

Sue Shoveller
Lead Employer for
proposed employer-led
group for apprenticeship
standard for teachers

c/o Apprenticeship Trailblazers Team

14 October 2016

Dear Sue Shoveller,

The Advisory Committee on Mathematics Education (ACME) is a high-level committee that was set up in 2002 by the Royal Society and the Joint Mathematical Council of the United Kingdom (JMC). The Committee, which is hosted by the Royal Society, provides strategic advice on 3-19 mathematics education policy. Below, the Committee sets out a response to the consultation on the proposal to develop an apprenticeship standard for teachers.

Two major issues in education are the quantity and quality of teachers of mathematics.¹ In November 2015 ACME published a report entitled *Beginning teaching: best in class? High-quality initial teacher education for all teachers of mathematics in England*.² ACME considered the quality of initial teacher education (ITE) and provided advice on how to ensure that trainees leave ITE effectively equipped to begin their teaching careers in mathematics classrooms throughout England. To get and keep high-quality teachers of mathematics in the primary and secondary classroom and in colleges, it is imperative that all of those involved in ITE and those supporting newly qualified teachers consider what ITE for teachers of mathematics should look like and collaborate to articulate a shared standard for ITE.

Whatever route is taken in ITE, there are a number of elements that should be consistent across every ITE programme. All routes into teaching of mathematics must emphasise the importance of subject-specific education and the development of critical evaluation skills.

- **Entry to secondary mathematics teaching:** Most of those who move into secondary teaching of mathematics follow a postgraduate route. In postgraduate ITE routes, there is an expectation that subject knowledge is gained prior to ITE. For entry to secondary teaching, entrants should have undertaken a degree course with substantial mathematical elements or have completed a quality-assured mathematics subject knowledge enhancement (SKE) course.
- **Entry to primary mathematics teaching:** About one quarter of the approximately 20,000 primary trainees follow a Bachelor of Education/ Bachelor of Arts (with QTS) route. About three quarters undertake postgraduate ITE (usually a one year course). Most entrants to primary ITE will not have not studied mathematics from the age of 16 onwards. In the short term all entrants to primary ITE should have at least a Grade 5 in the reformed GCSE Mathematics or an equivalent Level 2 qualification. In the long term there should be a move towards a system where everyone has a Level 3 mathematics qualification on entry.

¹ <http://www.acme-uk.org/media/20263/teachersofmaths.pdf>

² <http://www.acme-uk.org/media/33228/beginningteachingbestinclass2015.pdf>

- **Mathematics-specific knowledge:** On leaving ITE new teachers of mathematics should have firm foundations in mathematics knowledge and have gained deep pedagogical mathematics knowledge.
- **Critical evaluation skills:** On leaving ITE new teachers should have developed critical evaluation skills, which can involve evaluation of research, analytical reflection, enquiry skills, lesson study and action research. These skills should allow teachers to explore their own practice and that of others. This should be built on during further professional development throughout a teacher's career.
- **Mathematics-specific mentoring:** On leaving ITE new teachers of mathematics should have been mentored for a year and have two years mentoring ahead of them.
- **Connections between ITE and professional development:** ITE is the first stage in a teacher's professional journey. On leaving ITE new teachers of mathematics should understand the importance of subject-specific professional development throughout their career and be supported for two further years to embed their learning.

Much more thinking is required about issues such as collection of data on teacher supply, accountability for recruitment, regional and national infrastructures and the accreditation of various programmes, such as SKE courses and other initiatives. All of these aspects, and others, should be looked at together as part of an action plan on the initial teacher education for teachers of mathematics. There is a need to consider how all new routes, including the route proposed, might fit into a long term plan for teacher education.

This process of planning is made more challenging given the fact data on ITE and teacher supply is limited.³ Without a clear picture of the current and potential workforce, it will be more difficult to plan for the future. Introducing new routes to teaching does not appear to have increased the number of entrants.⁴ Therefore, the introduction of any new route must be carefully considered, and, if introduced, closely monitored. There is a need to look at all routes as a whole to consider the quality of training and how it should be monitored, whether costs of teacher education are affected by economies of scale and the long-term effectiveness of teachers trained through each route. Looking at all routes as a whole would give the opportunity to consider how to develop and articulate a shared standard for ITE and also the chance to collectively consider entry requirements and qualifications needed for and gained from graduate and postgraduate ITE routes.

It is set out in the consultation that South Farnham School, as the lead employer, will work with the Department for Education, Teaching Schools Council, and HEI-led and SCITT-led providers to develop an apprenticeship standard for teachers. There was a very limited timeframe to respond to this consultation, which has meant that the wider education community has not had sufficient opportunity to engage with this process. There needs to be further consultation and collaborative working with a range of stakeholders in order to ensure the highest-quality education for all new teachers. ACME can help facilitate engagement with the mathematics and wider STEM education community. Please contact Niamh Mc Mahon, Head of ACME Secretariat, at niamh.mcmahon@royalsociety.org to set up a meeting or for further information.

Yours sincerely,

The Advisory Committee on Mathematics Education (ACME)

³ <https://www.nao.org.uk/wp-content/uploads/2016/02/Training-new-teachers.pdf>

⁴ <https://www.ifs.org.uk/uploads/publications/comms/R118.pdf>