la main à la pâte

Emotion, reasoning and computers
Questions from *La main à la pâte*

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What is *La main à la pâte ?*

- A world wide action to renovate science education in primary schools ;
  - France (since 1996) ;
  - World : many partnerships (cf. R. Belay's talk) ;
  - Europe : *Pollen* program, 12 to 21 countries, EU support (idem) ;
- A support by the scientific community (e.g. Academies of science) + ministries of education ;
- Pilot projects and reference centers (group of schools);
- Production of resources.

The basic process

- Inquiry Based Science Education (IBSE) ;
- Modify the vision of science by the teacher ;
- Provide tools to teachers, in order to teach inquiry science ;
- Partenership with teachers (local or distance) ;
- Networking at all scales ;

Teacher training

Observations

- A process of (guided) learning :
  - Sensations
  - Curiosity
  - Verbal expression
  - Reasoning
  - Experimenting & Observing

- The lesson is driven more by the *demand*, than by the *supply* of knowledge

- Curiosity *seems* to be at heart of the process (age 5-12) ;

Questions

- What does one know about the *brain image* of curiosity ?
- Which factors are controlling curiosity and its efficiency ?
- Curiosity *seems* to be at heart of the *Lamap* learning process (age 5-12) : how are related its rational and emotive components ?
- Can one explain its universality ? Its variability among children ?
- Which factors are important to amplify, disturb or suppress it ?
  - Attention ;
  - Emotion ;
  - Experimental work ;

Role and use of computers

- *Lamap* principles **eliminate** computers for children learning science :
  - To make the **experience** of reality ;
  - To perceive the **resistance** of reality ;
  - **Evidence** (reality <=> brain) comes from real experiments ;
  - Presence of *nature* : science = partnership teacher-pupil-nature

- *Lamap* principles extensively use **networking** :
  - Between teachers, teachers and scientists… (talk David Wilgenbus) ;
  - Between classes : cooperative projects (idem) ;
  - NOT between children themselves.

- *Lamap* never opened a website for children, neither developed resources for them ;

- *Lamap* is open to consider an experimental development with XO, in order to help teachers to use XO networks and potential for science education ;

A potential *Lamap*-XO collaboration ?

- Potential values of XO :
  - Collaborative work of children (which gain over classical ?)
  - Improved two-ways teacher pupils interaction ;
  - Relations science & written language
  - Real world --> sensor (usb) --> data --> display --> exchange, e.g. Moon pictures and their analysis
  - Formative evaluation process

- Need of a brainstorming case study, e.g.
  - Assume 50 primary schools, 10 000 children, 300 teachers
  - Goals ?
  - Teacher training ?

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