Sustaining Chemistry
In
Higher Education

A CEG SEMINAR

SALTERS' HALL

Thursday, 1 February 2007

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Aim

The aim of the Seminar was to focus on the Royal Society of Chemistry's *Chemistry for our Future* Project which seeks to enhance the understanding between school and university chemistry; help smooth the transition to higher education; inform higher education curriculum development and encourage a wider take-up of chemistry. This was used as a basis on which to make recommendations of good practice to CEG members, and more widely as appropriate.

Participants

Participation at the Seminar was by invitation, with 52 people attending. These included representatives of the teaching professions in schools and universities, university management, Government departments, Funding Councils, examining and validating authorities, a range of employers, the national press, together with members of the Chemical Education Group (given below).

The Association of the British Pharmaceutical Industry
The Association for Science Education
The British Association
Chemical Industries Association
Institution of Chemical Engineers
The Royal Institution of Great Britain
The Royal Society
The Royal Society of Chemistry
The Royal Society of Edinburgh
The Salters' Institute
Society of Chemical Industry

Welcome

The attendees were welcomed by Dr Richard Homan, Deputy Chairman of The Salters' Institute and Chairman of the Chemical Education Group. Sir David Harrison, Director of The Salters' Institute chaired the Seminar.

Setting the Scene

Dr Josephine Tunney, National Programme Manager, The Royal Society of Chemistry's *Chemistry for our Future* Project, set the scene for the Seminar by providing an overview of some of the national initiatives which aim to smooth the transition from school into Higher Education; coordinate outreach activities; improve the quality of careers advice to young people; enhance the attractiveness of degree courses in Chemical Sciences and related subjects; and provide non-specialist Science teachers with subject-specific training in order to teach Chemistry in schools.

Presentations

The overview was followed by short presentations to illustrate the various strands of the project. These presentations were designed to promote discussion about the opportunities for involvement by all sections of the Chemistry community.

Strand 1 **Roll out of the existing Chemistry: The Next Generation Project**	**Professor Paul Cullis** **The University of Leicester**
Strand 2 **Supporting Key Educational Interfaces**	**Professor Paul Cullis** **The University of Leicester**
Strand 3 **Higher Education Chemical Sciences Curriculum Development**	**Professor Pat Bailey** **The University of Manchester**

Strand 4 **Smarter Use of Existing Laboratory Facilities**	**Dr David Smith** **The University of Bristol**
Cross - Cutting Themes of Careers and Sharing Good Practice	**Dr Josephine Tunney** **Royal Society of Chemistry**
Chemistry for Non Specialists (CFNS)	**Dr Frank Ellis** **GlaxoSmithKline**

Emphasis was placed on the need for such initiatives to succeed if the United Kingdom is to remain competitive in the international HE market, and UK Industry is to continue to be able to recruit well qualified graduates and postgraduates in Chemistry.

The Seminar divided into small groups which discussed five questions.

Question 1

- **Cross Cutting Theme**
  How can more employers become involved in work experience?
  Identify barriers to participation
  Identify ways to address the barriers

Resources should be used to encourage direct contact between school pupils and young scientists from industry commerce etc. Outreach work could be incentified by employers making it part of their employee's performance review. An inadequate experience of work by school pupils is counter productive. People's perception of what working in a chemistry field is and can be has to be widened.

Question 2

- **Strand 1**
  How can we engage more employers in outreach activities?
  What are the barriers?
  Identify ways to address the barriers

Small-medium companies should be encouraged to become involved. Regional based networks already exist and these should be co-ordinated nationally. Barriers exist from both industry and school, these include health & safety and not knowing what is available in each region

Question 3

- **Strand 3**
  Sustainability
  Identify how best to embed outreach in university chemistry departments
  Securing internal funding
  Securing external funding
  Demonstrating effects of outreach

Outreach needs to be adequately funded and ultimately pay for itself. The number of initiatives such as the successful Teacher Fellow model at Bristol, needs to be broadened. Ensure all potential 'customers' are involved in funding. Data must be collected to evaluate the effect of outreach.

Question 4

- **General Discussion**
  How can we improve perception of working in chemistry?
  Education
  Industry
  Chemistry-using careers

The Web presence is already being addressed by the Science Council's "Careers from Science" website. The lifestyle of a chemist should be emphasised not just the salary. Subject teachers and careers advisors need to be provided with up to date information.

Question 5

- **Careers**
  How can the chemistry community ensure that appropriate information is disseminated to students of all ages in a timely manner?

Science teachers should be encouraged to see it as part of their job with links to the curriculum. Role models are important (e.g. The Undergraduate Ambassadors Scheme). Parents can be used as a resource. Much clearer information is required on the progression routes to ensure pupils have the required skills.

Recommendations

The following recommendations should be made to the organisations that comprise the Chemical Education Group, and more widely as appropriate.

Through activities undertaken individually or co-operatively by the Member Institutions of the CEG and by using their influence to encourage:

- Support for initiatives to improve the opportunities for work experience
- More support for and co-operation on outreach initiatives
- Data sharing on the effectiveness of outreach activities
- The promotion of chemistry as a degree as ideal preparation for a number of differing careers
- Emphasis of the economic benefits of a chemistry education and training
- Dissemination of information on careers in chemistry to pupils in schools