

Bread and Laptops!

“Hearts starve as well as bodies; give us bread, but give us roses!

....

Yes, it is bread we fight for -- but we fight for roses, too!”

(from the poem “Bread and Roses”, James Oppenheim, first published in American Magazine, December 1911)

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The rationale for the One Laptop Per Child (OLPC) project can be paraphrased borrowing from Oppenheim: minds starve as well as bodies; give us bread, but give us laptops! OLPC despite its name is essentially an education project as the following quote clarifies [1]:

“One Laptop per Child is an education project, not a laptop project. Our goal is to provide children with access to libraries of knowledge, ideas, experiments, and art — to provide a window into the world, with examples and references on which to build.”

The educational philosophy underlying this project is constructionism, in short, learning by making. Its founding father, Papert, has a modest vision of what can be accomplished with computers in education [2]:

“And with everybody having computers all the time, it is inconceivable that learning will be like it's been in the past. There will be new ways of learning. But it's up to you, and me, and all of us, to invent that future. So in the meantime, we can do little things. We can do a little project here and a little project there. We can have some children write a piece of software. We can build a merry-go-round. We can make some pretty spirals. All these are not the answer, they are not the way computers are used, or LOGO is used, to change education. They are just examples to provoke thinking, to get more and more people engaged in inventing the future of learning.”

An earlier unacknowledged advocate of constructionism who conceived the memex, a conceptual forerunner of the Web, is Vannevar Bush; it is implicit in his case for openness [3]:

“The inheritance from the master becomes, not only his additions to the world's record, but for his disciples the entire scaffolding by which they were erected. Thus science may implement the ways in which man produces, stores, and consults the record of the (human) race.”

The OLPC project is seeking to engage children globally in this enterprise by equipping them with networked laptops. The XO laptop has explicit support for collaboration and sharing of activities through its SUGAR user interface and mesh view of the network. In a recent article, Berners-Lees has spoken of the “last level of abstraction”, the “Web of real things”, built on top of the web of documents, i.e. the things described in the documents [4]. Compare this static view with a more dynamic one provided the XO interface which focus on the activities of its networked users making real things directly supporting the evolution of knowledge as a collaborative enterprise. Education is necessarily a collaborative enterprise with a need for both repositories and also active support for the educational processes as learners engage with one another and their teachers.

OLPC recognises that access to the internet is essential for communication, co-operation and collaboration in the modern world. The Web is the most pervasive collaborative technology in widespread use today; however, access to the web and its many applications cannot be

taken for granted. Web accessibility encompasses a variety of concerns ranging from political, societal, and environmental to individual, physical, and intellectual through to the purely technical. Thus, there are many perspectives from which web accessibility and more broadly access to Information and Communications Technology (ICT) can be understood and evaluated. The rights of individuals and minority groups to privacy and protection must be taken into consideration without unnecessarily restricting collaborative enterprises of others nor the development of world culture. The political implications of ICT accessibility are likely to become increasingly important as more government services are delivered over the Web. Popular applications such as e-learning and e-health require accessible technology that supports collaboration; and a re-think of some of our societal practices on a global scale. The OLPC is concerned with addressing accessibility issues on a number of fronts. All the software associated with the XO is built upon Open Source Software (OSS) and there are already projects within the OSS community to develop further applications for the XO. Although aimed at the world's children, the XO has the potential to transform whole communities.

Green Computing is facilitated by the XO. Given that 65% of the world population have never made a telephone call and one third has no access to electricity or any other form of commercial energy [5], the OLPC project has had to be realistic in its development of an appropriate technological base, the XO laptop, which can be powered manually. It has been designed to extremely demanding technical specification with the constraints of low cost, low power consumption, networked and rugged; the resulting laptop has been called "the greenest laptop on the planet"[6]. Its designers have recently been awarded the EPEAT Gold award for their low environmental impact. The EPEAT tracks how well computers meet the IEEE 1680-2006 specification for power consumption. OLPC team have also been developing a take-back program and their laptops have been explicitly designed for component reuse and recycling.

A very large team of computer professionals from academia and industry have contributed their expertise to the OLPC project and joined together with experts in educational technology and educationalists worldwide to develop the hardware and software for this project's needs. The disparity between the connected and unconnected is likely to increase as the world population grows unless some efforts are made to deliver an accessible means of connecting into the world's ICT. OLPC is one such means. The OLPC project while not without flaws is a positive and very practical step forward attempting to promulgate more widely innovative ideas in education, community based software production, green computing, and universal access by the world's children to ICT. If it succeeds in only a small part of its ambitious programme, children round the world will have laptops as well as bread and roses with which to better their minds, bodies and hearts.

References

[1] Vision and Mission statements of OLPC project, on-line at <http://laptop.org/en/vision/index.shtml>

[2] **Constructionism vs. Instructionism**, a record of speech delivered by Seymour Papert by video to a conference of educators in Japan in the 1980s. (on-line at http://www.papert.org/articles/const_inst/const_inst1.html)

[3] *Copyright © 1945 by Vannevar Bush. All rights reserved. The Atlantic Monthly; July, 1945; As We May Think; Volume 176, No. 1; pages 101-108.*

- [4] Tim Berners-Lee, The Web of Things, ERCIM News, No. 72, January 2008, Keynote in special issue on The Future Web.
- [5] Jeremy Rifkin, The Hydrogen Economy: The Creation of the World Wide Energy Web and the Redistribution of Power on Earth. (Guardian article, September 2002)
- [6] Interview: A Conversation with Mary Lou Jepsen, ACM Queue, Vol. 5, No. 7, pp. 9-15, November/December 2007