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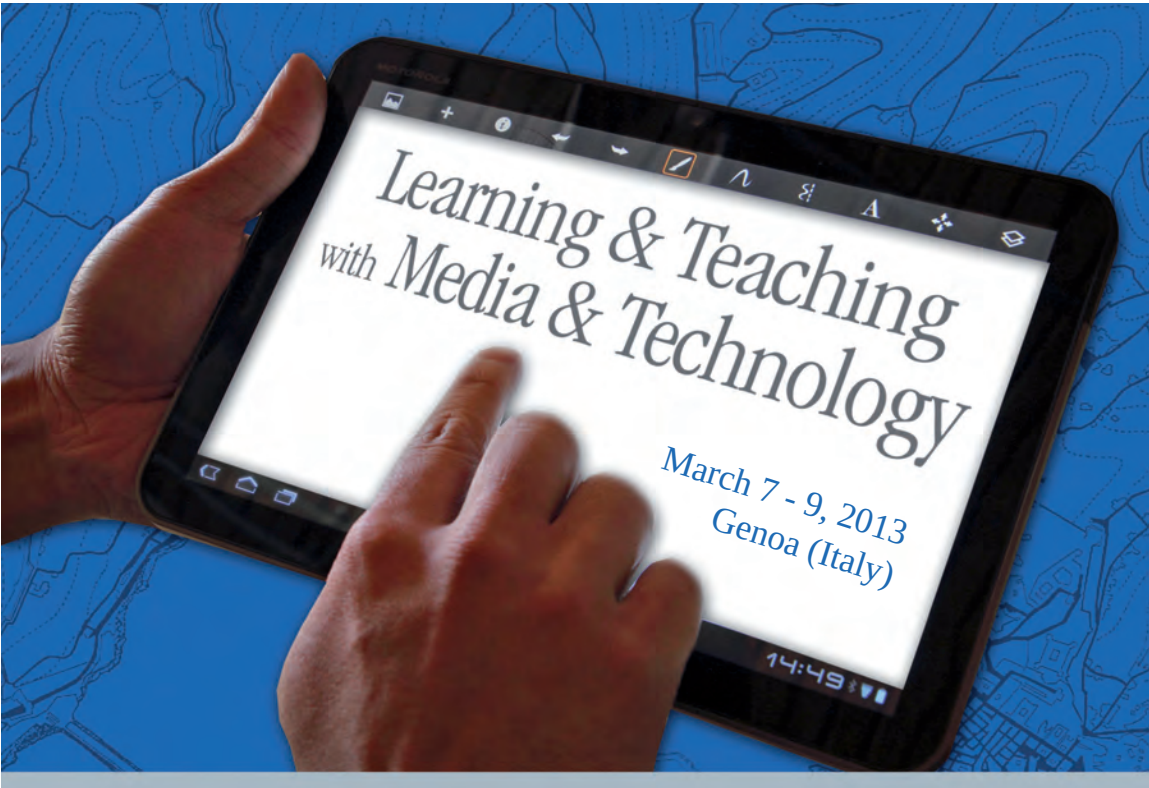

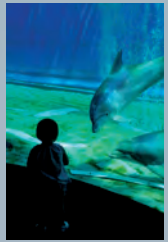

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“School 21”: a project to implement active citizenship skills in the Italian higher education. The role of ICT.

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Abstract
To face globalization challenge, education is required to develop complex attitudes and critical skills in students. Although the Italian secondary education conveys good contents and trains specialized professionals, it is in trouble to prepare critical and aware citizens. The project "School 21", proposed since 2009 by Fondazione CARIPLO (Milan, Italy) to the secondary schools and the vocational training centers (more than 3000 students involved), improves the curricula through an interdisciplinary teaching and training methodology focused on local sustainability problems. A detailed learning plan constitutes the essential instrument of the project; it allows the teachers to connect the citizenship skills of the students to the disciplinary contents, the educational methods, the teaching aids (ICT) and the expected output from the students. A set of quality criteria orientates the teachers in the planning of the knowledge process. Also the assessing process is supported by a system of indicators specifically defined by a preliminary participated research. In the project, ICT play the role of *educational place*, allowing the students to explore in a systemic and meta-cognitive way the disciplinary contents and to implement a solution to a local problem. ICT provide facilities also in the management of the project and in the coordination activities by the teachers' boards of the involved classes.

Keywords
ICT in higher education, active citizenship skills, educative place, sustainability, globalization.

1. Introduction

The recent developments of the systems science highlighted the complex network of interactions supporting the organization of living systems (Capra, 2007); however, for a comprehensive understanding of the phenomenon of life, this pattern of organization has to be embodied in a physical structure and this embodiment has to become the outcome of an ongoing process. But living systems are also social systems (Zeleny & Hufford, 1992) and, therefore, the systemic conception of life can be extended to the social domain integrating a fourth perspective: *meaning*. In the 80's of the last century, the dissatisfaction with the dominant understanding of the living as molecular-genetic, as well as of the process of mind and cognition as information processing, led Maturana & Varela (1980) to propose the concept of *autopoiesis* to define living systems and to realize that life and cognition are actively done by an agent, an autonomous being who does not suffer passive encounters, but shapes a world of *meaning* from within (Weber & Varela, 2002). The cognitive subject is never isolated and folded into itself but it copes, relates and couples with the surroundings and provides its *Umwelt* (Uexküll & Kriszat, 1934), its own world of sense.

Referring to the human social system, Bruner (1996) emphasized that the meaning-making process is central to the knowledge of the surrounding reality and that school education is one of the most effective tools to help people in this process; he stressed how teaching, in the human society, is an interactive and intentional process which takes place in contexts different from those in which the gained knowledge will be used. So, in order to face the complexity emerging from the reality, school education has to develop in students not only knowledges but also a net of critical attitudes and skills which will allow them to highlight the relationships between phenomena apparently distant, to include personal experiences in a universal context and to face the problems encountered in their everyday experiences in a systemic way (Morin, 1999).

The secondary education systems currently show difficulties to address the challenges arising from the emerging global perspectives both in national and international contexts (Carnoy, 1999). In Italy, formal education conveys good contents to the students, training professionals specialized and technically competent, but still shows problems in developing their critical thinking and their aware and responsible acting as citizens (Mayer & Tschapka, 2008). On the other hand, at the end of the secondary cycle the Italian Ministry of Education requires schools to assess and certify the students' key skills of citizenship, as recommended by the European Community (European Commission, 2007).

Aware of the need for a change in the attitudes of young people towards significant areas of knowledge involved in the issues of globalization and for a reinforcement of the skills to practice conscious and critical behaviors, CARIPLO Foundation (Milan, Italy; Delai, 2005) proposed in 2009 the "*School 21*" project, with the main objective to promote the improvement of the Italian educational processes and to encourage the commitment of young people in the local community.

1.1 The "School 21" project

"School 21" is a project addressed to the secondary schools and the vocational training centers of the Lombardia region (north-western Italy); as outlined by the title, the project refers directly to UN Agenda 21 (Stiraz, 1993), aiming to the involvement of the local community for a change in behaviors and lifestyles, and to a sustainable education (Sterling, 2001). It is focused on four sustainability central issues: biodiversity, renewable energy sources, environmental quality and climate changes. To address these issues, an

interdisciplinary teaching method is proposed to combine a rigorous analysis of the involved scientific concepts with the design and implementation of a concrete action which could contribute to the partial solution of an identified and related local problem. The proposed educational path must be included in the curricular activities of the participating schools and will feature an extensive involvement also of the whole institute (teaching, administrative and management staffs), a strong link between reflection and practice (Loughran, 2002), the awareness of the complex and uncertain nature of scientific knowledge (Funtowicz & Ravez, 1993) and a participatory and joint planning approach (Forester, 1999).

The path is arranged on two consecutive school years: the first includes the investigation of the students' and teachers' prior knowledge about the selected topic, followed by the direct involvement of the students in the global and local contextualization of the issue and in the collection of essential data crucial for the planning of a local action related to the problem; the second year is devoted to the implementation of the local action.

The “School 21” project has been designed during the 2008-2009 school year through a participatory planning process which was attended by selected representatives of all the parties involved in the path (experts, teachers and students), who benefited of a prior and brief update on the key sustainability issues. This planning team developed also the tools and the materials needed for an effective involvement of the schools.

The central instrument to design the educational path is the "*teaching plan*"; since the submission of the application form, each class plans in detail the structure of the learning units wich will allow to achieve its knowledge goals and to implement its local actions. Through this plan the teachers are required to link together the knowledge areas involved in each educational activity, the amount of curricular hours employed, the impact of interdisciplinarity in teaching, the educational methods and aids that will be applied, and the key citizenship skills that will be activated in the students. They have also to stress the *quality criteria* to which each planned activity refers, chosing them from a checklist previously set up by the planning team on the basis of the results of the SEED project (Breiting *et al.,* 2005). The quality criteria cecklist has not been established as a control device for the evaluation of the quality of teaching but to orient the teachers in the construction and planning of meaningful learning units. So, in view of the promotion of an effective educative process, such a teaching plan allows to reinforce the teacher's awareness about the close links between the object of teaching, the teaching features and the planning process of the educative path (Breiting *et al.*, 2005). In addition, to highlight the relationships between the quality criteria inspiring the educational activities and the teachers' and students' outputs allows to underline that in the School 21 project the educational effort is mainly aimed at the construction of a *scaffolding structure* (Wood et al., 1976) which allows to promote in students a direct responsibility in learning.

The assessment of the citizenship skills activation in students, requested by the Italian Ministry of Education, was developed according to Wiggins (1993); an observation grid based on 26 indicators, each declined on five levels of graduation, has been designed to guide teachers in the evaluation.

The project "School 21" was tested during the school years 2009/2010 and 2010/2011 through the participation of 34 selected classes (about 800 students involved) and then, after an upgrade of its features based on the obtained results, it was proposed via a call for funding in the following school years 2011/2012 and 2012/2013 (approximately 2500 students involved).

2. ICT and students' citizenship skills implementation

ICT play a central role in the School 21 project. A dedicated and structured website (http://www. fondazionecariplo.it/Scuola21) offers comprehensive information on the project; it provides the educational tools and materials that enable teachers to prepare the teaching plan and to evaluate the citizenship skills developed in students. In addition, it includes detailed accounts on the main results obtained from the involved schools and supplies a complete bibliography. All the bureaucratic procedures for the selection and funding of the proposals are also performed on-line.

However, also on the side of learning paths this project offers interesting insights on the role of ICT in education.

In recent years, a growing number of authors investigated the role of ICT as a *learning space*: their main focus was on *peer cooperation* (for an updated discussion see McLoughlin & Lee, 2007, 2008; Uden & Damiani, 2007; Cochrane & Bateman, 2009; Hara, 2009; Cochrane et al., 2012), on the *interactive class* (see MacLaughlin & Lee, 2010; Wilton & Lam, 2012), on *virtual learning environments* (see Chou & Liu, 2005; Wilson et al., 2007; Weller, 2007), on *lifelong learning* (see Punie, 2007; Ala-Mutka et al., 2008).

To contribute to the discussion, the concept of *anthropological place* defined by Augé (1992) can be extended to formal education, providing an interesting insight about ICT in education. The definition of *anthropological place* provided by Augé is: "*a place which is a principle of meaning for the people who live in it, and also a principle of intelligibility for the person who observes it*". How can ICT be turned from an educational space to an *educational place*? To answer this question we can analyze some results of the project School 21.

One of the requirements that characterize the project is the request, to each participating class, to provide the project Committee and uninvolved people with a complete and up-to-date information on the work in progress; both in the testing phase and in the call for proposals phase, websites, blogs or social networks have proven to be the most effective tools to communicate such information. The Italian schools have long used the Internet resources as a repository of teaching materials, information and documents (Gobbo & Girardi, 2001), but, if students are given the responsibility to administrate these instruments, something changes in ICT epistemology (Angeli & Valanides, 2009). To highlight such a change we can analyze some items coming from blogs or logbooks of the activities, administrated by the students.

To introduce on Facebook the work of their class, some students wrote:

"*The opening of this blog allows us to realize our project: to inform people as possible on climate change, on environmental problems, on their causes and remedies that man can find. We will do it through articles, photos, evidences and information about our studies and thanks to the initiatives that the school and the city offer us. You can participate in the blog by leaving comments and giving us your opinion about it"*

It clearly appears how, moving on the web, these students already show to be in touch with what has been proposed by Bruner (1996): to become a *principle of meaning*, education can support young people to give sense to the complex and highly interconnected surrounding world by shifting its focus from disciplinary knowledge to the learners' person (Weimer, 2013), to their culture and experiences. They also show to be aware that, to ensure a holistic view to the reality, interactivity should be the defining character of the educational processes (Bruner, 1996; Morin, 1999); along this process, the teacher should change his role from an agent of knowledge transmission to a learning scenarios maker (Hattie, 2003). All these are well known matters involving ICT in the educational context (Pelgrum & Law, 2003), and allow to bring technologies closer to the anthropological place concept.

The students of another class emphasize how a holistic view of the problems encountered may be an occasion not to be overlooked in an educational path and how, through the project's blog, this can be realized in practice:

"*We particularly like that the project is shared between the different disciplines (more or less), so we could gather our whole knowledge. Everything plays for our advantage. We think it's an opportunity not to be missed*"

Also in defining the features of the blog, a group of students reflects about the role of educational place of ICT:

"*This blog was opened as an idea of our class. We think that being able to gather information on the achievements of our project and to investigate what is biodiversity could be an excellent opportunity for all, everywhere in the world"*

Thanks to the youth extracurricular daily practice of the web, these students show to be aware about the usefullnes of sharing knowledge world-wide, having the concrete need to solve a local problem (Hendriks, 1999); their words also highlight how the activity of sense-giving to the surroundings should involve the whole individual knowledge and reflects the definition of *understanding* provided by Gardner (1999): the ability to apply proper skills, knowledges and theories, acquired during education, to a never experienced situation.

The nature of *educational place* that ICT hold in the *School 21* project is emphasized, for instance, even in the words of the administrator (a student) of the blog of a class, who takes part in a debate via Facebook on the use of the blog itself:

"*This is a blog, right? So let's use it as such. We must report not only our well done, accurate and precise actions, but everything we do in the project. We are preparing a report to better explain to everyone what biodiversity is and why ecology and biodiversity are problems so important to us (and it should be for everyone). See you soon. Meanwhile, enjoy a video I found on Youtube*"

While defining sustainable education, Sterling (2001) underlines that only a comprehensive, thorough and integrated knowledge can support a systemic thinking, which provides a holistic view of the reality; an educational path including attention to uncertainty and error and supporting a critical and reflective learning will allow to develop in students an inclusive vision that will help to identify the surroundigs' complexity and will facilitate the integration between thinking and acting. Thus, when integrated in a sustainable curriculum characterized by empathy, negotiation and consensus, the web shows its nature of *principle of intelligibility,* allowing to share assumptions, observations and experiences, both positive and negative. It is interesting to note that the responses to the post of the administrator were all similar to the following:

"*Really a nice video, very impressive and informative and, above all, clear enough to allow people who visit the blog to understand the topic we are interested to deepen. Beautiful, beautiful, beautiful!*"

The video assumed the role of a learning scenario. So, through the ICT, even students can contribute to build that scaffolding structure which, as stated by Bruner (1996), can support the learning of the whole community that comes in contact visiting the social network.

In defining the key competences for lifelong learning, the European Commission (2007) lays special emphasis on the fundamental role of collaborative networks to support the communication between citizens and the exchange of information. The skills for civic competence are linked to the ability to engage effectively with others in the public domain and to display interest in solving problems affecting the local and wider community; then, individuals must be equipped to fully participate in civic life based on knowledge and on the commitment to active and democratic participation. Constructive participation also support social cohesion and sustainable development. This emerges also from the blog administrated by the students of a class engaged in the *School 21* project, at the end of a discussion about the goals of the activities undertaken:

"*Of course, is not just the blog the goal of our project. However, we hope that not only a few people (and always the same) take action in the blog: all the students of the two classes must be involved. It is a first step we take to introduce us, to better understand what we are doing, to share our thoughts and to provide a tangible evidence of the project School 21*"

3. Conclusions

Among the experiences coming from the different classes involved in the *School 21* project, many other examples could allow to identify ICT as a *place* for education, in the sense given by Augé (1992); a more detailed analysis will be carried out later. At present, however, it is possible to propose some preliminary remarks which outline the context that allows the characterization of ICT environments as *learning places*.

It should be firstly emphasized that, currently, the abilities of young Italian people to use technologies to communicate show not to be envernly distributed in the students populatin; furthermore, both in Italy and in other countries these abilities have been built mainly outside the school (Livingstone & Helsper, 2007). So, the goal of the Italian secondary educational processes improvement provided to the *School 21* project should pass also through the deepening of ICT skills in students and teachers and thorough the understanding of the role of technologies in the educational process. ICT offer a hardly replaceable *space* for the collection of information, of documentation, of teaching materials and tools, and facilitate contacts and exchanges between a large number of people both inside and outside the school; but, in education, to have a learning *space* at the disposal (both material and virtual) is not the only factor that ensures the effectiveness of the educational actions, and the consistent designing of such a *space* does not directly translate into an authentic, critical and enduring learning. As stated by Gardner (1999), when faced with a problem the students should be supported by an effective educational path to express their understanding through their whole culture, applying proper skills and sharing knowledge and experiences with other concerned people. So, to allow young people to become active and aware citizens, school should help the students to use the tools of sense-making (Bruner, 1996); when directly related with concrete experiences and with the meta-reflections of students and teachers on school practice and on the surroundig reality, ICT can thus assume the meaning of *learning place*. Technologies then become a powerful tool to gather the sense of what happens around and to make these meanings understandable to those who are not involved in the experiences.

The words of two teachers, responsible for a school path of the project, effectively translate these considerations:

"We are in a very special moment in the life of the Italian school and in the lives of our students: experiences of growth and training are at stake. Therefore, the involvement of all

members of the school in the educational process is appropriate not only in communicating school activities, but also in the construction of paths and projects in which the boys could be co-responsible builders of knowledge in their real living place, under the guidance of adults who serve as mentors experts of different disciplines and of the processes of training and learning. It is good that our students can learn to think about their future not only in terms of employment, but also about the place that they will occupy in the world and about how and where they will intend to be involved in the society. Thereby, it becomes fascinating to think about the experiences they have in the school: the experience of knowing, intended as concrete and operational actions such as the discovery of the processes that are in and around the knowledge and also the experience to connect the general elements of knowledge to their daily lives; but they never have to lose the awareness of the relationships between what they learn, who they are and how their individual identities of young people can connect the simple everyday experience to the macro-knowledges they learn and deepen".

For these teachers, as happened also for others who participated in the *School 21* project, the school has assumed the character of *educational place*.

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