Tackling the teacher shortage – near-peer mentoring of STEM students for outreach and engagement using trainee teachers

John Thornby 1,2, Kate Mawson 1,2, Will Haywood 1,3 – University of Warwick, CV4 7AL
1 Centre for Professional Education, 2 Centre for Education Studies, 3 Learning and Development Centre

Abstract

This poster outlines a pilot scheme for delivering CPD training to undergraduate STEM students, utilizing trainee science teachers as “near-peer” mentors to enhance student volunteers’ ability to undertake science outreach activities in local schools and the wider community.

The driving force for this project is to tackle the teacher shortage in STEM subjects, which is hoped can be achieved in a number of ways. The trainee teachers themselves will develop their professional skills by acting as mentors while STEM students will become more closely engaged with the profession, current pedagogy and young people within schools. This effectively serves as a marketing tool which potentially increases the likelihood of these students applying for Initial Teacher Training (ITT). Finally, the long-term goal is to enhance children’s enthusiasm for science at an early stage, with a view to widening participation and improving uptake of STEM subjects at A-level and in Higher Education – nurturing the interest and talent of a future generation of teachers.

Teacher Shortage

Since 2009, entries into ITT have fallen by 17% (Fig. 1) and were 7% below demand in 2014/15 (Ofsted, 2014). Recent changes to recruitment into ITT courses have led to “instability” for many universities, with the number of training places allocated directly to HEIs falling by 25% since 2012 (UKQ). Meanwhile, data shows that the new School Direct training route recruited only two-thirds of its allocation in 2013/14 and, while it has been more successful in recruiting trainee English and history teachers, it has been less successful for STEM subjects (Fig. 2) which has “contributed to a shortfall in the number of trainee teachers recruited into...mathematics and physics” (TES, 2014).

While the overall calibre of entrants into ITT is increasing (Fig. 3), data shows that trainee mathematics and science teachers are the least qualified (Fig. 4). Indeed, data from NCTL shows that approximately a third of STEM applicants have a degree in an unrelated subject and require Subject Knowledge Enhancement.

Graduate Trainee Teachers:

- Development opportunity for PGCE students
- Provides evidence towards Teachers’ Standards
- Develop teaching skills
- Gain confidence
- Reinforce and expand subject knowledge
- Opportunity for reflection

STEM Students:

- Transferable skills for STEM students
- Improved communication and presentation skills
- Increased exposure to teaching profession
- Support from a more knowledgeable mentor

School Children:

- Educational activities
- Increased engagement with science
- Renewed / ignited interest in STEM subjects
- Positive adult role models (particularly girls)
- Widening participation in science
- Increase aspiration for Higher Education

References