

Science, Technology, Engineering and Mathematics (STEM) Skills

November 2010

UCAC | yr undeb sy'n diogelu athrawon a darlithwyr Cymru

Evidence for the Enterprise and Learning Committee's Inquiry into: Science, Technology, Engineering and Mathematics (STEM) Skills

Undeb Cenedlaethol Athrawon Cymru (UCAC) is pleased to have the opportunity to respond to this inquiry by the Enterprise and Learning Committee into STEM Skills.

UCAC is a union with 5,000 members who are school teachers and headteachers, and Further Education and Higher Education lecturers in Wales. Its headquarters are in Aberystwyth and it operates through the medium of Welsh.

Is the provision for Science, Technology, Engineering and Mathematics skills adequate in schools, further education colleges, higher education, and the provision for work-based learning (including apprenticeships)?

Research among our members shows particular concerns regarding the provision in Key Stages 4 and 5, i.e. the 14-19 provision. These concerns derive chiefly from the knock-on effects of the Learning and Skills Measure's statutory requirement for the Local Curriculum to offer a choice of a minimum of 30 courses.

In the field of Mathematics, for example, this has put pressure on institutions to offer Further Mathematics as an A Level. Certainly, the pupils benefit from this as the courses prepare them well for studying Mathematics at Higher Education level. However, it causes timetabling problems which often mean that these lessons must be taught during lunch-time. Another tendency, as institutions attempt to cope with the situation, is to cut down the weekly time for subjects from four lessons to three and/or to reduce the number of sets studying the subject. Naturally these tendencies affect the standard of the teaching and learning and can weaken the provision and hinder further development.

We would also draw attention to the particular need in STEM subjects for a wide range of resources for use in lessons, whether text books, websites or equipment. It is important, therefore, that resources such as the GCaD / NGfL Cymru website continue to develop in order to support the provision.

The supply of education professionals able to teach STEM subjects and the impact of Initial Teacher Training Grants and the Graduate Teacher Programme on recruiting STEM teachers and education professionals.

The grants have certainly been an encouragement to graduates. We understand that there is a good supply of teachers in the field of Mathematics; the teacher training course for Mathematics at Bangor University has been full for some years now, and the number of applications for Mathematics posts in the North-West at the end of the year 2009-10 was higher than ever before. However, the situation is less positive for teachers in the Sciences, where there continues to be a shortage of teachers, and in particular of teachers able to teach through the medium of Welsh.

Adequate steps must be taken to ensure that those trained in STEM subjects are completely competent in the subject concerned, and that they are genuinely interested in education, in order to avoid the danger of unsuitable people choosing to go into teaching, or to teach particular subjects, chiefly because of the additional money.

How effective are education and business links between education institutions and STEM employers?

We are aware that it is difficult for teachers to find sufficient time to foster links with local businesses and employers, in addition to the work of delivering the curriculum. Vocational courses, in particular, can give rise to a considerable amount of travelling and administrative work to try to find employers with enough suitable staff and sufficient time to assist. This is more challenging still in rural areas and can be an obstacle when considering the establishment of new courses.



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