The Impact of Computing on Culture and Education: A Brazilian View

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Why Technology in Schools?

- To <u>sustain</u> what we are already doing (leads to no change ➡ conservation)

- To <u>supplement</u> what we are doing (leads to improvements ➡ reform)

- To <u>subvert</u> what we are doing (leads to transformation ➡ revolution)

(George Thomas Scharffenberger, 2004)

Decisions, Values and Culture

- The decision about which of these options to choose depends basically on our values and on our position on a number of large issues having to do with:
  - The nature of change (and our reaction to it)
  - The nature of education (and our view of what is most important in it)
  - The nature of learning (and our view on how best to implement it)

Change, Technology & Schools

- How we see the role of technology in helping us promote change in organizations and society
- How we view the work that is being done by the schools: does it need change or not?
- How willing we are to commit ourselves to change in education – and how radical
- How we estimate the likelihood of success in promoting more radical change in schools

Education, Technology & Schools

- Why do we educate: because of the needs of society or because of the needs of children?
- Should education be understood basically as a process of transmitting information – the cultural heritage – or as a process of human development?
- Do teachers educate children or do children educate themselves in interaction with family, teachers, peers, media, society, the world?

Learning, Technology & Schools

- How do children learn: by being taught and instructed, by discussing and collaborating with their peers, by actively attempting to do things?

- Is learning significantly and substantially affected in a positive way by manipulating a single variable (such as technology) or by improving and enriching the multi-variable environment in which it takes place?

The Main Issue

- The issue of whether and how to introduce technology into schools is not culturally neutral
- It depends (at least) on our general views on the nature and desirability of change, on the nature of education, on the nature of learning – which are culturally conditioned

Pedagogy and Change

- If we perceive the quality of the schools to be good, the degree of radical innovation that is acceptable in them goes down!

- If we perceive the quality of the schools to be bad, the degree of radical innovation that we are willing to risk goes up!

(Nicholas Negroponte, 2005)

In Brazil

- Our public school system is, on the average, very bad

- We see technology triggering great changes in our society, that transform the way we live

- So, we tend to be view technology as a good lever for change also in education

- We hope that, using technology as a wedge, we may be able to rethink education and, accordingly, reinvent our schools

Other Countries

- Countries with good school systems may not be as innovative in their use of technology in schools because the risk of changing is far greater than in Latin America

- Those countries seem to take it for granted that technology is merely a means and do not see that present technology forces us to question the established views regarding the ends of education and schooling

Important Changes

- Important changes are taking place in our society that affect the way we view the role of education and the task of the schools

Content

- Information is now easily available, at our fingertips, to be acquired as needed
- Knowledge (differently from information) is now understood as something to be built or constructed by each person
- So information need not, and knowledge cannot, be transmitted, transferred, delivered

Time and Space

- One can now learn <u>anytime</u>, throughout one's entire life, whenever one needs it

- One can now learn <u>anywhere</u>, wherever one has access to the Internet

- So, learning need not, and perhaps even should not, be concentrated in a given period of life (school age) and in a particular place (the school)

Classes, Classrooms, Schools

- If the preceding makes sense, it is no longer evident why we should have classes and classrooms, and perhaps not even schools (times and places dedicated only to learning)
- The "School of the Future" must not be a reformed version of the present school, but a school we create from scratch to meet the needs of 21st century students – otherwise the school may not have a future

Ends and Means

- If you don't know where you are going, then any road will be as good as the other one …
- So the sensible reply to the question "What do we do now?" is: we look for a <u>new vision</u>, a new model of education, learning and schooling that can give us direction

Human Development

- Differently from other animal species, human beings at birth seem to be unfinished: they are totally incompetent and dependent

- But they are born with an incredible capacity to learn

- Because of the open-end nature of their genetic code, human beings can, from a given time on, choose their own life project

Education

- Education is the process invented by the human race to transform incompetence into competence, dependence into autonomy, potential into reality, dreams into life projects, life projects into – well, lives !

- That is why some people say that there must be a connection between our cognitive processes (learning) and our organic processes (living), between education and life

Life Projects and Values

- One does not choose or define a life project without values
- Values are entities (material or spiritual, concrete or abstract) that we are willing to fight in order to gain or maintain
- Values provide us with criteria for choosing, making decisions, and acting

Education, Teaching & Learning

- Education has no essential tie with teaching, but it is not conceivable without learning
- Education and learning are basically the same thing seen from different perspectives (education looks at the thing more from the outside, learning more from the inside)
- Our education, after a certain age, is our own responsibility (this is what protagonism is) – but, fortunately, we do not do it alone . . .

Paulo Freire

"No one educates any one else. Nor do we educate ourselves. We educate one another, in communion, in the context of living in this world"

Learning

- "To learn is to become capable of doing that which we were not able to do before" (Peter Senge)

- Typically, we do not learn, in this sense, by merely assimilating information, or by being told, or even by being shown: we learn by actively doing

- Besides active, learning is interactive or, as Paulo Freire suggests, collabora(c)tive !

Learning, Abilities & Competences

- The product of learning is a skill, an ability, a competence (mental or physical)

- Learning typically results in "knowing how" – what we in English call "learning that" is mere acquisition of information

- Knowing how is not equivalent to being "mentally obese" (Rubem Alves)

- "La tête bien faite" x "la tête pleine" (Molière)

Schools

- Children are naturally curious, have a natural inclination to learn
- Before they come to school, and when they are out of school, they learn all the time (they don't need to learn how to learn – much less to be taught to how to learn)
- Schools should be environments designed to be even richer in learning opportunities than the natural habitat of children

Curricula

- Each human being is unique, has a unique combination of interests, talents, energy, ambition, patience, persistence, resilience...
- A school should have very broad and flexible curricular arrangements
- And the curricula would include diverse sets of competences children should construct or acquire -- rather than bodies of information to be assimilated by everyone

And Information?

- Information becomes necessary in the context of things we want to learn

- Information is to be acquired when needed, not to be received, unsolicited, wholesale

- Information is to be acquired on the job, in the course of hands-on projects, and as a rule it is sought "just in time" and wanted "just enough" -- unless one's life project is to be a TV trivia player

And what about Teachers?

- Teachers, well – shouldn't be teaching... (unless asked to do so by the students!)
- Teachers should orient, advise, support, facilitate, instigate, ask questions (rather than give answers), open horizons, gently provoke, give incentive, be coaches, mentors and role models ...
- These roles for teachers are more important than their role as information dispensers !

Teachers

- Above all, teachers should be able to look at children and see, not only what a child is now, but what that child can become, if given adequate conditions and support
- Teachers are shepherds of dreams (life projects) and of learning – of student-centered learning

Student-centered Learning is ...

- Built into life (related to one's life project)
- Oriented to competence & autonomy
- Centered on problem-solving (project-based)
- Driven by demand
- Active, hands-on
- Collaborative

- Individualized to the level of personalization
- Focused on the future
- Lifelong (permanent)
- When needed (just in time)
- In small modules (just enough)
- Technology-enhanced

And Technology?

- Technology, in its most general sense, is anything human beings invent to make life easier or more plesant

- The technologies we create to make life easier we call tools

- The technologies we create to make life more pleasant we call toys

- And some technologies, especially books and computers, are both: tools and toys

Teachers and Technology

- Teachers usually have a love relationship with at least one technology: books
- They will only use computers effectively in their job when they understand that and how computers can also be fun, and develop with computers a similar love relationship . . .
- Children, the techno-natives, know that . . .
- In this they should be our masters !

Thank you!

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