

## Main Difficulties in Teaching Chemistry in Secondary Schools

### TEACHERS' CASE STUDY

#### Teacher's Case Study No 9

Subjects: Mathematics  
School: OSZIMT  
Place: Berlin Germany

#### Description of the Case Study

1. What do you think are the reasons for major difficulties in learning chemistry at school?

*A lot of my students, even though I teach at a school with a focus on Mathematics etc., do have problems with more demanding tasks which need a conceptual understanding. As I teach the classes 9 -11 (upper secondary) I think this lack is due to too less facilitation in earlier years.*

*According to my experience this is often due to the inadequate understanding of the text. I know of a study that had been done with some surprising results: Results indicate that students on lower levels of academic achievement profited most from the programme with abstract and symbolic activities, whereas the effects of the action-related programme were below even of those of the ordinary teaching methods used by teachers in the control classes.*

*So the facilitation of mathematical understanding is rather multidimensional and has to be done systematically.*

2. What major difficulties do you have in teaching chemistry?

*I don't teach Chemistry but I know that my colleagues have the same problems as I told to question1: often the students are "spoiled" in earlier years of their school time.*

3. What kind of courses - if any - on didactics of chemistry did you attend?

*None*

4. Why do many young people quit learning chemistry and, in general, scientific studies after upper secondary school?

*In Berlin we don't have a chemical based industry the young people don't have good opportunities to work here.*

5. How could young people be helped take up scientific studies after upper secondary school?

*I think if students have the opportunity to be in good contact to their future working fields this would make things much easier. A good example may help as well. If students have a mentor who is helping them during the phase of orientation after school this is quite a support as well.*

6. Which initiatives has your country undertaken in this direction?

*I know of the MINT initiative to facilitate girls, we participate in this initiative and have open days in the summer as well as "Schnupperkurse" (Tasters)*

7. Have you ever taken part into a research project concerning scientific learning?

No

8. Could you mention any recent research you have heard of, that might be useful to our project?

No

9. Could you suggest any other areas of research that might be useful to our project?

No