



SPANISH STUDENTS MOTIVATION ON SCIENCES.

Antonio Jesús Torres Gil. Colegio Santo Tomás de Villanueva. Granada. Spain.

INTRODUCTION

- We live in a knowledge and mass media society.
- The need for a scientific and technological literacy is increasingly required.
- We need to include in the curricula relationships between scientific and daily knowledge.
- To guarantee that this happens, methodology needs to be changed.

But...

- We find students' increasing lack of interest towards Science.
- There's a decreasing number of students, especially girls, who choose Physics or Chemistry degrees.



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SPANISH STUDENT'S ATTITUDE TOWARDS SCIENCE.

- They attribute negative aspects such as pollution or weaponry development to Science, and they are unaware of its positive points.
- Students consider scientific subjects as difficult, very theoretical, useless, and excessively conceptual.
- This negative attitude towards certain school Science aspects becomes more evident as students grow up (at the beginning of Compulsory Secondary Education), and it mostly affects girls.
- They think that they do not have enough laboratory practice.
- They do not feel attracted towards scientists' work.
- They are not aware of women's role in Science development.



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CURRICULUM AND SCIENTIFIC LITERACY IN SPAIN: OUR PROBLEMS

- Most of Physics and Chemistry subjects in Spanish Educational System are optional.
- The Spanish curricula is not focused on daily life Science.
- It emphasizes teaching “facts” instead of how scientific knowledge is built.
- Laboratories practices are not included in official curricula and are not obligatory and there is not enough time to research and experimental work.
- There are a few points in common with other subjects
- The presence of STS contents like Science History is increasing in the last few years, although it is not enough.



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CURRICULUM AND SCIENTIFIC LITERACY IN SPAIN: OUR NEEDS

- Increase number of Physics and Chemistry hours in the curriculum.
- Contextualize the subject using as daily life, social needs, and environmental issues.
- Sort contents in the most appropriate way to foster students' understanding of scientific terms by introducing concepts progressively.
- Introduce new teaching strategies like take into account ICTs and research and experimental work.
- A real teacher's involvement to renew curriculum.



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ICT'S IN SCIENCE EDUCATION

- ICTs are the ideal tool to transform the classroom into research environments centered on students which foster meaningful learning.
- The creation of digital libraries and repositories where technology quality resources and supporting materials are at hand are getting more necessary these days.
- The membership of a teacher's network helps improve their teaching method and motivation. (Rocard Report)

ICT'S IN SPAIN

- In Spain, ICTs have been incorporated to Science teaching in the last years. (Escuela 2.0 programme starting in 2009, now stopped). Learning environments like Synergia and Moodle have provided teachers with more interesting Chemistry teaching experiences.
- In recent years, the methodological change is getting complicated due to financial education cuts, the increasing teaching hours, and the increasing number of students per classroom.



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CONCLUSIONS

- Our students have not positive attitudes towards school science and, particularly, towards Chemistry.
- Their science view is negative due to several facts: a teaching method in which we do not pay attention to experimental work, a non-contextualized science teaching, and a very theoretical curriculum.
- It is necessary to change the contents and the orientation of the curriculum.
- Teaching methods must be based on experience and daily science together with more STS and Science History contents.
- These changes should include ICTs in Science teaching and promote the exchange of experiences between teachers on the Internet.



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THANK YOU FOR YOUR ATTENTION

Antonio Jesús Torres Gil
ajtorresgil@agustinosgranada.es



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