential, necessary or achievable by all teachers, all the time.

I think we should aspire for excellence, but whether or not we always will achieve it is doubtful.

I think it's almost impossible to do that all day every day without it finishing you off.

These teachers saw the passion for mathematics that enables a teacher to be a model mathematician in the classroom as just as important as meeting school targets. They felt that teachers should be creating experiences through which children could develop a deep understanding of mathematics.

You are being that mathematician that you want children to be.

I want to liberate them.

Moreover, they suggested that the teacher needs to be aspirational and inspirational, creating and developing these same traits in the children, not just for the short term but with an eye on the children's future careers and their development as citizen. The idea of “good enough” teaching was an unexpected outcome for me, yet it emerged through the words of the teachers. Everyone I talked to, from student teacher to university lecturer, believed the excellent teacher goes beyond that which is required to meet externally prescribed markers of success. Teachers with the longer view in mind wished the children to have pleasure and pride in their achievements.

I think you would like to hope that in a child's career, they maybe come across somebody who is inspirational in their teaching of mathematics.

## Reference

Mason, J. (2012) On knowing in mathematics, in *Community for undergraduate learning in the mathematical sciences (CULMS) Newsletter No. 5*, 29-39.

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