



## Main Difficulties in Teaching Chemistry in Secondary Schools

### TEACHERS' CASE STUDY

#### Teacher's Case Study N.: 9

Subject Taught, Place: *Chemistry (upper secondary school), Torino (Italy)*

#### Description of the Case Study

The teacher we interviewed thinks that the reasons for major difficulties in learning chemistry at school are that students are not able to use their brains, they lack of basic requisites, specially in maths, they don't study enough. Her major difficulties in teaching chemistry is not to make the subject too abstract but many schools don't have labs.

The teacher thinks that many young people quit learning chemistry and, in general, scientific studies after upper secondary school because to attend a scientific faculty, students must be gifted, whilst in humanistic faculties studying is enough, even by heart. They could be helped to take up scientific studies by making the access to employment easier.

She doesn't know any initiatives in the field of promoting lifelong learning and she hasn't any suggestion.



### Interview: teacher n.9 (English)

1. What do you think the reasons for major difficulties in learning chemistry at school are? (lack of basic requisites, cognitive problems linked to some contents, other). (Please justify your answer.)

*Because they're not able to use their brains, they lack of basic requisites, specially in maths, they don't study enough.*

2. What major difficulties do you have in teaching chemistry? (lack of labs, lack of time, other) (Please justify your answer.)

*Not to make the subject too abstract, lab activities should be used more often, but many schools don't have labs.*

3. What kind of courses - if any - on didactics of chemistry did you attend? (Please specify whether the courses were on based mainly on theory or on practice)

*None.*

4. Why do many young people quit learning chemistry and, in general, scientific studies after upper secondary school? (conviction that chemistry is difficult, or that a particular attitude is needed, other.) (Please justify your answer.)

*Because to attend a scientific faculty, students must be gifted, whilst in humanistic faculties studying is enough, even by heart.*

5. How could young people be helped take up scientific studies after upper secondary school? (Please justify your answer.)

*Making the access to employment easier for those who attend scientific faculties.*

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

*None.*

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

*Yes I cooperated for OCSE-PISA.*

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

*I don't know.*

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

*I don't know.*



### Interview: teacher n.9 (Italian)

1. A cosa si devono le maggiori difficoltà che gli studenti trovano nello studio della chimica a scuola? (mancanza dei requisiti di base, ostacoli cognitivi in alcuni contenuti, altro). (Argomenti la risposta).

*Perché non sanno ragionare, mancano di requisiti di base specialmente nella matematica, non studiano abbastanza.*

2. Quali sono le principali difficoltà che si incontrano dovendo insegnare chimica (assenza di laboratori, tempo insufficiente, altro) (Argomenti la risposta).

*Per non rendere la materia troppo astratta sarebbe necessario andare di più in laboratorio, ma molte scuole ne sono sprovviste.*

3. Ha mai frequentato corsi che trattavano tematiche inerenti alla didattica della chimica? Se sì, quali? (Specifici se i corsi avevano un'impostazione più prettamente teorica oppure pratica/laboratoriale.)

*No.*

4. Per quale motivo molti giovani abbandonano gli studi chimici (e, in generale, gli studi scientifici) dopo la scuola secondaria? (convinzione che la chimica sia "difficile", che sia necessaria una particolare attitudine, altro). (Argomenti la risposta).

*Perché per le facoltà scientifiche bisogna essere portati, mentre in quelle umanistiche è sufficiente studiare, anche a memoria.*

5. In che modo si potrebbero orientare i giovani a intraprendere studi scientifici dopo la scuola secondaria? (Argomenti la risposta).

*Rendendo più semplice l'ingresso nel mondo del lavoro per chi frequenta studi scientifici.*

6. Nel suo paese quali iniziative sono state messe in atto in questa direzione?

*Nessuna.*

7. Ha mai partecipato a progetti di ricerca sull'apprendimento scientifico?

*Sì, ho collaborato per OCSE-PISA.*

8. Può citare qualche ricerca recente della quale è venuto/a a conoscenza e che potrebbe essere utile per il nostro progetto?

*Non so.*

9. Può suggerire altre aree di ricerca che potrebbero essere utili per il nostro progetto?

*Non so.*