

Report from Sweden to the CCE meeting in Torino 2007

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There are three main issues discussed within higher chemistry education in Sweden today. The first topic is the Bologna Process and how the European model for undergraduate education (in Sweden's case a three year Bachelor and two year Master system) has changed and influenced the education in chemistry. The new adapted educations are starting this autumn. The second issue is the particle laboratory work within the educations and if it is possible and important to regulate a minimum curriculum per week for an education to be classified as an education in chemistry. The third topic is the borderline between upper secondary school and university – how the interaction can be strengthened and the interest for chemistry can be enhanced both among school teachers and pupils.

- The new Bachelor and Master programs in chemistry in Sweden are starting in September 2007 and we can now see that the recruitment is a problem. However, the educational part is interesting to follow since the change in structure is also followed by intense discussions about learning outcomes: What should a student know after a course in general chemistry? What generic skills should a chemistry student have after three years and how should these skills be trained? How should progression in this training be taught? All courses have been reformulated with clearer goals but also with clearer instructions on how the courses and the whole educations should be assessed. The universities have chosen different routes and assessment systems and what this will lead to is not yet clear.
- Historically the Swedish higher in chemistry education has included a high level of experimenting with advanced characterisation tools. Financial limitations are now influencing the amount of practical work that the students will experience. This has started a discussion about the learning outcomes of experimenting in both education science and within the chemical education community. Some examples of projects are: the study of the interaction between students and lecturers in the laboratory and how the best learning can be achieved; how the link between experimenting and theory can best be promoted; how visualization tools can make abstract processes in chemistry clearer etc. Within this area there is room for international collaboration.
- The National Committee of Chemistry has this year focussed the attention on bridging higher education in chemistry with upper secondary school. This is done by supporting yearly educational meetings for school teachers with university professors giving lectures but also allowing time for discussions. These meetings are held at different places in Sweden. A new project idea is now launched suggesting new positions at the post doc level for persons that do half time research at the university and half time teaching at the upper secondary school. There are some test cases where lecturers from university do some teaching in school with the task to also promote the teachers in the school to develop themselves and the subject. The number of teachers at the upper secondary level with a PhD. is too low in Sweden and this project has the aim of increasing the scientific level in the school system as well as promoting the interest for chemistry. Within this area there is also room for international collaboration.