

CEG SEMINAR REPORT
on
Chemistry Teaching in Schools: A Forward Look

Thursday 29 April 1999

Establishing the Key Issues which have lead to the current shortage of Chemistry Teachers

The Science Curriculum

- Teachers perceive the National Curriculum as having an increased content and have changed their teaching style to suit this. This pressure may also mean that newly qualified teachers do not have the opportunity to practise new or exciting experiments.
- The length of PGCE courses is insufficient to train teachers who have to teach more than one science subject.
- There is a lack of clarity as to whether a pre-16 curriculum should be for potential science specialists or for non-specialists.
- Key stage 2 science is exciting but pupils lose that enthusiasm when they start Key stage 3. Eleven-year-olds are at a critical stage and we have not learnt how to cope with this transition well enough.
- The curriculum should address what science **is** rather than talk **about** science.
- Teachers need more opportunities to share good curriculum practice.

Public Understanding of Science

- Teachers themselves are key people in the public understanding of science and hence need professional recognition and resourcing.
- The Media should include more science, making it exciting, accessible and accurate. Twinning of teachers, Higher Education and science correspondents could be useful.
- The media gives science a poor image and tends to focus on scares such as BSE or GM products and these portray scientists as irresponsible.
- The media portrays teachers as irresponsible and not to be trusted. The high degree of regulation through OFSTED, the National Curriculum and League Tables fosters this.
- Teachers do not often give positive and enthusiastic images of their profession and this emphasises the perception of low esteem. A teaching career is seen as a second choice and peer pressure on young graduates discourages those with some interest.
- School science is perceived as remote from real life.

The Effect of the Teaching Profession

- Teacher morale is generally low. They feel they have insufficient control over their work; they enjoy opportunities for curriculum development but they feel that these have been taken away from them.
- Too much time is spent on non-teaching administrative tasks. If lab. Technicians had more status they would be better able to facilitate practical work.
- Young people are influenced by role models but they see teachers all the time and not only in a glamorised situation as with doctors or footballers.

- There are teachers who do not want to make positive changes and these promote cynicism.
- Poor middle management provides inadequate support.

The Facts and Figures

- The facts and figures under-represent the real situation.
- Statistics showing a falling rate of teacher recruitment discourage others to enter a profession which they see as failing.
- Schools do not always recruit older teachers who retrained from another profession because they are anxious that the age profile should not be too high.
- More information is needed on the precise content of some educational qualifications so that difficulties and specialist shortfalls can be accurately identified.
- Precise data is not available on the science and maths qualifications of Key stage 2 teachers.
- Information is needed as to whether an education department on a University campus affects the number of graduates who choose to follow a PGCE course.

Possible Solutions (These are from both the speakers and the groups.)

From Industry

- The voice of industry to Government is important.
- Industry can offer teacher placements and opportunities to become aware of exciting scientific developments. Teachers and industry can work as a partnership to develop resources including those for the Internet.
- Financial incentives such as bursaries and sponsorships.
- Recognition of teachers' work through accreditation.
- Secondments to industry to give experience of leadership and management skills.
- Providing supportive networks and taking every opportunity to raise self-esteem.

From University Departments

- Although some Universities organise a teacher placement for some of their students none of these have resulted in a student taking up teaching.
- Encourage the development of more networks between teachers and University departments.
- Make teaching a high priority; it should be included amongst the professions involved in the milk round.
- Departments should give their students the image of teaching as a high status profession.

Teachers themselves

- Teaching must be promoted as "cool", as a career for high fliers emphasising that quality is at least as important as quantity.
- Teachers should talk about the rewards and satisfaction of their profession.

- There should be subject specific training beyond the PGCE course.
- There should be a co-ordinated series of training opportunities possibly leading to a qualification. Teachers should be able to take control of their Continuing Professional Development. If expertise is encouraged and rewarded there would be more good teachers.
- More opportunities to share good practice.
- Teachers should be expected to dedicate some of the pupil holiday to development work within departments. During school time teachers should not have to waste time in tasks, e.g. photocopying, which do not make the best use of their skills.

Teacher Training Institutions

- Teacher Training Institutions should be involved in Continuing Professional Development and induction.
- A more creative use of the time spent in schools during teacher training, e.g., on increasing subject knowledge.

The Government

- The Green Paper has addressed the issues of recruitment, leadership and support:
 1. £5000 incentives for graduates training and going on to teach maths or science.
 2. 600 new maths and science teachers to be trained on the job, the schools receiving a £2000 incentive.
 3. Network of regional advisers to target potential returners.
 4. Suitably qualified unemployed to train.
 5. Government drive to encourage returners, including the retired.
- A General Teaching Council could help to confer status and esteem.
- The Green Paper also has plans to Share Good Practice, for Continuing Professional Development and to consider the problem of ageism.
- Group members believed that resources could be targeted more effectively.
- Regional Centres should be set up where teachers can come together to share experiences and good practice.
- Those individuals who tend to be very good as research Physicists or Chemists do not necessarily have the qualities which make good teachers.
- Teacher bashing should be avoided.