



UNIVERSITÀ DEGLI STUDI  
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## Main Difficulties in Teaching Chemistry in Secondary Schools

### TEACHERS' CASE STUDY

#### Teacher's Case Study N.: 8

Subject Taught, Place: *Maths and Sciences (lower secondary school), Genova (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, at that age, don't have abstracting abilities and that many teachers are not able to teach. Her difficulty as a teacher are that it's necessary to make concepts easy but the risk is to make them banal too.

The teacher thinks that many young people quit learning chemistry and, in general, scientific studies after upper secondary school because those who teach scientific subjects can't do it properly. Students could be helped to take up scientific studies after upper secondary school by proposing them more lab activities.

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



### Interview: teacher n.8 (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.)  
*Students, at that age, don't have abstracting abilities, many teachers are not able to teach.*

2. What major difficulties do you have in teaching chemistry? (lack of labs, lack of time, other) (Please justify your answer.)  
*It's necessary to make concepts easy but the risk is to make them banal too: microscopic models are often inadequate.*

3. What kind of courses - if any - on didactics of chemistry did you attend? (Please specify whether the courses were based mainly on theory or on practice)  
*Yes, during SSIS (school that specifically prepares to teaching). Courses were mainly theoretical.*

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 those who teach scientific subjects can't do it properly.*

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

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 "Matefitness" (math fitness)*

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.8 (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).

*Gli alunni a quell'età non hanno capacità di astrazione, molti insegnanti non sanno insegnare.*

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

*E' necessario semplificare, ma si rischia di banalizzare: spesso i modelli microscopici non sono adeguati.*

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.)

*Sì, la SSIS. I corsi avevano impostazione teorica.*

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 chi insegna le materie scientifiche non lo sa fare adeguatamente.*

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

*Più attività laboratoriali.*

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, "Matefitness"*

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.*