The Future of Education

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Premises

First of all I want to thank the organizers for having entrusted me with such an ambitious title: "The Future of Education". But I feel I ought to put the significance of my speech into perspective.

First I am neither a scholar of scenarios nor an expert of school politics at worldly level. What I can provide is the experience of a teacher who has been attentive for 30 years to the on-going learning dynamics and who has been experimenting new pedagogical methods, lately often connected to the use of ICT as an aid to enhance teaching and learning.

Secondly none of us, in front of the present dramatic crossroads, is in the position of foreseeing the future. "We know - Barack Obama said in the Election Night Speech in Grant Park– the challenges that tomorrow will bring are the greatest of our lifetime – two wars, a planet in peril, the worst financial crisis in a century". The future of education too depends on how we will be able to tackle these challenges. If we are not able to stop the rush to "collapse", education itself may have no future.

But trying to avoid the environmental collapse, the clash of cultures, trying to improve economics by guaranteeing a more equal distribution of wealth ... well, all this also depends on schools and universities, on how we will be able to renew, revamp education and, last but not least, on the speed we will be able to do this. It's a long time since the European Union has spoken of a "knowledge society". On the approval of the European programme called Life Long Learning, Jàn Fige', EU Commissioner of Education and Training programmes, has declared: "Education and training are the foundations of society in front of economic and demographic changes". As such they can represent the drive of change […].

Digital natives

Digital natives is a term introduced by Mark Prensky referring to a generation that has grown up plunged in digital technologies […] a generation takes the prompt access to any kind of information or any people for granted, they are used to searching for (and finding) the needed resources in the chaotic Internet, to practising peer-to-peer and acting in a multitasking way. An example? While they are chatting by MSN, they download music by e-mule and see a video on YouTube, with their iPod firmly set in their ears!

"Media and ICT - Ardizzone and Rivoltella write - represent the culture in which the young people live, build up and exchange meanings"

It is not just a matter of "habits". Prensky highlights how the thinking patterns of the digital natives have changed, their brain structure has in some way changed due to the different experiences they have been living. Howard Gardner affirms that "intelligences significantly differ from one another depending on the kind of culture they have developed in: if in a pre-literacy culture, or in a classical or modern one where the text is essential, or in a post-modern culture where literacy refers to a variety of signs that work jointly, sometimes in a synergic way, some other times in a chaotic mixture" […].

As immigrants, teachers need to learn how to be in tune with their learners' "habits", how to get used to their "language", how to be able to understand "the variety of signs" that are most suitable to their students' intelligences.

It is no longer possible to stay stuck to the school model of the 900s […] a Copernican revolution is needed in terms of a shift:

- from the central role played by teacher so far to the central role of the learners',
- from teaching to learning,
- from the transmission of knowledge according to behavioural or cognitive models to the building up of knowledge according to a constructive or connectionist model,

- from a hierarchical system (teacher-learner) to a net-like system where the contribution of peers is worth being taken into consideration,
- from a systematic, linear and sequential order to the hypermedia "disorder",
- from time-diluted to short time learning,
- from a prison-like school to a potential enjoyable environment,
- from formal learning to a mixture of formal, non-formal and informal learning,
- from a traditional model of school to the one I like defining as a school 2.0.

Lifelong learning

[…] The term lifelong learning refers to a completely new phenomenon which started in the second half of the past century and that utterly upset the learning context of the previous centuries, when learning occurred only in the individual's initial period of life and just on this his/her future as a citizen and a worker was based […].

The education and training system is required to answer the individuals' needs to update their own competencies and to acquire new ones through life long learning. And this implies both initial and continuum learning.

- Even if the "school period" is now referred to as "initial learning", this does not diminish, but on the contrary, enlarges the tasks of education which is asked to provide not only the necessary competencies to manage a specific job, but also that set of cross-skills allowing the individual to face further educational paths […].
- As far as "continuum learning" or "adult education" is concerned, a properly defined system is still in-progress […].

Certifications

In a globalized world cooperation between companies in different countries and transnational mobility of workers (and students) are increasing. The Internet allows opportunities that were unthinkable till "yesterday", for example "telework" from a continent to another with software experts or Indian call centre operators who work for American companies. In such a context the transparency of qualifications gets great importance. The European Community has invested a lot in this area […].

Let's take into consideration what I have mentioned before, that is the need of a continuous professional training – and even more important – of a continuous acquisition of new professional knowledge. Competencies can't be

certified once and for all, the process of certification must go along the training and working path.

Also the development of a certification system has its own place in the future of education, a system that could allow the recognition of the three forms of learning as they have been defined in one of the European Commission papers entitled "Memorandum on Education and Continuum":

- Formal learning takes place in education and training institutions, leading to recognised diplomas and qualifications.
- Non-formal learning takes place alongside the mainstream systems of education and training and does not typically lead to formalised certificates […].
- Informal learning is a natural accompaniment to everyday life […].

Just not to stick to generalities, I am now referring to a system of certification that has been spreading in Europe, particularly in Italy. This system is called EUCIP, which is the acronym of European Certification of Informatics Professionals and at present I am working on it on the behalf of AICA, the Italian leading association of informatics professionals.

The EUCIP system is based

- on the identification of 3.000 competencies grouped under 155 categories, which are further sub-grouped in 18 areas,
- on a set of professional figures described by means of the above mentioned competencies.

[…] The value of EUCIP system comes from:

- the description of the professional figures on the basis of assessable competencies,
- the granular identification of competencies and their updating,
- the recognition of different forms of learning.

Furthermore, such a system represents a powerful tool – thanks to its assessment and self- assessment procedures – both for the people wishing to self-evaluate their professional competence and build up new training paths, and for companies and/or public bodies wishing to assess their personnel's professional competencies, in the view of planning and running tailored training paths or wishing to assess the professional competencies of consultants and/or supplying firms.

Teacher's role and competencies

Teachers - both in elementary or secondary schools, or even at University - have held a powerful position for ages: they had definitely more knowledge and competencies than their learners. Their task was to "transmit" knowledge and/or to employ more active methodologies proposing learning experiences

enabling learners to get it. These learning paths were “safe” for teachers, in other words, they didn’t run any risk to know less than their students.

Today it is no more like that. Teachers involved in adult education must interact with people that have already acquired a series of competencies in formal, non-formal and informal learning contexts, for example technicians with some competencies that may be superior to the teachers’. Teachers who are in charge of initial learning will find themselves in front of students whose knowledge, as far as the use of ICT is concerned, may be well beyond their own competencies.

That’s life, like it or not.

In the future of education – or better already in “the present” – a new and richer professional profile for teachers is being defined. They are no longer mere “distributors” or “transmitters” of knowledge, but they are expected to be:

- Designers of learning paths able to match learners' specific needs […],
- Animators/coordinators of a learning community […],
- Developers and adaptors of learning material […].

In one of the recent Seminars of Didamatica promoted by AICA in Italy and devoted to the use of ICT in teaching, Antonio Calvani suggested: “May be, it’s time to move from teaching “the” technology or teaching “by means of” technology to teaching “within” technology”.

Teaching “the” technology means teaching to use it: as it happens when we teach to read, to write, to drive a car, to use a computer. Teaching “by means of “ technology means using it as an aid to teaching, for example when we use a tape-recorder to teach the right pronunciation of a foreign language, or when we use a video to show a physical phenomenon.

Teaching “in” the technology means not considering it as such, but as a natural environment in which learning occurs: this happens when technology has become mature and pervasive and as such “natural” for students and teachers. Our school is well plunged in the written code, in the representation by images, ...

It’s time now school started being plunged in the digital and virtual dimension.

[…] Conversation is one of the most outstanding characteristics of web.2.0 and so what else the educational process is if not a conversation?

Let’s think about outstanding figures like Socrates who used to pose questions to his fellow-citizens on Athens Agorà, Plato who lived with his pupils in the Academy and Aristotle who used to discuss with his students strolling around in the gymnasium dedicated to Apollo.

The strict traditional organisation of classes and the clear-cut division between school time and time outside school necessarily spoilt and restrain conversation. Out of school students do their homework, but they can’t talk with

their teacher, teachers check tests, but they do not talk with students. And the time in the classroom is often enough only for a monologue.

Joining "real" and virtual space allows promoting thousands conversations that differently were destined to remain unspoken […].

The value of "openness" in the educational context

Two main trends - "opening up" or "closing"? - meet and clash in various fields. Allowing and promoting the access to resources – earth, water, medicines, music, information, ideas, ... – or restraining access in order to protect lawful interests, ownership, patent rights, paternity, copyrights, privacy?

[…] Linux and Apache have demonstrated – notwithstanding their being free and the way in which they have been developed – to be able to be competitive both in terms of market shares and their ability to do "business".

In the field of open content everybody knows Wikipedia […] and the MIT open courseware […] and lots of teachers have started sharing their own learning material, it can be a whole course, i.e. on Moodle, or single learning objects. A lot of learning material can be found both in sites that were not born with this purpose, for example on YouTube or Slideshare, or in open repositories such as Merlot, Connexions, Wikieducator, Wiki Video, freeLOms (this last within the European project SLOOP) and many more.

This is the present and, all the more reason, it can be the future.

[…] Thanks to the sharing model and the "tagging" system, Web 2.0 has, as O'Really says, "embraced the power of the web to harness collective intelligence". The use of the web to share material, learning paths and didactic projects is likely to gather the collective knowledge of teachers and students making the educational systems fly up.

It may be the future, but only if the trend to "openness" will get the better on "closing", which is well strong and puts forward its reasons: the unwillingness of teachers to free distribute their material either because they are jealous of it or because they fear their colleagues' judgment, the reluctance of schools and universities feeling to have to protect their own property, the publishers' fear of losing everything unless they keep a strict copyright.

These motivations sound "reasonable", but they are looking back, not forward.

Don Tapscott e Anthony D. Williams - in "Wikinomics. How Mass Collaboration Changes Everything" – demonstrate how a new productive model, based on sharing intellectual property, has been emerging. They present successful examples: from Amazoon to eBay, from the project on Human genome in the pharmaceutical field to Mindstorm by Lego, from IBM's relationship with open source to the spreading of GoogleMaps API, from the use of external

researchers - "connect and develop" – in Procter & Gamble R&D to the design of Boeing 777.

And then… why initiatives based on the principles of openness, sharing and cooperation within the educational context should not be successful as well, also from the economic point of view?

Why putting on the brakes and not accelerating?

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