Inquiry-based learning with weSPOT in secondary education: “Colony on Mars” project

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MASS conference
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weSPOT project

EU-project:
• Start: 1st of October 2012
• Duration: 36 months
• Consortium: 9 partners from 9 EU countries

weSPOT is an EC-funded Research Project under the Grant Agreement no. 318499 of ICT FP7 Programme in Technology Enhanced Learning
Assumptions

• Curiosity is sparked by everyday experiences
• Personal experiences and insights are the key for understanding scientific concepts

=> Needed:
Support for consistent and critical reasoning, systematic observation, and experimentation in empirical settings/daily practice of pupils.
Aims

• The weSPOT project aims at propagating scientific inquiry as the approach for Science learning and teaching, in combination with today’s curricula, teaching and classroom practices.

• The project focuses on inquiry-based learning with a theoretically sound and technology supported personal inquiry approach.

• In inquiry based-learning pupils take the role of an explorer and scientist, in which they:
  • are motivated by their personal curiosity
  • are guided by self-reflection
  • develop personal knowledge
  • collaboratively construct knowledge by means of collaborative sense-making and reasoning
weSPOT Inquiry-Based Learning (IBL) Model
Toolkit Inquiry-based learning

The weSPOT Toolkit: engine & knowledge technologies

1. Domain modelling
2. weSPOT inquiry server

Inquiry phases and involved skills

1. Inquiry can begin in each of the phases and connections to all other phases are possible.

The weSPOT inquiry model follows 6 phases.

2. The main components are:
   a) weSPOT inquiry server
   b) domain and concept modelling
   c) mobile data-collection and monitoring
   d) performance analytics
   e) online discussion and collaboration

The weSPOT Toolkit: mobile & learning analytics

1. Mobile data-collection
2. Performance analytics

The weSPOT toolkit is an open environment for creating inquiry spaces.

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The weSPOT inquiry space lets you create, share and perform scientific inquiries either individually or in groups. To learn more about what weSPOT offers to teachers, students and developers visit the project web site.
Pilot-project
Sint Jan:
“Colony on Mars”
Project overview

• Atheneum/gymnasium pupils design and create a “Colony on Mars” in their tto-Science class (1st year) at St. Janscollege (Hoensbroek, the Netherlands)

With partners:
- RCE Rhine-Meuse (OPEDUCA)
- Welten-instituut
Objectives

• Learn, integrate and apply subject knowledge
• Develop (21st century) complex, constituted skills, like:
  – (Re)Searching
  – Designing
  – Collaborating
  – ....
• Motivate pupils for Science-domain
Project Model

Prezi

General Inquiry
Mars, Space, Human Beings

Separated Inquiry

Food
Water
Energy
Environment

Elevator pitch

Domain-oriented knowledge which is tested in the test week. Diagnostic tests are available for students in iBook

Practical work:
• maquette
• food-preparation
• visiting companies

Logbook/Portfolio (showbie)
Also supported by the PREATY-project (Welten Institute):

**PREATY:**
PProposing Modern (E-)assessment Approaches and Tools to Young and Experienced in-service Teachers

See: [www.preaty-project.eu](http://www.preaty-project.eu)

=> To redesign ‘assessment palette’ within the project “Colony on Mars”
What happens in lessons?

• How do pupils use weSPOT?
  – E.g. Mindmapping, collecting and selecting data, communicating

• What activities do they do in the project?
  – E.g. Building, cooking, experimenting, discussing, listening, watch video-clips
Some impressions …
Lessons learned so far..

- Expect unforeseen obstacles in practice
- Choose a ‘winning team’
- Keep it simple (at least at first)
- Communicate, communicate, ....
- Comply with existing (administrative) technology/systems
- Look for ‘tool treasures’
- Pupils are in principle motivated for this type of education
Thank you for your interest and attention!!
Contacts – weSPOT project

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Web portals
wespot-project.eu (project)
inquiry.wespot.net (environment)
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