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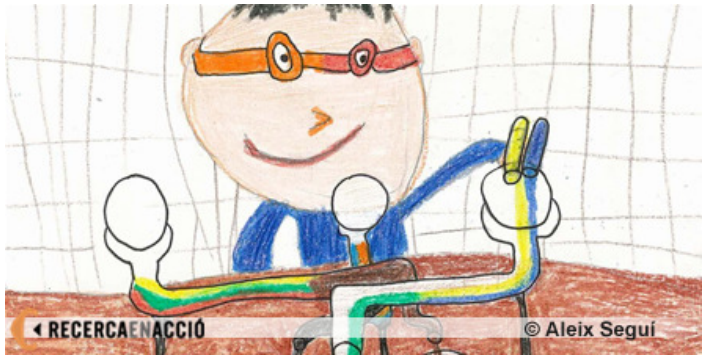


SCIENCES IN THE SCHOOLS

Project funded by the European Community
under the "Science and society" Programme – FP6
Structuring the European Research Area

POLLEN PROJECT
2006-2009

Universitat de Girona

p.a.u.education

Ajuntament de Girona

Generalitat de Catalunya
Departament d'Educació

Sciences in the schools

- Concrete examples of science education projects in elementary and primary schools.
- Different perspectives and ways of developing science education for children from 3 to 11 years old.

Starting point – before Pollen

Concerning the background and experience, we can find at least three types of Seed Schools in Girona:

- Those were a science education program is just starting (CEIP Pericot, CEIP Domeny)
- Those were already exist a specific science project at the school (CEIP Bruguera)
- Those who are already taking part in science related programs that involve more schools (CEIP Pla de Girona, CEIP Migdia and CEIP Mare de Déu del Mont)

What Science?

- In general, the vast majority of the schools follow the curricula following textbooks.
- They teach what the book says it should be taught. Fortunately, above all the teachers complement the book with other didactical resources.
- If we analize what disciplines are more present in textbooks and therefore in science lessons in elementary and primary schools, we realize that there is plenty of biology, a tiny presence of geology and a little bit of physics and quemistry (basically at the end of primary).
- School science tends to focus on conceptual content and it's seen as immobile and unchangeable.

Cases classified by organization, philosophy or methodology

Case 1: New school, New project

- There are two Seed Schools which are quite new schools (less than 5 years old).
- They were just starting their projects and they wanted to promote experimentation.
- For them Pollen was an opportunity to have a helping hand and advise.

Science as one of the core projects in the School

- They focus on languages, art and science.
- They have had specyfic training on those subjects (all the teachers from the school).
- There is at least one hour per week (per class) dedicated to experimentation and inquiry.

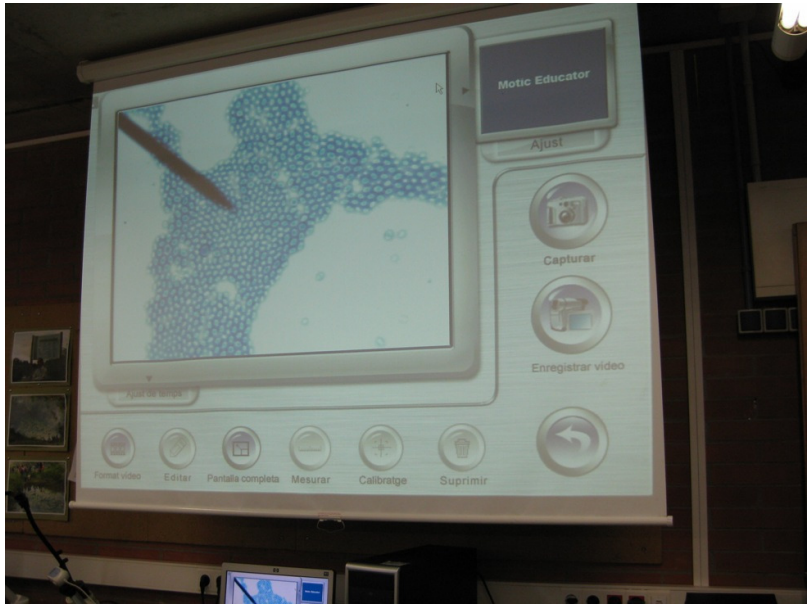
Autonomous group work as a methodology for the whole school

- They focus on the ‘corners’ methodology which promotes the autonomous and small group work.
- They have the ‘maths corner’, ‘language corner’, ‘environment corner’, ‘arts corner’.
- They also have ‘workshops’ in gardening vegetables and other topics.

Case 2: already existing science project in the school

- One school with quite a high level of autonomy (both economic and organizational) found that one of its weaknesses was the ‘lack of observation and experimentation’.
- They decided to launch a science project.

Case 3: Schools participating in already existing science related programs



- There are two main institutional programs related to science education in Catalonia:
  - 'science classroom'
  - 'green schools'
- Both with training and their own agenda.

Sub case 3: Science as the core project for the whole school

- Taking advantatge of the equipment and training they had in advanced, this school decided to have a science project as the axis of the teachers training and curricula innovation for three years. They also offered this project as practicum for pre-service teachers.

Cases classified by topics or interests when introducing IBSE

One School one main topic

- Nutrition and Science as the core project for the whole school: all classes involved:
  - Elementary: fruits
  - Primary:
    - First cycle: vegetables
    - Second cycle: milk and derivates
    - Third cycle: fish and meat

One School few main topics

- Observation and experimentation through 3 different topics:
  - Weather
  - Vegetable garden
  - Laboratory

One school,
a lot of different topics

- Science is vertebrated through the methodology, not the topic, so just introduce hands-on and inquiry activities on their everyday program.

Sciences off the Schools

- Science Fair (Friday, the whole day)
- Ecological Food Market (Tuesday morning)
- Science decathlon and Researcher's Night (Friday, the whole day)
- Science on the neighborhood (Saturday morning)
- Science in the summer (as a part of non-formal education in the city)

In conclusion,

- Diversity: different approaches and visions, different but shared.
- One common goal: make science more practical, based on inquiry and reflection.

Thank you very much!!

- Any questions or comments?

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