Pedagogical Considerations of the OLPC

Roseli de Deus Lopes
Laboratório de Sistemas Integráveis (LSI)
Escola Politécnica – Universidade de São Paulo
roseli.lopes@poli.usp.br

IX Hemispherical Meeting of the Education Network
ONE-To-ONE Computing Models

Panel IV: Software and Hardware in One-To-One Computing Programs

November 8 – 10, 2006
• Brasil reached the school access universalization goal (~55 Million students at Basic Education – 90% public
7.2M kindergarden, 33.5M K8, 9M high-school, 4M younger/adults)

• All Public High-Schools have at least one computer lab with 10 computers, shared by all students and teachers

However ....

• Last in 32 countries on the PISA-OECD (Programme for International Student Assessment) in reading, math and sciences

• 60% of the teachers need complimentary formation

• Teachers almost do not invest buying books or doing continuous formation

• 75% of our population => functional illiterate
Challenges for the New Education

- Education of Quality for ALL
- The focus of the School is NOT in the transmission of contents
- The School must form citizens
  - creative,
  - flexible,
  - with critical spirit,
  - curious and capable to formulate questions,
  - capable of recognizing and characterizing problems,
  - capable of searching and creating solutions,
  - that learn to learn,
  - that know how to live, to coexist and to collaborate in society.

➔ Curiosity Pedagogy – Paulo Freire
➔ Better Strategies amplified (or enabled) by Better Tools
Computer Labs at Schools

- One computer lab with ~10 computers per High-School
- Teachers have few time to be familiar with the technologies and with the pedagogical practices using these technologies
- Most of the time the use by students and teachers is fast and superficial
- Difficulties in configuration and maintenance of hardware, software and data storage
- In some schools these laboratories practically remain closed
- Low durability and sensation of fast obsolescence
  - High investments and few concrete results
Different pedagogical approaches, and different use contexts

Fundamental Requirements for ALL:

- Low cost
- Robust and durable
- Intuitive (very easy to use, focus on WEB applications)
- Very easy to install, configure, reinstall, reconfigure
- Flexible (light, portable)
- Mobility (wireless connection WiFi, WiMesh)
- Low energy consumption
  - more battery autonomy
  - more battery durability (=> less ambiental impact)
- 100% available e 100% connected (ONE-to-ONE)
  - Access to several qualified contents and tools (public and private)
  - Authorship socialization and valorization
- Hardware and Software based on OPEN Standards
- Possibilitly of use with free/open software (OS and applications)
• The one-to-one approach at classroom will have a positive impact in the education quality (72% of 120 teachers from 22 different states)

• The educational strategies must change (77%)

• “The computer can substitute some things. The digital memory can reduce paper. The information comes faster, but it is not good to interact only with computers”

• “Mobility can be a problem, they will lose, sell, break, be robbed and have maintenance problems”

• “A security mechanism and maintenance program must be provided”

• “It is necessary to work with the community to introduce this at school”
OLPC Software – Basic and Applications

RIGHT NOW

- All WEB resources can be used
  - Digital libraries, learning objects, web dictionaries, web encyclopedias, web collaborative learning environments ...
- Several Open/Free Educational software
  (some with a minimum additional development)

FUTURE DEVELOPMENTS

- Focus on Open Standards, Interoperability
- Stimulus to Free/Open Software development
- Optimized applications that consider different screen sizes and different usage modes
  - individual off-line
  - individual on-line
  - collaborative local (closer devices)
  - collaborative on-line
OTHER Related Initiatives

**COLLABORATIVE LEARNING ENVIRONMENTS**
- MEC Web tools for teacher distance education (e-PROINFO, ..)
- FAPESP special program TIDIA
- Several public and private initiatives

**DIGITAL LIBRARIES AND LEARNING OBJECTS**
- MEC WebEduc Portal
- MEC RIVED
- Several public and private initiatives

**DIGITAL TV**
- “bigger screen” at home
- Complimentary possibilities of computing and Internet access
OLPC – Some important aspects

INTERNET Access to ALL
• As essential as electricity!

COST x DISPLAY SIZE
• It is better to have now for all students and teachers a low cost small window opened to the world, instead of remaining constrained inside four walls

ENERGY
• Less consumption is an important aspect both to enable battery autonomy without the need of recharging during schoolar activities and to reduce ambiental impact (longer life batteries)
• **Low cost** computing and internet access devices (such as the 2B1 from OLPC) must be available for ALL, specially for students and teachers
  - through special acquisition channels and in the regular market
  - Different solutions based Open Standards, same basic capabilities and interoperability
    (VWBeatle x Ferrari)

• We must intensify the efforts to offer high speed Internet connection at **low cost** everywhere
  (INSIDE and outside school)

→ **OLPC innitiate opened a unique opportunity for us to make a Revolution at Education**
Roseli de Deus Lopes
Professora Doutora
Chair of the Learning/Work/Entertainment Research Group
Laboratório de Sistemas Integráveis (LSI)
Departamento de Engenharia de Sistemas Eletrônicos
Escola Politécnica – UNIVERSIDADE DE SÃO PAULO
roseli.lopes@poli.usp.br
+55 – 11 – 3091-5661 / 3091-5254