EDITORIAL PREFACE

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The last four years of Journal life have featured the interest of many scholars for the multiple aspects of digital literacy and digital competence, but some studies have also shown how difficult can be to join the new perspectives of teaching-learning, with and within new technologies, and the growth and development of young generations, at least when the focus is on the acquisition of elements useful for the whole life, like ethic and moral principles and, last but not least, strategic thinking.

In what follows a summary of most relevant steps reported in the journal in this lapse of time will be discussed and, the attempt to overcome the difficulties evidenced in the research works will be reported.

In the first issue of the journal the digital divide has been identified as the most important reason for digital illiteracy, because it has featured not only the presence or not of computing/ communication instruments, but two more complex problems affecting people's skills (Bindé *et al*., 2005, Guidolin, 2005):

1. the gap for pre-existing personal differences between people who are able in the use of technologies and people who are not,
2. the gap in the content management between people who master it (i.e., subjects who are able in the use of IT/ICT to manage information, knowledge, know how etc.) and people who don't.

It has also been discussed how the pedagogical emergency of digital divide, in all its aspects, has induced many private and public institutions, like Associations of Libraries, OECD and UNESCO, to act in two directions:

- First, to propose different hypotheses and strategies for the formal description of information literacy, computing literacy, digital literacy and media education, and more generally, new computer based literacy,
- Second, to suggest possible educational solutions for the improvement of those literacy.

The European Commission in 2005 issued the Recommendation on key competences for lifelong learning and stated the features of digital competence: the fourth among them (Commission of the European Parliament, 2005). The definition of this competence, which can be considered the most comprehensive until now adopted among those taken to date, like informatics literacy, information literacy, media literacy etc. is reported below:

This competence is based on the confident and critical use of Information Society Technology (IST) for work, leisure and communication and is underpinned by basic skills in ICT: that is the use of computers to retrieve, assess, store, produce, present and exchange information, and to communicate and participate in collaborative networks via the Internet.

The presence of digital competences is intertwined with:

a. The understanding and knowledge of the nature, role and opportunities of IST in everyday contexts: in personal and social life as well as at work. It includes main computer applications, a sound use of the Internet and the communication via electronic media for leisure, information sharing and collaborative networking, learning and research,

b. The understanding of the support that creativity and innovation can receive from IST, the development of sound understanding skills helping state if information is valid, reliable and affordable enough and the knowledge of the ethical principles for the interactive use of IST.

Once the reference frame and the features of the above elements were available, the connection between digital literacy and the development of digital competence for lifelong learning has been analyzed (Tornero, 2004); on another side, frameworks for the assessment of digital competence have been proposed and among them, a special interest had the work made by a group of Italian researchers, which led to the proposal of the following features for digital competence (Calvani *et al.*, 2008):

- It is multidimensional, because it implies the integration of cognitive, relational and social abilities and skills,
- It is complex, because it cannot be completely measured by single tests and very difficultly can be verified in a short run, because it requires more time and different contexts before becoming evident,
- It is interconnected, because it is not independent from other key competences like reading, numeracy, problem solving, inferential skills etc.
- It is sensitive to the socio-cultural context, because its meaning can change over time, according to context and to different educational settings.

To make more complete the panorama of studies on the implications of digital equipments on mankind and, what is more, the relevance or not of digital competences in differently aged people, the studies on the behaviours of new generations must be considered; they pointed out, in fact, the emergence of new relationships between children and parents (Mantovani & Ferri, 2008), and confirmed the intergenerational differences between "digital natives" and "digital immigrants", formerly stated by M. Prensky in 2001.

In the wake of the ideas of Mc Luhan (1967), Lévy (1994) and De Kerckhove (1996), to cite only some among the most famous scientists who worked on the influence of new media on human beings, communication technologies (and digital technologies among them) deeply influence the development of human brain and intelligence, and are responsible for the growth of new knowledge strategies and intelligences. As a consequence it is today common knowledge among human science scholars, that new generations are different from previous ones, for their being continuously immersed within digital environments and interacting with digital equipments (Prensky, 2010); otherwise stated, young people living in today's contexts, which are digital contexts, are different from their parents and ancestors and the categories for the interpretation of their knowledge development and their behaviour must be re-thought.

For the above reasons it seemed appropriate to recover the centrality of the individual and of human sciences in the analysis of the processes concerning knowledge building and

skills development inside digital environments; this choice led to focus on the following aspects:

- To look at the possible changes in the construction of the categories of space, time and causality (Piaget, 1967), that the use of the web, and more generally digital technologies, seem to have modified (e.g., space contraction and time dilatation are usually reported as the effects of the use of digital environments, while the loss of any causality is usually remarked as a common feature in the interaction with virtual worlds),
- To use the Bloom's taxonomy (Bloom, 1956) for knowledge domain, and to split cognitive (and digital) competences into three areas: technological, verbal-linguistic and logical-mathematical, all under the umbrella of space, time and causality categories,
- To use the Krathwohl's taxonomy (Krathwohl *et al.*, 1973) for the affective domain and to extend the application of these categories to the influence of digital technologies on the individual's affective sphere,
- To adopt Brandhorst's taxonomy (Brandhorst, 1976) for the educational objectives in the relational domain, especially when social interactions mediated by digital media are analyzed,
- To put the affective and the social-relational dimensions under the influence of the intrapersonal and interpersonal intelligences (Gardner, 1993), and to submit the effects of these dimensions to ethic / moral behaviour and judgment.

The framework in Figure 1 well synthesizes the issues in the list reported above (Cartelli, 2010), and within it, the area in the intersection of all the dimensions is thought as depending on the understanding and use of the potential of networking technologies for collaborative knowledge building. More generally the common area can be considered responsible for the ability of being able in the creation and development of communities of learning and practices.

How much and whether the above framework will be useful to researchers and teachers to help new generations to become good citizens, it is too early to say, but there are some aspects which suggest further developments for it, and what is more, a shifting of the research interest on students assets rather than technological environments. The analysis of students' behaviour in primary and junior high school, when the children are involved in complex problem solving activities, have led in fact to the following remarks, observed by many teachers involved in the "Beaver" competition:

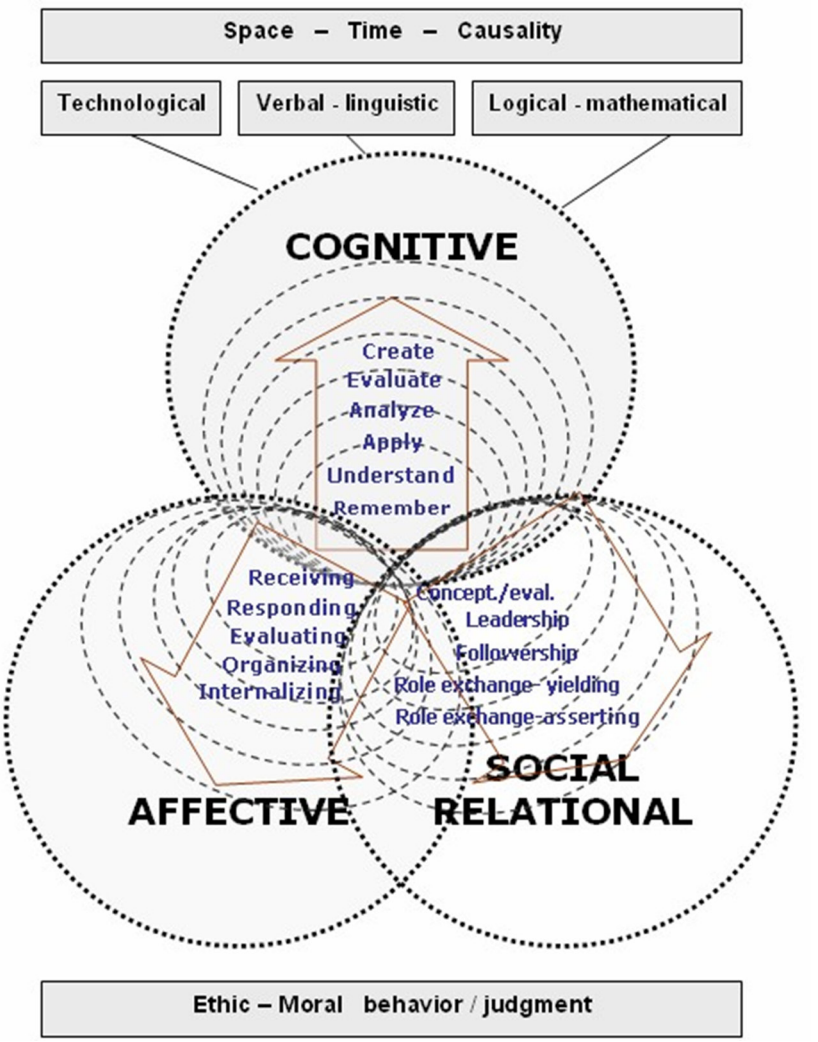
- The increasingly widespread presence of a "procedural thinking", when the children have to solve problems involving automatic equipments, robots and computers,
- The prevalence of a "hierarchical organization" of information, with respect to other styles of information organization, when they have to face relevant amount of data,
- The tendency to find solutions to problems of all kinds in the "cloud", i.e. in the continuous being in touch with others, rather than applying individual reflection and thinking.

The above elements do not represent either positive or negative features for the children, but they indirectly confirm the difference of new generations with respect to elder ones. The main question asking for an answer in the next future, will probably concern the need for a new ecology of digital media, not only to let people solve problems also when non immersed in digital environments, but for a re-balancing of digital and non-digital knowledge structures of mankind (Cartelli, 2012).

This new perspective is probably the new challenge for human sciences and the construction of a new humanism, and the last issue of the this fourth volume of the journal has in its contributions the seeds of the transformation depicted above.

In "Tablet English: Student Perceptions of an iPad-based Digital Literacy Curriculum" and "University Students and Technologies:

Figure 1. The framework for human development in digital environments



Usage, Consumption and Future Trends in the Educational Context" it can be easily detected the attention the authors devote to students perceptions and motivations in the attempt of integrating the digital topics in the curricula and in the global construction of the subjects (even if at different age levels).

In the other papers, on another hand, "Emotional competence and affective computing as factors of formation of individual and social identity" and "Cloud-Learning: a new system for inclusive, simplifying, networked learning", the attention is centred on the modifications affecting new generations always immersed in digital environments.

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