

Children, Schools and Families Select Committee: New Inquiry into Teacher Training**Response by the Wellcome Trust**

January 2009

1. The Wellcome Trust is the largest charity in the UK. It funds innovative biomedical research, in the UK and internationally, spending over £600 million each year to support the brightest scientists with the best ideas. The Wellcome Trust supports public debate about biomedical research and its impact on health and wellbeing.
2. Through our education programme, the Wellcome Trust is committed to stimulating interest and excitement in science amongst young people, increasing the quality of young people entering biomedical related careers (including teaching) and supporting scientific literacy more broadly. Our submission therefore focuses on the training of teachers of Science, Technology, Engineering and Maths (STEM) subjects and issues of relevance to science education more generally.
3. The Trust welcomes the Committee's inquiry, as we recognise that:

‘In essence, school science's most valuable resource is *not* its equipment or its laboratories but a cadre of *well-qualified, enthusiastic teachers* who are justly remunerated for their skills.’¹

Ensuring that teachers are well-qualified and enthusiastic will require provision of excellent training both before qualification, and throughout their careers.

Key messages

- **Continuity between Initial Teacher Training (ITT) and Continued Professional Development (CPD)** should be strengthened. Teachers should expect – and be provided with – opportunities for training throughout the course of their career, and the education sector should provide mechanisms for such development to be recognised.
- **Promoting teaching careers** to high quality STEM graduates is an essential first step on which ITT and CPD can build, in order to provide inspiring science education.
- **Higher Education Institutions (HEIs) make a distinctive contribution** to both ITT and CPD, by providing subject-specific expertise and an understanding of the principles that underpin teaching.
- **Subject-specific ITT and CPD is critical.** The national and regional Science Learning Centres have a key role in delivering this, to which the Trust is fully committed.

¹ Osborne, J. and Collins, S. (2000) Pupils' and Parents' views of the school science curriculum. London: King's College London, School of Education

Continuity between ITT and CPD

4. ITT and CPD are not isolated processes. It is important for teachers to expect – and schools to facilitate – training throughout the lifetime of a teaching career as standard. Individual teachers also have a responsibility to keep up to date, both with their subject and with new teaching approaches. This is particularly important for STEM teachers who need to keep pace with scientific discoveries, ICT developments, innovative approaches to teaching and developments in curriculum and qualifications.
5. Now that ITT and CPD are both coordinated under the Training and Development Agency, there are signs that continuity of approach to teacher training is improving. An indication of this is the Masters in Teaching and Learning qualification announced by the Schools Secretary in March 2008, and due to be rolled out to all schools in the North West in September 2009. However more is still required to ensure an effective training continuum.
6. One way to encourage this could be to offer more formally accredited CPD opportunities after initial qualification (as exemplified in other professions such as medicine, accountancy and law). An example of subject-specific accreditation in the education sector is Chartered Science Teacher status (CSciTeach). This is offered by the Association of Science Education (ASE), and requires individuals to maintain CPD in order to renew their CSciTeach status every 5 years. Additionally, the ASE is leading on work with the Science Learning Centres aimed at establishing an accreditation framework for all CPD including 'day courses', higher degrees, and more informal activities that can be demonstrated to provide professional development. This work began in August 2008, and pilot projects are due to commence later this year.

Entry into the teaching profession

7. A healthy supply of high calibre STEM graduates into the teaching profession is essential to provide role models and inspire students at school, and the Trust supports initiatives that aim to encourage this. Examples of such initiatives include Teach First² which is aimed at graduates from top universities, and Transition to Teaching³ for employees considering a mid to late career change into STEM teaching. This scheme may be particularly relevant given the current economic climate.
8. To attract the right candidates, high quality careers advice is also essential, providing information that demonstrates teaching as one of the challenging and rewarding options presented by STEM education.
9. Different routes into teaching (for example the Post-Graduate Certificate in Education and Graduate Teacher Programme) are necessary in order to accommodate candidates in a broad range of circumstances, however it is essential that all routes are high quality and held in parity of esteem. An assessment of the strengths of various routes could drive improvement across the board.

Delivery of ITT and the role of HEIs

10. HEIs do make a distinctive contribution to teacher training, as they have the longest track record in delivering ITT, and a wealth of expertise based on academic principles and theory of learning and teaching. HEIs can also draw on, and provide access to, excellent educational research, which can improve the teaching practice component of ITT (see paragraph 19). The inclusion of an HEI in a School-Based Consortia in ITT is therefore generally thought to enhance the training provision available through this route.

² Teach First: <http://www.teachfirst.org.uk/>

³ Transition to Teaching: http://www.tda.gov.uk/Recruit/adviceandevents/transition_to_teaching.aspx

11. Teaching practice in schools is central to ITT. However, there is a concern that trainees currently do not have sufficient opportunity to reflect on and refine the teaching they undertake in school placements. This is particularly key in science education, where trainees need adequate time to design and test practical experiments and develop skills in this area.
12. Another ITT concern is the shortage of 'high quality' school placements for trainees, reported by some HEIs. Under-resourced school laboratories or insufficient departmental support (amongst other factors) could negatively impact on the outcomes of ITT. Placement quality may be improved in some schools by increased provision of specialised CPD for staff who work with trainees.

Subject-specific CPD provision

13. The Trust recognises the importance of professional development generally, and has demonstrated its commitment to STEM-specific CPD to enable STEM teachers to be up-to-date and confident in their subject.
14. The Trust worked in partnership with the Department for Children, Schools and Families (DCSF) to establish the network of Science Learning Centres, and also commissioned a study in 2005 to find out what teachers think about CPD. The report, entitled 'Believers, Seekers and Sceptics'⁴, identified time and money as the most commonly cited barriers to CPD uptake. The Committee may wish to consider whether training budgets in schools are sufficiently protected and utilised, given the variety of competing demands on limited school resources.
15. With the barriers in mind, the Wellcome Trust (with DCSF and industry partners) launched Project Enthuse in 2008, which aims to establish a step change in the take-up and attitude towards STEM CPD. Enthuse is a £30 million collaboration which provides bursaries for travel and lesson cover, allowing every STEM teacher to attend a once-in-a-lifetime residential course at the National Science Learning Centre (NSLC). Enthuse also increases interaction between employers and schools, as teachers will be able to nominate at least 50 high potential A-level science students for internships with participating businesses.
16. Enthuse is one of the few examples where industrial partners have had direct involvement with CPD on such a large scale. The Committee may wish to consider further opportunities for enhancing teacher training through industry collaborations, given the increasing links between business and education, for example through the development of Science Diplomas and direct funding of schools.
17. The Trust is pleased to note the Impact Awards, established by DCSF for teachers to attend designated CPD courses in the regional Science Learning Centres. Furthermore tailored CPD can be accessed by devolved administrations, through the NSLC. Other providers and stakeholders, such as local authorities, professional bodies, and the Specialist Schools and Academies Trust, together with the network of Science Learning Centres have a key role in promoting a wider culture of specialist CPD for teachers and the wider school workforce including technicians.

Improving quality in teacher training

18. Evidence from Ofsted reports indicates that the quality of ITT has improved significantly in the last decade. The introduction of the Qualified Teacher Status standards has helped to describe what is meant by a 'quality' teacher. However the development of such 'lists' emphasises the complex nature of teaching. This particularly applies to STEM, where desired

⁴ Wellcome Trust (2006) Believers, seekers and Sceptics: What teachers think about CPD.
http://www.wellcome.ac.uk/stellent/groups/corporatesite/@msh_peda/documents/web_document/wtx028430.pdf

teaching outcomes encompass both scientific literacy for all learners and preparing the next generation of scientists, technologists, engineers, medics and mathematicians.

19. Educational research could help raise the quality of teacher training by providing evidence to support improvements in practice. However this research typically has a much lower impact than it could or indeed should. Whilst doubts have been expressed within the community regarding the robustness of some educational research⁵, there remains significant potential to develop mechanisms for uptake and application of rigorous research within ITT and CPD. Examples where this has been achieved successfully (for example – ‘Inside the black box’⁶ by Paul Black and Dylan Wiliam in 2001), are comparatively rare.
20. We would be happy to discuss these issues further, and look forward to the outcomes of the inquiry.

⁵ National Educational Research Forum (2002) Working Paper 1.1 – Building research capacity: Some possible lines of action.

⁶ Black, Wiliam (2001) Inside the Black Box: Raising standards through classroom assessment.
<http://ngfl.northumberland.gov.uk/keystage3ictstrategy/Assessment/blackbox.pdf>