

Science notes

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Encouraging trainee teachers to write for a professional audience

Roger Lock introduces five Science notes, from trainees, a newly qualified teacher and a mentor

Recent years have seen a bit of a revolution in the nature of initial teacher training (ITT) courses in the UK, in that most of the one-year full-time courses now offer, in addition to qualified teaching status, a number of credits towards a master's level degree. The number of credits that are awarded varies between 30 and 120, with the latter number currently offered by only two institutions, the University of London Institute of Education and the University of Birmingham where I work. This has led to the currently little-understood distinction between Professional Graduate Certificates of Education and Postgraduate Certificates in Education (PGCE). For a course to be labelled postgraduate the assessment must be at a level above undergraduate, such as master's level. These initiatives have effectively prompted the government to trial a Masters in Teaching and Learning (MTL) development, which, from 2010, all newly qualified teachers (NQTs) and others will be able to embark on. Such a development is linked to a government desire to increase the professionalism of teachers and to make teaching more of a 'master's level profession'. The notion of 'master teachers' is not new to our cousins over the pond and we are possibly following developments

there and elsewhere in the world. Built into this development is the notion that teachers trained to M level are of higher quality, possibly more reflective in their teaching and maybe even with aspirations to be teacher researchers.

Such developments have led some, but not all, PGCE courses to encourage, or even require, their trainee teachers to undertake empirical research as part of the assessment requirements for work on the PGCE at master's level. One such assignment at the University of Birmingham requires trainees to identify an aspect of a topic that they are teaching on school practice which is challenging for pupils and for which there are no appropriate aids in their placement schools. Trainees consult with their mentors so that they receive guidance about an appropriate issue to select. They are then required to design and carry out a pre-test in order to gauge the pupils' existing levels of knowledge/understanding of the topic. Following on from this they design and/or develop a teaching aid and use it to teach the problematic area. Whilst doing this they make a note of pupils' responses to the teaching aid and then follow up the teaching by carrying out a post-test to assess the impact of the teaching aid

on pupils' knowledge and understanding. Such an assignment requires the trainees to engage with literature relating to research methods involved in pre- and post-testing, as well as with the professional and academic literature linked to the pupils' understandings and misconceptions of the problematic area of teaching. In the Birmingham course the mentors are also involved in the evaluation of this particular assignment, as the trainees have to present their teaching aid to their colleagues and mentors, at a twilight session, in the same way as they presented it to their class. They have a maximum of five minutes for the presentation, even though they may have taken longer when it was originally used with pupils.

Mentors assess the trainees in terms of their presentation, quality of the aid and response to questioning. There is, in addition, an independent university-based assessment centred on the quality of the research and writing. Involvement in this work is very popular with the mentors and it is usual for them to go away from the twilight meeting with new teaching aids to add to their repertoire; some are stimulated to develop new resources based on what they have seen.

A pre- and post-test strategy is not the only research method with which PGCE students are engaged, as other assignments require them to carry out documentary analysis, classroom observation, questionnaires and interviews, all grounded in an engagement with the research methods literature. Such strategies are designed to provide a broad canon of understanding of some of the main research methods used in the social sciences, as might be appropriate for anyone beginning research work in education.

Some examples

Three of the short articles presented as *Science notes* in this issue were originally submitted for assignment briefs, as described in the preceding paragraphs. The articles have all been rewritten with a focus on a professional audience, rather than the academic audience for which they were originally written. Louise Hammond and Abby Garner have had some support from me, as their tutor, in transforming their assignment into a suitable format for an *SSR Science note* and hence I am the second author. Andy Raistrick, on the other hand, has made that transition almost without support. These three *Science notes* illustrate the variety of teaching problems that

trainee teachers attempt to address. In the case of Louise Hammond the issue was linked to the introduction of assessment for learning to a year 7 group (ages 11–12). Louise has adopted a novel approach to encouraging low-ability pupils to engage with a change in school marking policy. Abigail Garner has adopted a previously existing idea which she saw illustrated on the wall of a classroom in the English department when she was doing a 'pupil pursuit' at her first school practice. She subsequently used the idea, adapting it for a science lesson in her first practice school and carrying out further modifications in her second school practice, which led to the report presented here. Andy Raistrick, in contrast, has a novel way of making the teaching of protein structure to an A-level class less abstract.

Of course, we do not want trainee teachers to stop innovating when they leave the PGCE course, and the fourth *Science note*, by Sarah Thomas, illustrates this point. Sarah developed the idea of writing to industry in her induction year, when she got some surprising results from her microbiology experiments. She had previously carried out the same experiment in the second school practice of her PGCE year but did not follow it up more fully until her NQT year.

Mentors are at the centre of the initial teacher education experience; indeed they are, in my opinion, the single most important factor in a trainee teacher's development, and many of them are full of good ideas, advice and support for PGCE students. Lots of their good ideas merit wider dissemination but, sadly, few of them ever have time to write them up. Khatma Bibi has been one of our mentors and is now a head of department and an advanced skills teacher (AST). She has already shared some of her good ideas in *SSR* (Bibi, 2008) and here she provides us with another insight to her creativity by inviting us to look through her laboratory door at the Aladdin's cave within.

Why write for *SSR*?

In my view, it is part of the job of initial teacher training tutors in science subjects to support the Association for Science Education, teachers and more broadly the profession, through the dissemination of ideas like these five examples. I am not the only ITT tutor who sees work and ideas of this quality and yet the annals of *School Science Review* suggest that relatively few tutors

take up the cause and help to induct others to writing professionally. Why is this?

Most ITT tutors work within universities and, for many, the teaching linked to initial teacher training is just a small part of their work. In the last eight years or so there has been a much greater emphasis within UK universities on the importance of the Research Assessment Exercise (RAE). This is especially so for those working in Russell Group universities or others with illusions of grandeur, or should that be delusions of grandeur? The impact of these exercises is that if you are going to spend time writing and researching, rather than writing for *School Science Review* for which you receive no academic credit, there is pressure to focus instead on the high-status, peer-reviewed academic journals, where, if you are lucky, three other people will read what you have to say: Roger Lock writes again for the *Journal of Everything There is to Know about Nothing!* As we all know, *SSR* is a peer-reviewed journal and it is highly rated when compared with other science education journals – it was recently ranked seventh for esteem and 12th for quality out of 100 international journals (*EiS*, 2007) – but this does not sway those making judgements about academic writing.

School Science Review is seen as a professional journal and, for some, it is felt to be a relative waste of time and effort to direct articles for publication to it, unless, of course, they have already been rejected by higher-status publications. Some ‘big players’ do write articles and publish them here, for example Robin Millar, Michael Reiss, Phil Scott, Mary Ratcliffe and Jonathan Osborne, but others do not bother and who can really blame them? There is a way forward but it is not one where I would expect progress to be made, as it would put education departments out of line with the other university schools and departments with whom they are required to compete.

The key is that writing for professional journals does not count for the RAE. This devalues

the status of writing in such sources and therefore people do not want to do it. In the longer term this is not good news for *SSR* and other similar journals, as some of those who might be seen as their ‘key contributors’ do not write for them or support others in the first steps of writing for the journals of their professional association. There is a key role here for the professors of science education, especially those not seated in bath, wicker or sedan chairs, in promoting the status of professional writing and its value and contribution to the research and assessment exercise.

For me there is a strong link between those people in contact with the chalk face of the profession, gained mainly from close involvement with initial teacher training, and the quality of the NQTs produced. In developing master teachers it is important to be in touch with the grass roots of the profession and with the literature, professional and academic, in order to produce the best quality teachers. Perhaps the answer is to excise initial teacher training from ‘high-status institutions’ so that those working there can get on with their research and publication, leaving the rest of us to work with the future teachers and to disseminate our thoughts in professional journals. Such a view is popular within the high-status, research-oriented universities like the one I work in, who are in danger of giving the impression of caring little for the communities in which they are located.

So I look to ITT colleagues, professors included, to encourage and support those at the early stages of their career in writing for *SSR*; it is not sufficient just to be involved in that sort of activity for the academic journals. The introduction of M level to PGCE courses must inevitably provide more research-based writings of a higher quality than that to which we had become accustomed, so look at your trainee teacher assignments and your mentors’ approaches to teaching and learning with a new eye, that which spies a potential contribution to *SSR*.

References

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