

Mr Tom Hamilton
Director of Education and Professional Learning
The General Teaching Council for Scotland
Clerwood House, 96 Clermiston Road
Edinburgh
EH12 6UT

14 May 2013

Dear Mr Hamilton,

Memorandum on Entry Requirements to Programmes of Initial Teacher Education in Scotland

In 2012 the collaborative Learned Societies' Group on Scottish Science Education was established. Through the membership of our Group we also have links to the STEM Education Committee (STEMEC, the successor to the Science and Engineering Education Advisory Group (SEEAG)), ensuring that there are effective lines of communication between the two bodies. We welcome the opportunity to respond to the redrafted GTCS Memorandum on Entry Requirements to Programmes of Initial Teacher Education (ITE) in Scotland. These comments have been put together by our membership from the Royal Society of Chemistry, the Institute of Physics, the Society of Biology, the British Computer Society, the Royal Society of Edinburgh, the Association for Science Education and the Scottish Schools Education Research Centre.

The establishment of the Group has purposes arising from concerns about, and a need to contribute to, the major reforms in the delivery of science education in Scottish schools. It was recognised that while the constituent organisations are individually active in this area, it is likely that more can be achieved by a formal collaborative grouping that identifies, discusses and takes action on common issues. Further information about the Group is available from:

http://www.royalsoced.org.uk/1076_LearnedSocietiesGrouponScottishScienceEducation.html

We would appreciate the opportunity to meet with you to discuss our views. I would be pleased to put in place the arrangements for a meeting.

Key changes suggested by GTCS

A National Qualification Course award in English at SCQF Level 6 is already an essential requirement for entry to all teacher education programmes. We note it is suggested that Section 2 of the Memorandum be changed to include the requirement for applicants to

have a Maths qualification at SCQF level 5 for all ITE programmes. However, for some time, Maths at SCQF level 5 has been an entry requirement for Primary education programmes. It is further suggested under Section 4 (ii) there be a requirement that applicants for undergraduate programmes for Primary must have a languages qualification at SCQF level 6 either on entry to the programme or have achieved one by the completion of the programme.

Absence of any science requirement for entry into primary teaching

It is notable and equally disappointing that there is no corresponding requirement for applicants entering Primary ITE programmes to have studied science or technology subjects beyond that covered in the broad general phase of secondary education.

It was in response to concerns about Scotland's performance in maths and science at primary level revealed in data from the Trends in International Maths and Science Survey (TIMSS) report¹, that the Scottish Government developed an *Action Plan on Science and Engineering for the 21st Century*, whose implementation was the task of the independent Science and Engineering Education Advisory Group (SEEAG). Drawing upon the data from the TIMSS report, the SEEAG report² highlighted the limited knowledge and understanding in mathematics and science of primary teachers and the resulting lack of confidence as a major cause for concern. The SEEAG report recommended³ that there be a requirement now for applicants to Primary ITE programmes to have a minimum of SCQF level 5 or above in a science subject and mathematics, with this being raised to SCQF level 6 or above within five years.

We recognise and understand the rationale for the GTCS proposing a requirement that applicants for Primary ITE programmes possess on entry or achieve by completion of the programme a languages qualification at SCQF level 6. However, without a similar requirement for a science qualification, this would appear to send an alarming signal about the relative importance of science subjects in comparison with languages.

The importance that the Scottish Government attaches to science and technology is clearly demonstrated in its *Economic Strategy*⁴, which not only identifies a number of Growth Areas which have science and technology at their core, but also points out there are significant opportunities from Scotland's science, technology and advanced engineering assets.

Further, in his foreword to the Scottish Government's response⁵ to the SEEAG report, Dr Alasdair Allan, Minister for Learning and Science, comments that we need to have a teacher workforce which is skilled and confident in delivering stimulating science learning. The Government's response goes on to state that we have to be *ambitious and look ahead* [our

¹ Trends in International Maths and Science Survey (TIMSS) 2007. OECD, 2008.

² *Supporting Scotland's STEM Education and Culture* (February 2012):

<http://www.scotland.gov.uk/Publications/2012/02/4589/0>

³ *ibid*, See Recommendation 2.4

⁴ See page 45: <http://www.scotland.gov.uk/Publications/2011/09/13091128/0> (September 2011)

⁵ <http://www.scotland.gov.uk/Topics/Education/Schools/curriculum/ACE/Science/SEEAG/SEEAGGovtResponse> (October 2012)

emphasis added]. The Scottish Government has also committed additional funding to the Scottish Schools Education Research Centre (SSERC) to support work designed to increase the confidence of primary teachers in science.

We are therefore firmly of the view that the GTCS should ensure there is a requirement that applicants for Primary ITE programmes must have at least one science qualification at SCQF level 6 either on entry to the programme or have achieved one by completion of the programme. This would ensure parity with the requirements being proposed for languages. It would also help to connect the importance of raising the confidence and competence in science teaching with the Scottish Government's broader policy drivers for enhancing and making the most of Scotland's science base.

Raising the bar in mathematics requirements

We note the GTCS suggestion to include the requirement for applicants to have a Maths qualification at SCQF level 5 for all ITE programmes. However, we would question whether this is ambitious enough. English at SCQF level 6 is already required for entry to all teacher education programmes and we believe Maths should be given similar prominence.

As we have indicated, the SEEAG report highlights the relatively poor performance of Scottish primary mathematics (and science) education and lack of teacher confidence in these areas in relation to international performance surveys. Maths is of course the *language* of science and it is clear to us that a firm grounding in Maths is required to increase the confidence of Primary teachers in teaching science.

We realise that a longer term approach is required to address these issues. However, in order to make progress, we believe applicants for Primary ITE programmes should have a Maths qualification at SCQF level 6 either on entry to the programme or have achieved one by completion of the programme and prior to entry to the teaching profession. This would align with the current proposal for languages and the position we have advocated for science.

Interdisciplinary learning

Within the Memorandum we note reference to the expectation that teachers will contribute to the teaching of interdisciplinary learning. Interdisciplinary learning in the context of science education is a key focus of the work of the Learned Societies' Group. We would be pleased to engage with the GTCS as its thinking in this area develops.

I summarise our position as follows:

- **The GTCS should ensure there is a requirement that applicants for Primary ITE programmes have at least one science qualification at SCQF level 6 either on entry to the programme or have achieved one by completion of the programme.**

- **We believe that applicants for Primary ITE programmes should have a Maths qualification at SCQF level 6 either on entry to the programme or have achieved one by completion of the programme and prior to entry to the teaching profession.**

I hope our comments are useful in the development of a revised Memorandum. I would like to reiterate our offer that we would be pleased to meet with you to discuss these points.

With all good wishes.

Yours sincerely,



Professor Sally Brown OBE FRSE
Chair, Learned Societies' Group on Scottish Science Education



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