



# “Digital Natives” and learning with the ICTs. The “GenY @ work” research in Ticino, Switzerland

Emanuele Rapetti, Lorenzo Cantoni  
New Media in Education Laboratory  
Università della Svizzera italiana, Lugano (Svizzera)  
[www.newmine.org](http://www.newmine.org) - [emanuele.rapetti@usi.ch](mailto:emanuele.rapetti@usi.ch)

Keywords: e-learning, digital natives, generation Y, knowledge society

## Abstract

This article presents the route and the historical roots of the successful expression “digital natives” and introduces the critical debate recently arisen to show its limits and the undemonstrated assumptions it is based on. The paper also presents a research conducted in Canton Ticino (Switzerland), whose purpose was to study the use of the ICTs (Information and Communication Technologies) by the young employees of GenY (people born after 1980).

This research enabled both to better understand the population studied and to observe how some of the assumptions about GenY and digital natives are nothing more than the result of huge generalizations. The results encourage local researches to re-evaluate and consider the limits due to contextual issues.

## 1 Introduction to the problem

From an educational point of view the definition of knowledge society leaves many open questions, mostly because we risk to move our attention too much from the human beings' educational skills to the possibilities offered by the Information and Communication Technologies (from now on: ICTs).

In particular, this article will contribute to the observation of the relationship between knowledge society and the learning experiences of the young people entering today's professional world.

Being born in the knowledge society implies finding ICTs in any field of one's life, education included. There is a wide range of ICTs integrative declinations in education, depending on the perspective we decide to assume (Cantoni *et al.*, 2007). Furthermore, the description of the relationship between people/strategies/educational contents (see Picture 1) can be understood and set in a – more or less – deterministic way, considering it like a direct impact or a systemic influence, like a mechanism of adoption or technology acceptance, like a problem of usages' practices and/or cultural processes or like a relationship between learners' attitudes and learning cultures. It is also to be noticed that most of the studies on this subject – both empirical and theoretical – originate in the USA, which makes a *talis qualis* transposition definitively improper in different cultural contexts.

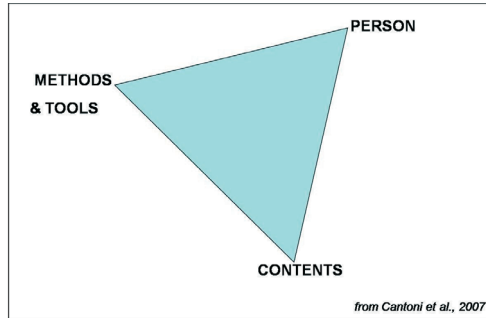


Fig. 1: the three milestones of education

The debate has been influenced mainly by two references:

- The expression “digital natives”, coined by Marc Prensky (2001), who states that they have developed new neural paths by using the ICTs since childhood and that this makes them different in the way they think and learn;
- the concept of “generation Y” (or GenY or Millennials), derived from the socio-historical analysis developed in “Generations, the history of America's future, 1584 to 2069” by William Strauss and Neil Howe

(1991). The text is particularly relevant because it fixes 1980 as the birth date of this generation.

Both definitions are based on the fact that never before in history entire population ranges have been so interested in the pervasiveness of technology.

This interpretative strand originated three relevant phenomena in education: a rich production of instructional design books whose goals are to describe GenY and to show the best educational strategies; a huge interest in the companies field and the consequent adoption of eLearning practices by their HR & Training areas; a significant number of research projects, among which the New Millennium Learners' Project stands out; it has been promoted by the OECD and it is meant as the European answer to the US centered vision of previous studies.

## 2 Does living in the digital era mean being digital learners?

The macro-sociological overview we mentioned risks to become a hermeneutic criterion of the human being whose focus is unbalanced from the technological point of view.

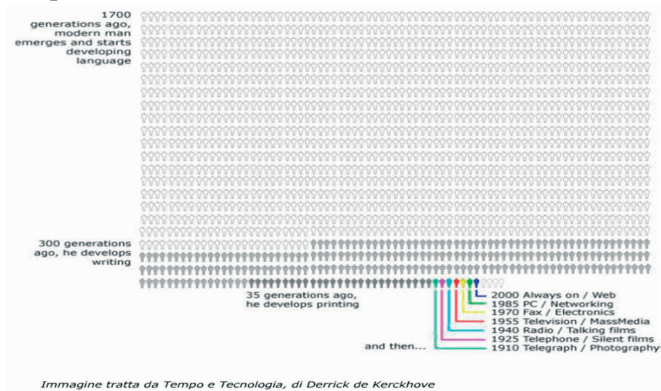


Fig. 2: The world generations and the development of technologies

Picture 2 (deKerckhove, 2003) shows how this approach can be reductive. Obviously, it is not possible to accurately count the number of the generations since man appeared on Earth. Nevertheless, we can state that the development of learning strategies connected to e-learning is a very recent process if we compare it to both the history of men and the technologies they have used to communicate: even if the diffusion of a communication tool can be carried out in very few years, we cannot be as quick as that in developing new pedagogical methods that will be able to integrate the educational needs with a solid didactic awareness.

And, not by chance, the critics are accruing a fast growing concern on this subject with the purpose to downsize the idea of a generation which could be globally defined as “digital”, referring to its learning skills (Schulmeister, 2008).

### **3 The research “Gen Y @ work”**

It is in this context, and after observing the limits and risks of the hypothesis (in need of being demonstrated although intuitive) and generalizations, that this research started. Its purpose was to bring the hypothesis from the global level to the local one in order to answer the question: what is the role of ICTs in the learning experience of the young employees in Ticino?

The research design has been guided by two goals:

- Discovering whether a cross-skills “technological potential” between private life and professional world does really exist and, in case, observing how it is exploited;
- Investigating how the people really use the ICTs, considering them as actors in the learning action.

The study wanted to offer a representation of the Gen Y employees’ real technological skills to the HR responsible of the companies involved. This way, they would have been able to organize a training design which could better fit with their employees’ educational and cognitive needs.

#### **3.1 The research design**

The design prefigured a quantitative and a qualitative (almost ethnographic) phase. The method was appositely developed using Lego™ bricks. The project involved six companies based in Ticino: three banks, a consultancy firm operating in the banking sector, a newspaper publishing house and an industrial gas turbine society.

236 employees participated to the quantitative research phase; 234 of them were in the Gen Y range (that is, born after 1980). 109 were women (46%) and 127 were men (53%); their average age was approximately 23. 35 people participated to the qualitative phase.

#### **3.2 The quantitative phase**

A survey was elaborated in order to investigate:

- the ICTs owned;
- the real usage of the ICTs by the participants;
- the participant’s self representation regarding the ICTs;
- the role of the ICTs in learning experiences;

- a comparison between the use of the ICTs at home and at work.

### 3.3 The qualitative phase

The "almost ethnographic" phase was appositely conceived to find out whether a "technological potential" does exist and how it is exploited in the private and the working spheres. The key concepts have been: being an author/actor in a system (Crozier and Friedberg, 2004); the metaphorical game (Gauntlett, 2007).

The method was developed to exploit the efficacy of playing to better understand the relationship between the "learning culture" and the "learner's attitude"; this relation is meant to be a mutual influence between the subject and the myths, the rites and the organizational models (Cantoni *et al.*, 2007, pp. 45-46).

## 4 Results of the research

This study has unveiled a complex reality, where a sort of "technological potential" or "media skill" (Schulmeister, 2008) has been confirmed indeed, but to a less great extent than acclaimed by some researchers describing the "digital generation". It seems that "attitude" (rather than "skill" or "potential") would be more correct to define a sort of broader disposal (if compared to the one of older colleagues) to relate to other people and to knowledge through ICTs. Predictably, indeed, it came into light that young people hang out daily with technologies, both to perform their working tasks and – and most of all – to communicate and for leisure. But, the need of digital experiences in the learning process has not been really remarked: new technologies are perceived mainly as a useful help, and not as a binding step.

The demand of digital learning appears more as a contextual opportunity ("if you can use a projector during class, why not do so?" said a participant) than a learning need; furthermore, the qualitative phase cleared that ICTs are appreciated in the training experience only when they are supported by "traditional" instruments such as lessons in presence, interpersonal interviews, books, folders of photocopies, notes, etc.

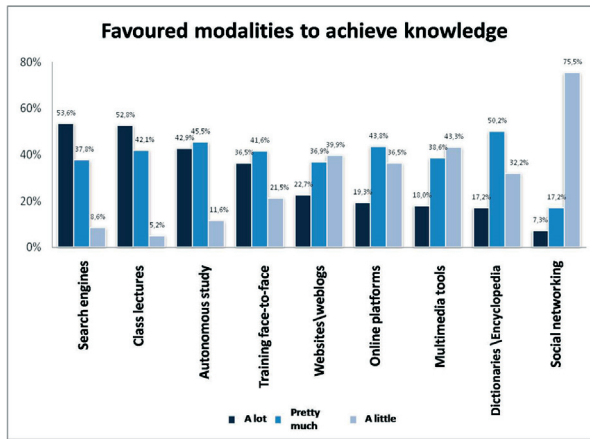


Chart 1: Favoured modalities to achieve knowledge (%)

An interesting outcome of this research concerns the way in which the technologies for learning are preferred and combined (see Chart1): the search engines are chosen by the majority of GenY employees (53.6% use them “a lot”), but it is important to underline that at the second and third place we can find “traditional” classroom lectures and autonomous/independent study; when being asked about this, in the qualitative part, some respondents indicated the online search for information like a “first-aid tool for knowledge”, being an immediate response to a specific question (the tool is preferred because of its speed) or a track to follow to get better ways to learn more in depth (while, in this case the search engine is described as the preamble of a literature search).

Two highlights stand out in particular: the first, at an empirical level, concerns the skills of the respondents to set up a personalized learning environment, which is effectively multi-media; the second, at a theoretical level, concerns the emerging of a peculiar idea of learning, structured in three consecutive degrees (information, knowledge and learning), and differentiated by level of permanence. About this point, it is important to specify that the “classical” and usual learning technologies (mostly books and notes) are the ones preferred in case of long-time learning needs; this choice is easily interpreted if we reflect on which tools were employed in the formal learning experience that students had – although “digital natives” – at school; furthermore, their workplaces’ trainers are usually digital immigrants, even if they make extensive use of new technologies.

The potential offered by Web 2.0 represent, as guessed, a large catchment area of users among the digital natives, especially for those activities more

related to socializing and sharing (see Chart 2), although microblogging (e.g. Twitter) does not receive the appreciation that one might expect (only 0.4% use it).

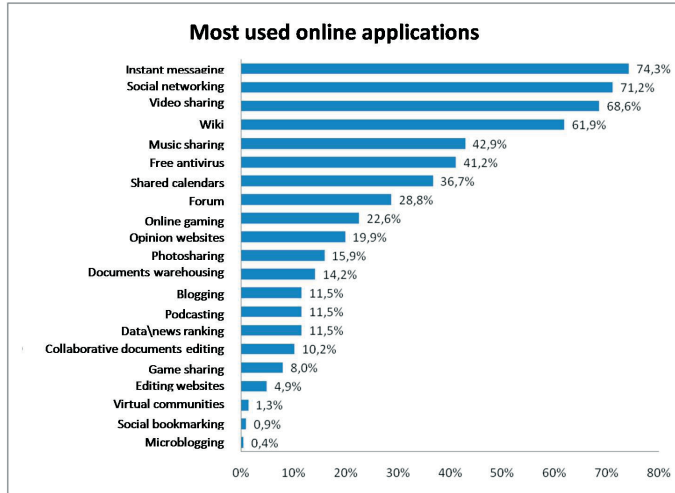


Chart 2: The most used online applications of social networking and sharing (%)

But what we have said so far is basically true only for private life: at work, the favorite learnings are the formalized ones and there is not a spontaneous creativity in exploiting the resources of the Web for professional needs; if sharing knowledge is needed, the young employees from Ticino prefer to contact directly their peers and they rarely make use of forums, wikis, blogs or sites specialized for their professional problems. Taking as reference "Spectrum Knowledge" (2008), researchers proposed to the participants to create online groups to share their information and knowledge, opportunity that they found interesting; but, as a matter of fact, 39.9% of respondents answered they liked blogs and websites specialized in learning only "a little".

The GenY employees perceived themselves as different in the way they master new technologies in learning, if compared to their older colleagues, which seems to confirm the digital divide phenomenon (or at least a prejudice of it). Looking at the responses more in detail, however, it emerges what claimed by the most critical voices about the concept of digital native (Schulmeister, 2008): what can be said with certainty about digital natives is that their media competence "solely consists of being able in locating information"; and, actually, the only case in which a significant majority believes that there is a generational gap is the answer "to seek information and knowledge". As suggested recently (Bennett *et al*, 2008), the idea of a digital generation must

still be investigated very thoroughly, rejecting the catastrophic fears to not be able to communicate anymore with and to educate the “digital” people, but rejecting as well the too easy suggestions that a teaching technology-colored is sufficient to engage them.

In the two following subsections we present the key-concepts through which it is possible to summarize the results of this research.

#### **4.1 The most common ICTs do not reveal a generational difference**

The first characteristic of digital native students and workers is that – if we exclude iPods and MP3 players – they own the same ICTs as their parents or teachers. Furthermore more recent tools (e.g. Netbooks and handhelds) are still rare.

What impresses is that the best mastered ICTs are substantially the ones already widespread in the late ‘90s.

What shown above becomes even more interesting if we look at which are the most used applications: software packages for office, then (but only just over one third of the population) image, audio and video editors. Only at the end of the list it is possible to find the utilities developed more recently, and in some cases with very low percentages (e.g. 8.5% for mind mapping).

#### **4.2 The technological potential does not overcome the separation between private and professional life**

One hypothesis we wanted to verify, within the research goals, was whether digital natives bear a peculiar potential related to the usage of ICTs, which implies a specific attitude in the relationship with new technologies, and whether this potential has a – direct or indirect – connection with learning. Since in literature there is not a unanimous agreement if this characteristic is attributable to the sphere of knowledge, of skills and/or of capabilities/abilities, researchers strategically decided to simply call it “technological potential”, and to indicate with it a recognizable ICTs-oriented behavior in daily activities.

Thanks to the results it is likely to affirm that “technological potential” does exist, if with it we refer to a stronger fondness and habit (even induced by contextual conditions) in using new technologies to carry out actions and tasks related to communication, sharing and development of content. It is also a fact that many skills, which nowadays are considered as essential and ordinary are assets of digital experiences (like sending an SMS), both professional and private, and it is clear that for those who have handled ICTs since early childhood the use of technologies is easier, if compared to digital immigrants. It should also be recognized that many skills that are related to the “digital” cross the



boundaries between the whole life experiences (from handling a videogame controller to facing a scanner barcode) and it is logic that what is learned in private life is part of cultural and behavioral heritage on the workplace.

But a very interesting point highlighted by the research concerns the weak transferability of skills and knowledge between these two spheres (private life and workplace): the transition is not usual. On the contrary, it appears that at the workplace ICTs are perceived as professional tools, which require formal and institutionalized learnings; creative usages of the technological potential are rare and there is no free expression for the trial-and-error learning style; the free sharing of knowledge through the "Web 2.0" is not realized, even if it is said to be desirable. While, at home, ICTs are conceived as objects of entertainment, and approached through self-learning. That is: what is particularly problematic is not the transposition itself of a skill\ability\capability, but the way of acquiring it; this was highlighted by the statement of one participant: "I can learn how to play Wii however I want, but I cannot do the same with bank applications!" A possible interpretation of these results is that the "technological potential" is the result of pervasive and continuous experience with ICTs, but this does not affect the way the digital natives prefer to learn, when they are involved in formal or institutional learning.

If the differences between the use of ICTs at work and at home are really few in the cases of "to search information" (in both contexts they are used "a lot" by 54.5% of the respondents) and "to communicate", there is a small prevalence of their use at work when they are needed "to learn" (people use them "a lot" and "pretty much" in the 82, 9% of cases at work and in the 73.8% at home).

However, the most interesting results came from the qualitative part of research. In all the Lego™ sessions held with the companies involved in the study, the amount of technology chosen as important in the learning experiences of the participants is far greater when concerning the private life than when concerning the professional practice. In total, there were 96 technologies selected and presented by Lego™ artifacts, among them: 49 were placed in the "private life" part of the common landscape, only 14 in the "workplace" part and 36 straddling both parts.

The talks with the participants explained this imbalance in terms of a different representation of the role of ICTs in their experiences: at work, ICTs are professional objects, while in private life ICTs are media for leisure, so they are perceived with a sense of greater freedom of use.

To conclude this point, it is important to notice that the technologies which have often been placed between private and professional life are portable devices (cell phone, handheld, laptop ...); they allow customization – even if offered by the company – which makes them the tools to rely on when developing a new teaching, in order to exploit the "technological potential".

## Conclusions

The research presented here investigated some features of the widespread expression “digital natives”, showing how many assumptions are still to demonstrate and not robust conclusions. In particular, it seems unrealistic to attribute behaviors and characteristics simplistically basing them on generational “virtues”.

Therefore, the observation needs to be expanded to consider in depth very different and unique contexts and situations, investigating and fixing limits for a legitimate generalization.

Furthermore, the success and spread of the expression “digital natives” itself deserves to be studied, to figure out the reasons for such a broader, but only partially justified, success. One hypothesis comes forward quietly, if we go back to the triangular scheme proposed in Figure 1. It could be a sort of shortcut – a consoling myth? – to escape from deep educational difficulties. What we do not understand about the new generation of learners is their being “digital”, something that we can then solve (automatically?) by adopting new “digital” strategies. This would be – according to this hypothesis – a return to the reductionist myth of the “perfect method”, set to solve all educational problems; a return, this time more sophisticated, which recognizes, by words, the importance and centrality of the learner, but which actually gives up understanding him/her in depth, abdicating the task of solving the problem to a technological strategy.

But this is, obviously, a hypothesis to be verified.

## REFERENCES

---

- Bennet, S., Maton, K., Kervin, L. (2008), *The ‘digital natives’ debate: a critical review of the evidence*, in *British Journal of Educational Technology*, volume 39, issue 5, pp. 775-786.
- Cantoni, L., Botturi, L., Succi, C. & New MinE Lab (2007), *E-learning. Capire, progettare, comunicare*, FrancoAngeli, Milano.
- Crozier M. & Friedberg E. (2004), *L’acteur e le système: les contraintes de l’action collective*, Editions du Seuil, Paris.
- De Kerchove D. (2003), *La conquista del tempo*, Editori Riuniti, Roma.
- Gauntlett D. (2007), *Creative explorations: new approaches to identities and audiences*, Routledge, London.
- Howe, N. & Strauss, W. (2000), *Millennials Rising: The Next Great Generation*. New York: Vintage Original.
- Junco, R. & Mastrodicasa, J., (2007), *Connecting to the net.generation: what higher*

- education professionals need to know about today's students*, NASPA, Washington, DC.
- Pedrò, F. (2006), *The New Millennium Learners. Challenging our views on ICT and learning*, OECD-CERI background paper.
- Prensky, M. (2001), *Digital Natives, Digital Immigrants, Part II: Do They Really Think Differently?*, *On the Horizon*, 9(6), 15-24.
- Prensky, M. (2006), *"Don't bother me Mom, I'm learning!": how computer and video games are preparing your kids for twenty-first century success and how you can help*, Paragon House, St. Paul, Minn.
- Rapetti, E., Cantoni, L. & Misic, S. (2009), *New cultural spaces for learning: the learners' voices*, URL: <http://webasculture.de/index.php?id=75> (verificato:14-10-09).
- Schulmeister R. (2008b), *Is There a Net Generation in the House? Dispelling a Mystification*, in *Eleed (E-learning and Education Online Journal)*, n. 5.
- Pham, V.H., Miyake, L., Case, J., Gil, S. (2008), *The gen Y perceptions study*, URL: [www.spectrumknowledge.com/img/Gen\\_Y\\_Perception\\_Study\\_CREW\\_Final.pdf](http://www.spectrumknowledge.com/img/Gen_Y_Perception_Study_CREW_Final.pdf)75 (verificato:14-10-09).
- Strauss, W. & Howe, N. (1991), *Generations: the history of America's future, 1584 to 2069*, Quill, New York.