Education and ICT in the age of knowledge society

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Abstract. This paper presents a critical-speculative discussion on the introduction and steady development of ICT in the social sphere in general, and in the education one in particular, in the frame of the increasing emphasis that is located on what is now used to be defined as "knowledge society", which follows the industrial society model, replacing to the material possessions, as an expression of wealth, the intangible ones, i.e., knowledge, as economic resources. Therefore, starting from the premise that ICT cannot simply be considered as a new "medium" that genuinely changes the communicative relationship among people, and therefore the dissemination and use of knowledge, it is argued about the need for a broader debate on the subject, shifting the focus on an assessment of ICT as a phenomenon part of a deep cultural revolution, with respect to which the process of change involves the education sphere, and regards the role that the education must take in respect of a transformation that involves not only its form but also its nature as the potential for future generations.

Introduction

Education is always a matter of communication. Between education and communication, relations are thus always inevitably interrelated. Individual education is based on communication with others, since it always implies the relationship with the society or a social group. When communication moves from the original plan where it focuses exclusively on actions and behaviors, on simple techniques of use of objects, on daily habits, to the plane where the interest is for the single person with his own attitudes and his constituent interests, the possibilities and procedures for such communication invest the authentic form where communication is required for the education, which is the form of understanding among people, without which the interpersonal exchange is reduced to poor old things, without the influence on the same person, then without no educational capacity. From this, it follows that the relationship among people must be brought on the level of understanding, so that it is truly educational. Everyone tends to relate to other people, he understands and appreciates the attitudes, and he is in turn understood.

The understanding is subjected to the educational activities carried out on both of them, and the educational act is expressed as a relational and communicative act which takes place interacting in a shared space and time Fornero, Reistano (2006). However, when the terms of this relational act are not configured as the most immediate among people, but as mediated by the introduction of a third element configured as "medium" not more dialogical specific form of the language but as "technical medium" expansive other codes beyond the simple act of communication as such, and therefore the Act educational relationship as such, the sphere of education, evolving towards the reformulation of concepts, methodologies and practices of the same training. In this sense, since the introduction of the "medium book", the technical innovations in the sphere of communication, have always had, in fact, have an impact on the sphere of education, both in the field of cognitive implications, both in the field on detailed exercise and teaching method. However, if for the introduction of the "medium book" the cognitive implications, following the considerations of Platone Platone (2002) move from the

negotiating character of the mind-medium that is inherent in the development of new knowledge on the inception of an analytical thinking and scientific most introspective, today, the introduction of "medium information and communications technology (ICT)" extends this implication cognitive even outside of that "medium ICT" to the extent that the character does not extend more than simply negotiating the relationship mind - but the medium itself affects the interaction of the man-machine system and man-man, within which, the development of new knowledge evolves towards the creation of new forms of thought that no longer obey the logic compensatory purely platonic between mind - Medium. In other words, if the reflections of Platone emphasize that the introduction of the medium book, implying a reconfiguration of the dissemination of knowledge through writing, lightens the effort of memory, the observations are of a cognitive type, since the mind, using the writing support, distributes outside a given cognitive load with the result of weakening the corresponding internal function. This latter, in view of the compensatory logic is precisely compensated by the medium book as it is considered not as a repository of knowledge, but simply as a support for a greater efficiency, which can be drawn down while still providing the cognitive engagement of the subject.

However, in nowadays society, the introduction of the "medium of information technology" is not configured simply as a third element that mediates the relationship of communication among people, and thus as an objectively tangible instrument, whose use involves the change of the terms with such as communicative relationship occurs, and the knowledge spreads, but as a cultural subjectively intangible phenomenon, whose stresses beyond the mere sphere of communication, as they affect how to use the entire knowledge in terms of interaction relational lattice, non-sequential and hierarchical and therefore cumulative knowledge regardless of the communicative exchange. In these terms, the compensatory logic is followed by a logic of replacement type, which turns in the direction of the use of automation that allows the subject to not commit the memory in the learning phase. In this context, the theory of cognitive load problematizes more than other proposals, the teaching proposals by ICT highlighting that the high amount of information generated by ICT subject the subject to a high mental activity such that if the cognitive load becomes excessive, the student may not have more cognitive resources available for learning Landriscina (2007). Nevertheless, the introduction of technical innovations are still greeted with the enthusiasm that finds fertile ground in the consideration that their use increases the power of man and the spread of knowledge. In these terms, in fact, the arguments that Plato already expressed through the God Thoth, show that writing is a tool that can make men more wise because the effect of the use of the writing makes them more able to remember creating at the same time, a more efficient system for spread of knowledge. It follows that writing, considered as a support for a greater efficiency in the transmission of knowledge, can be considered as the first form of cognitive technology that leads within, as existing information technologies, the double-face interaction mind - the medium in which a strengthening of the human faculties (arguments of the God Thoth) and their disempowerment (King's arguments Thamous and therefore the position of Socrates-Plato) can be highlighted Platone (2002). In these terms, though for both the mediums, such as communication tools, it is required to perform the main functions, namely to transmit culture and to transfer information, to the medium ICT as a new communication tool has been assigned the function of processing information. This consideration is the basis of the trend that is emerging in the recent decades on the mode of transmission of culture and information in the context of the use of new media that, considering the only source of information, are an inexhaustible wealth for the acquisition knowledge that through them builds a new space interpretive meanings of reality. This latter, characterized today as a reality that is constantly changing, with the advent of new information and communication technology, which allows to create and manage connections to remote

processes of remarkable complexity, needs to rethink this development from the traditional elements of competitive advantage to the new that are based on knowledge. Knowledge, in fact, through continuous technological advancement has become the most important marketable commodity for the contemporary society, and it is one of the main economic resources for the developed countries, that constantly vie to transform scientific and technological breakthroughs into commercial successes such that, if, on one hand the traditional elements of competitive advantage are more easily imitated, on the other one distinctiveness remains as a key for success. On these dynamics, the assumption of the intangible economy winds, as a kind of economy that is knowledge-based, whose success depends on new intellectual responsibilities and on new models of organization and management Stewart (1997). That being so, knowledge is the main source of personal and professional growth as well as a source of wealth, as the only element of certainty for establishing security in a society where the logic of the market increasingly diverse and flexible excels. As part of their practical training, these new developments, on one hand push to a greater independence of the training, by not only a space-time sharing between teachers and students, but also by a conceptual sharing, on the other one they invite the sphere of training to use new references and conceptual metaphors. In this direction, in fact, the conceptual metaphor where the scope of training today is to operate is therefore that of the knowledge society, the terms of which are configured precisely as a metaphor for the changing world as a useful model representation of reality Stewart (1997). It is enclosing a real intent to address economic, social and cultural, that have passed the understanding of reality as an objective fact and as such can be interpreted according to a theoretical framework due to a scientific paradigm consolidated and are facing a representation hermeneutics open It is the reflection of an ongoing process, constantly changing and evolving and that marked the transition of Western culture from modern to post-modern. A passage whose factors that have fuelled the transformation that led from modern society (industrial) to the post-modern (post-industrial), are attributable on one hand to the phenomenon of globalization of the markets that has affected the ways of exchanging goods, of knowledge and of men, an on the other one to the technological revolution that has allowed the spread, on large-scale of tele-communications, information and communications technology, in fact, making real the prophecy of McLuhan Mc Luhan (1967) that "through the development of communications technology, the creative process of knowledge will collectively extended to the entire human society, just as, through the various media we extended our senses and our nerves." These two factors, influencing the change of social events, include, in their view, a departure from the previous industrial society, but involve considerations on the scope of the ongoing renewal of the transformations of communication. To these, the conceptual metaphor of the knowledge society added reflection on the governance of technologies that, if considered bearers of knowledge, power, knowledge, wealth and development, require a shift of focus on intelligence that resides in that knowledge Landriscina (2007). This latter, through these new possibilities to be produced and transmitted, becomes also a strategy capable to respond to renewed economic challenges. In these terms, the transition from the definition of the information society to the knowledge society further amplifies the importance of education. The semantic shift implies, in fact, a reading of current changes to process not only around the technologies that convey knowledge but evidently also the knowledge to be conveyed. That being so, the relationship among education, ICT and education, evolve, therefore, in the direction of having to provide adequate answers to the fundamental questions that a knowledge society has as priority from as able to relate as crucial as knowing consolidated in terms of knowledge acquired at school with what is determined as knowing fluid in terms of processing power of new knowledge in the field of real life, in which priority is to be as encouraging the production and management of knowledge within an organization or between organizations.

ICT and the knowledge-based economy

Considering this preliminary remark, it is no coincidence that, benefiting in particular from the increasing emphasis on "knowledge society", the field that has grown exponentially in the last thirty years, both the economic one that, experimenting the failure of the scientific management of the work, has emphasized the important role of intellectual abilities in dealing with the production process, for which the dynamic understanding of the context and the choice of the most appropriate strategy to solve the constant problems emerging, does not accumulate endless information units from which to draw indiscriminately but, omitting the superfluous, in knowing how to select. In this regard, the minting of "knowledge society" and "knowledge industry" are introduced by the economist Machlup to signify the close relationship between the society and the industry, including social development and the economy, mediated and illuminated from their knowledge, which should not be stifled by the limits, but should be open to broader gains Machlup (1980). In this regard, the vision of Knowledge Management (KM), lies precisely in defining a substantial difference in the conceptualization of knowledge to be considered as an "object", so as the amount of information made explicit, transferable, storable and cumulative through the digital information systems management, and a knowledge considered as a process which produces new knowledge by following the dynamics of the thought that is not static but, evolving through cognitive transformations, can bring innovation that add value to the development of production factors of the enterprise, thereby producing knowledge by means of knowledge. The KM adds to the concept of knowledge society, the importance of knowledge management, and therefore has the task of rationalizing the accumulation of information and knowledge, thereby identifying methodologies and tools suitable for this task through an approach based on cognitive mechanisms. Following this perspective, in the economic sphere, the introduction of new technology endorses these reflections, highlighting the communion, the sharing of the cognitive process that, in these terms, assumes the function of joining, unifying, but also discovering harmonies of creative dynamics which bring the knowledge to restructure both towards concrete contexts where it is incorporated, both towards hermeneutical perspectives that innovate the knowledge view that is enriched with additional insights that can be further used by other entities. This latter leads to the synthesis between the humanistic and scientific strands, that has created something of original in the economic sector, by describing the organization as a system that learns, and that is subjected to a mutual overlapping between immateriality of knowledge and materiality of the knowledge products, since both the aspects participate with the same title to the harmonious functioning of the human personality in psycho-physical individuality firmly linked to social factors Druker (2002). In the economic sphere, we arrive at that conclusion after finding inadequate the equation ICT=KM, namely the mismatch of equality between the concept of electronic processing of information through the use of technology, and the concept of knowledge as a result of such processing. Such conceptual inequality moves by some theoretical critiques for the AI (Artificial Intelligence), since a computer system can handle only one kind of knowledge, defined as scannable, and is inherently programmed to overlook forms of particular relevance helpful to understand the ways through which people benefit from such knowledge, or rather, for understanding how people think and actually practice the skills in their work context. In other words, the information technology uses computers, which are syntactic systems since they link certain symbols according to certain rules, but they are semantic systems since they don't attach to such symbols of intentional meanings. For this their syntactical nature, computers do not possess a true and proper "understanding". Therefore, a simple manipulation of symbols does not imply a concomitant understanding of the meaning of these symbols and may not coincide with the intelligence in the human sense that it is always

intentional Searle (1984). As noted by the theorists in this field, "what makes the knowledge management a challenge, then it is not a storable, acquirable, movable object, as a piece of equipment or a document. It resides in the skills, insights and relationships of its members as well as in the tools, documents and processes that incorporate aspects of knowledge. Organizations need to manage knowledge by not simply reduce it to an object Wenger, Mc Dermott, Snyder (2002). This orientation leads to the processes of "learning by learning" and "learning - organization". The first refers to the learning derived from the experience of everyday work where the worker is not the "alienated of Marxian memory", but he is actively involved in all the processes of business development that becomes the common aim; the second refers to the approach that considers the organization as a system where information are processed and interpreted to solve problems by creating knowledge. The latest studies that dealt, in this direction, the integration between the various dimensions of knowledge are those of Nonaka and Takeuchi. These authors, considering the need to overcome the dichotomies of their West world, such as body-mind, the individual-organizational, hierarchy participation, and focusing on the flow of possible knowledge, between that body and tacit or analog, and that explicit namely rational, sequential and digital, come to support that the engine of knowledge production takes place in the conversion circuit between four poles that mark the forms of knowledge conversion: externalization, transfer of knowledge from explicit to tacit; internalization, passing of knowledge from tacit to tacit; combination, passing of knowledge from explicit to explicit. In this way, it potentiates the flows in the different directions, in particular towards the externalization and internalization Nonaka, Takeuchi (1995).

A variation inside the KM is the E-Knowledge, that although the prefix "E" indicates that the reference to "Electronic", calling therefore a technological nature that takes into account the Computer science field, turns to orientate beyond the traditional engineering approach that identifies inappropriately the equality between knowledge and information. The E-K assumes, as its property, the awareness that knowledge is the result of continuous reinterpretation and reinvention, nonetheless it continues to hold firm the equally awareness that the flow of cognitive processes still involve content, networks and communities that make up the knowledge embedded in the context. Although this knowledge can be shared digitally through direct and indirect interactions that favor the conversation and interaction between professionals, in part it remains not-scannable, and therefore the limits and possibilities that technologies complement and interact with other devices to interior of integrated systems that make possible a more comprehensive management in suits its forms can be understood.

Therefore, in this context, the knowledge relating to the organization is not comparable to the sum of knowledge of the individual, since the individual knowledge of the individuals implements the procedures of assimilation through the analysis of the processes by which the knowledge is implemented, generating innovations such as to change programs, structures and/or networks of processes of the enterprise. The knowledge of the individuals therefore has a higher value than that produced by the ITC, since it includes all the intangible elements that constitutes the intellectual capital on which the society can refer to generate economic returns also larger than the traditional financial resources. The methods of work, shift accordingly from the typical heuristic model, by trial and error, which had characterized the manual labor in the past, to a logical-deductive and abstract model, and characterize the today worker as "knowledge worker" Druker (1993). The core of the working methods of the knowledge worker consists of the transposition of knowledge held or generated by an individual or by a group, to the sharing by the whole organization that adopts them, by incorporating them in its facilities. However, such a process of implementation will have success only if it will take place within an environment and an organizational culture that has a positive effect on the knowledge of the individual or group through the activation of learning processes of generative

type, which allows the change of the prevalent cognitive models, through interaction, sharing of experiences and the internalization by workers Rebuffo (2003).

From this latter, it can be seen that economic development expected in the knowledge society and KM can only be made possible by following a direction that intelligently connects the relation of the knowledge, information, and technology terms, according to an interactional contamination and not to sectoralisation. In other words, the technology of information processing and the resulting impact on the generation and application of knowledge is not the only one to have induced changes in the economy; rather the change is evidently determined by a different conception of knowledge organization from a consideration of the same as a continuing process generated by the construction purely personal, individual creative thinking of every single individual. Education, therefore, has the task to include, in this direction, the awareness of the fact that in this relation the "information filtering" by the individual and not the technology, should be the dividing line for the construction knowledge adapted to the decoding of the human reality.

Given these considerations, the universe of education not only appears to be strongly behind with the demand related to the social times, in training, in fact, of the new generations, but seems to have no place in the desired direction of the relationship between knowledge, and ICT. In fact, if on a hand it uses the latter ones as part of the so-called permanent and continuous training, used by adults making up the new demands of the new working dynamics, in relation to which young people are not prepared to address them, on the other one, in the context of the so-called duty education, it does not seem to have models for education and teaching responsive to accommodate new instruments and new technological models. Therefore, if the new dynamics of the working universe impose an individual effort to the single adult who has to learn to walk on quicksand, because it must be able to educate himself constantly in a state of perpetual incompleteness Bauman (2008) the training becomes a sort of dependence in terms of only competitive advantage, and that is probably the reason why the permanent education programs tend to transform, inadvertently and without any specific reasons, into exhortations to permanent learning. On the other hand, if the instrumental technical progress is not matched by adequate arrangements for educational reflection and teaching, training will remain relegated within the duty education perpetrating the discontinuity between learning inside and outside the school characterized the distance between modes of transmission of knowledge typical of the school environment and ways of knowledge imbued with experience that characterize instead the so-called real knowledge Resnick (1995).

ICT and educational contexts

Despite the decisive role, recognized for the education by the Lisbon European Council as a tool fundamental to the strengthening of competitiveness in the world and as a guarantee cohesion within the society- information available from: http://europa.eu/index_it.htm.- the hinges deployed to encourage the processing of European society in a knowledge based society capable of competing with other economic powers - Information available from: http://eur-lex.europa.eu. - seem to have been incorporated by schools in a distorted or a second incorrect assumption based on which pedagogical innovation and reflected the educational innovation required, they can be reached only by the implementation, technical innovation and therefore with the only integration of the information technology. Based on this assumption, the positivity at the educational level of the advent of the computer and thus its applications, is taken for granted and feeds an indiscriminate acceptance by supporting the misconception that holds the equation "technological equipment equal to educational renewal". Based on this misunderstanding, for instance, a recent Italian ministerial circular (C.M. 21 maggio 2002, n.55

- https://archivio.pubblica.istruzione.it/news/2002/cm55_02.shtml) appears, which defines the lines of a "National Plan for Teacher Training on Information Technology and Communication" which witnesses an unconditional enthusiasm towards the innovation objective factors characterizing the so-called new technologies that put it this way: "The widespread dissemination of computers and the Internet has led, in recent years, profound changes in the ways to learn and operate of the new generations. The use of different applications produces changes in the ways to conduct various cognitive activities, such as writing (word processor), to search for information (search engines, Web browser), to draw (graphic editors), to calculate and organize data (databases and spreadsheets), to compose music (music publishers), to communicate (e-mail and messaging systems and/or cooperation), etc. It can be said that students who use computers acquire new learning skills based on continuous practice of interaction with virtual environments for gaming, expression, communication, etc". That being so, it can be said that for the authors of the circular, with a cut that recalls a first way positivism, the cultural progress is inevitably and unquestionably accompanied to technical progress: in this case, the qualification process of acquiring knowledge. The only task of the educator is to ensure the peripherisation innovation of all users. From a strictly pedagogical and educational point of view, the circular proposes the product innovation as if it was an innovation process, providing as a result, a reading of changes taking place in a more technological cognitive, identifying in ICT the critical instrument for the society that, as recommended by the European Council, must be pursued without consider that the focus of change is instead of cognitive nature, and rather it lies in the opportunity/ability of the subjects to educate themselves, thereby becoming part of the knowledge society in a productive and conscious way. This distinctly cognitive intention typical of the change, with respect to which the information technologies are considered as means and not as the end of education, is neglected even in the context of the current debate. This latter, in front of the equation introducing technology equipment equal to educational renewal and therefore greater learning, produced, in fact, a vast literature reference, for which, it just scroll down the acts of any recent conference on ICT and education, to find a large number of examples (e.g. Information Society Directorate General; Technology Agency, 1999; Eun, European Schoolnet, 2000, Open University of Israel, Commissione Europea). Regarding the considerations to be made about the fact that the introduction of the information technology is part of a deep cultural revolution with respect to which the process of change concerns the role that education should assume in respect of a transformation that is inherent not only its form, but also its nature, and the potential of future generations, the debate is surprisingly limited. It follows that a broader view on the subject seems to lack including the whole system and most of the key aspects of the educational process from a cultural perspective on the subject that supports awareness by educators around the transformative and revolutionary nature of ICT, and solicit them to a commitment for changing the entire educational system, taking into account the new culture that requires obviously a new interpretation of the key terms that distinguish it. In this sense, when with lightness, in education, many considerations on technological innovations are treated as a single concept, as ICT, it would be appropriate, before starting to argue in this regard, to clarify, to be precise, to what exactly it is referring to, in order to avoid misinterpretations and misunderstandings, which are commonly spread in the academic context, with the result of not considering that the concept of the relationship between technology and culture influences the views that it takes on the relationship between ICT and education.

A short conceptual demarcation

The term "technology" is reductive but it is commonly used to generically indicate a machine or multiple machines connected to each other, that work with the computer science and the computer world, so if the technologies do not work means that the machines are inadequate. Commonly also at school, and generally in education, the term technology is used to define technical or several electronic devices: computer and related applications. It follows that the same tools and materials which in different combination constitute the operative element of the technique (techniques) are "inside" the technique itself, but they precede it, and enter into direct relationship with the individual (the technician) who uses them. Based on this, a technical dimension would be related to the technology as a machine on which only the expert technician can access. This implies and at the same time derives from the fact that the debate remains anchored to an evaluation, of a technical nature, on the objective quality of the instrumentations: an evaluation which still sees the presence of the dual ideological alignment, already analysed 50 years ago by Umberto Eco (1964) of "apocalyptic" (the machines as a source of every pedagogical wickedness) and of "integrated" (the new tools and techniques such as saving opportunity). Therefore, the concept of "technical" in many cases, is considered broader than that of "technology". The prevailing opinion is often the concept of technique is a "foundational" concept and that the technologies are an operational application of it. Only later, it directs the attention to the suffix "logos" Berger (1992) and it starts to reflect on the true meaning of technology that is, based on a standard dictionary, "Study of the technique and its application" Zingarelli (1983) or rather the science that deals with the processes and tools through which the raw materials are processed into finished products or even more succinctly: "set of rules governing the actual conduct of a manual or intellectual" Enciclopedia generale De Agostini). In fact, the definition of the concept of technology appears to be much more complex than would appear from the widespread use of the term. The area of the significance of technology, following an analysis proposed by Luigi Guerra Guerra (2002), involves, in fact, at least three levels of reflection:

1. The technology studies the relationships among materials, tools and techniques (the same tools and materials can find employment in different techniques), analyzes and compares the techniques, their effectiveness and efficiency, in terms of their socio-cultural context of use, the objectives offered, the stated or hidden purposes, conscious or unconscious that techniques themselves allow to pursue.

2. The techniques are never perfectly applicable and reproducible: their result depends on objective factors (all variables related to the "historic" utilization context) and on subjective factors, that are related to the professional qualities (a synthesis of objective competence and originality/individual creativity) and to the intentions of the user.

3. The techniques do not have a positive objective: the technology studies and clarifies the overall political and cultural model that supports them, bearing in mind, however, that they are not neutral as they are interpreted according to subjective intentions, but they are in an environment which rewarded certain objects of research than others. They can be placed at the service of different hypotheses, but likely retain the imprinting hypothesis culture that produced them.

Therefore, the technology studies the relationship between technology and civility, in the awareness that the techniques and their use are both derived from a socio-cultural and derive its survival or its change. Therefore: "Within a certain cultural system the conditions for the realization of a given technology are presented. They are identified with the need to solve emerging problems with the need to improve the rule of life, with the curiosity to test, putting them to the test, insights and discoveries, with the possibility of using materials hitherto

unavailable. In this sense, it can be said that the culture generates the technology but it must admit also the contrary, namely that the technology, changing the social and cultural system, produces culture or rather new culture [8]. And this is the only way that it can give cognizance of the development of this technology age that, feeding of the deep connection between knowledge and technique, allows to "seize" the technologies which have foundation in the cognitive process that always remains the starting point of creation of more sophisticated technologies, which in turn, produce new and better knowledge, from which an extraordinary growth comes in all sectors in the direction of a virtuous circle that encompasses the cultural, scientific and educational highlighting the terms of that conjunction that intelligently connects the relation of the terms knowledge, information and technology. And in this field within reflections on educational technologies that deals with the "how" you can teach/learn using ICT for cognitive and social issues related to these new processes.

Technology in educational contexts

In the attempt to give a specific definition to educational technologies, Galliani citing the report to the US Congress (1979) of AECT (Association for Educational Communications and Technology), according to which the technology education would be "the systematic way to design, implement and evaluate the overall process of human learning and communication, with the combination of the human and other resources", notes that this scientific context coincides and even goes beyond that traditionally defined in the university as a "methodology and teaching" and it proposes as epistemologically more correct the term/concept "Educational Communication Technologies" Galliani (2000).

It is in these terms that researchers of cognitive contexts, educational planners and "technologists" gather around a new theoretical framework that marks the break with the traditional patterns of knowledge and which goes by the name of socio-cultural constructivism. This latter, surpassing the size of the objective representation and realism certainty that in the past time marked the scientific knowledge, puts emphasis on the role of the subject in the process of knowledge and learning. The underlying principle of contemporary epistemology of the Constructivism moves on the assumption on the basis of which knowledge does not exist independently from the human from which follows that learning comes from personal feelings and can be characterized as a complex reworking of internal, not only cognitive but solicited from forms of rationality is not linear, such that it becomes a mental organization, targeted activity, social interaction and contextualized language. It follows that, the experience of everyone is not the preparation of a building of knowledge established through evolutionary stages but it is a construction of a network of interconnected events, holograms, patterns interwoven, that cannot disregard the procedural and ecosystem uncertainty. This perspective which can be defined as the epistemological approach currently dominant in psychology and pedagogy, is currently the response of education research to request that the European Council, to the turning point represented by globalization and a by a new knowledge-based economy, launched to the school systems.

In this context, as known, one of the key EU policies has been recognized in the priorities of the learning process throughout life. In the awareness of the relationship among culture, society and people, also the Italian school system takes as a reference towards which work a framework of key competences for lifelong learning defined by the European Parliament and by the Council of the European Union (recommendation of 18 December 2006) and which are: Communication of the mother tongue; Communication in foreign languages; mathematical competence and basic competences in science and technology; Digital competence; learning to learn; social and civic competences; spirit of initiative and entrepreneurship; cultural

awareness and expression. Among these skills, "learning to learn," seems to be the most urgent request that the renewal of society and the world of work ask to the school and to the various training agencies, and to which the constructivist vision of the process of teaching / learning, urging the construction of new knowledge, would seem to offer a guarantee of future investment of which education needs. In these terms, in fact, in its model of interpretation and not representational of reality, the socio-cultural constructivism can be easily localized in specific environments of the didactic, and in this context that, focusing on the construction of meaning, with an emphasis on the active character, polysemic but not predictable in such activities, the focus shifts from the sequential organization of the educational interventions to the concept of "learning environment" Calvani (2007). This latter concept, namely the "third generation distance learning" (DL), appropriates in its theoretical hypotheses advanced on the basis of which, the introduction of information and communications technology (ICT), has allowed the application for a teaching model centered on the idea that learning is primarily a social process, such that the social dimension of learning as peer communication becomes a key feature only systems DL Trentin (2001). According to the logic of "learning environments", so "the learner, is located in a position where he himself is the builder of his own knowledge, personally committed to the arduous task of building his own building of knowledge using media of various types such as tools (hardware technologies in their nature) and methods resulting from the encounter between technology and teaching and interactions through the circuits info-telematic - among those - and with info-technologies (relationship man/machine)" Bruschi (2001).

In this context, it would make explicit the enhancing of sizes of learning activities directly related to building skills, both operated by the individual student, both by the group. However, this expertise, feeding the conceptualization of learning elaborated by constructivism leads within a few epistemological difficulties, as though admitting that non-formal the subject learns through practice individual and collective construction of knowledge, according to what has been argued so far, the role of Education is also the recognition of its specificity lies in its being deputed to the overall training of individuals that is inherent transmission of that knowledge consolidation as a condition of the survival of the society itself. Therefore, in the education context, it is necessary to carefully evaluate the relationship between transmission and construction of knowledge since, if on one hand the assumption of constructivism moves from the consideration of knowledge as a construction of the subject, on the other one this new vision of the knowledge needs to be harmonized with the need to transmit a consolidated knowledge. What should be considered as a stable and consolidated knowledge, and how the same should be passed through the ICT, are the questions, which the nowadays school asks to itself, and with respect to which experiences a deep and paralyzing discomfort, feeling this process of renewal as a crucial loss of its meaning and its function. Agreeing with Postman, in fact it should need ask to themselves, from the point of view of the role of education in schools, how the school should be enhanced or not by the technology. The author, scolding vigorously to the education system to neglect the purpose of education and to focus on the means, argues that, if schools do not find a reason to justify their existence, there will be the end of school, because " the role of the school should not be to adapt to the technology, but to control this process and to modify it, so that it can serve the social values, and the desired objectives and not to be detrimental to them" Postman (1997). In fact, in support of the arguments so far explained, it is also true that the reality of the fact betrays, in a non-negligible way, the expectations of the strategy of the European Council in Lisbon to which, what follows in education policy and Training is an advancement in "small steps", made up of countless technical standards which are often unusable on pine practice Pavan (2008). Regarding the policy and research, the European documents after the Lisbon, denounce some concern for the

future of the development model for the establishment of a European knowledge society and witness the widespread effort to relaunch the project of education and training in awareness of the dual role, social and economic, that educational systems have in this process (Information available from: http://europa.eu/index_it.htm).

Therefore, it is perhaps appropriate to ask to themselves whether a pedagogical point of view, groped to respond to the request by the European Council and widely analyzed and stated in the White Paper Cresson, Flynn (1996) in terms of hope for the development of a genuine European software industry education and multimedia as a pedagogical tool of the future, is indeed the way forward to form the plural thinking citizens. The answer can be only inflated itself of if and but, because, although the goals set may be acceptable, the given strategies involve careful reflection and supervision of mode of action chosen by the member countries given the inconsistencies between the intentions and the procedures of embodiment Fabbroni (2005). In these terms, the aforementioned Italian Ministerial circular, when it states that: "if, until today, the professionalism of teachers will focus on two main axes: the subject knowledge and the ability to plan, organize, manage the learning processes aimed at guarantee the cultural growth of its students, today it cannot predict a third axis centered on the use of technologies", notes that the introduction of ICT is simply transposed to curricular integration without a cultural precise, hence the presentation of training in the use of new techniques as a "third axis" which is clearly neither disciplinary nor didactic. Among other things, the clear distinction appears between the role of teacher identified in the historical role of the teacher, and the school in the border enclosing the disciplines and their teaching, and the role of educator, who is responsible instead for the education of the Man and Citizen, that characterizes every educational institution that does not merely attempt for educational/instructional. Ignoring, that instead it competes also to teacher a reflection on a technological introducing whose "intrusion" not being didactic in itself, if not governed by a specific cultural project, requires a conceptual shift that goes beyond the curricular approach.

Therefore, it is necessary to promote a lifelong learning society, based on the development of technologies and their introduction in schools, then based on the development of a general culture and specific at the same time, on the ability to interpret and understand things and the world, on the creativity of individuals and groups who learn to learn, and work together to address the constant changes, but it is also necessary to do it, by fostering the synergistic interaction between technological innovation and human values, thereby leading to a new set of organizations and institutions able to generate a positive feedback among productivity, flexibility, participation and responsibility, as part of a new model of sustainable development for society Castells (2004). Therefore, it is necessary to put out the need to integrate, through education that the pedagogy and didactics are spokesmen, the individual and collective dimensions of the society to promote the growth of systems and organizations which can maintain and develop at the same time behaviours, values and knowledge in relation to both individual and collective targets. Following this perspective, if the task of education is to encourage the development of the individual skills, then the method becomes the connection between the subject and the object of knowledge, the tool that allows their relationship in a perspective of a recursive reflexivity ahead of the aim that, working on cognitive activities, compares the theoretical and practical experiences placed under their intelligence and reason, as Dewey showed in the book "*Come pensiamo*" Dewey J. (1961).

In this direction, the size of the use of new technologies is not neglected as long as the new technical instruments are put at the service of critical models of teaching mediation, namely only if placed within that analysis complex, highlighted above, of educational technology. In these terms, the pedagogical model and teaching problematic introduce the idea of complexity in educational practice, and it is committed to valorise the coexistence of different pedagogical

assumptions but modular in a versatile logic both on the cognitive learning both in terms of socialization (information available from: http://eur-lex.europa.eu). On the cognitive context, the problematic technological approach proposes three possible prospects for intellectual education: single-cognitive, meta-cognitive and fanta-cognitive [24]. The single-cognitive direction has as final aim the possession of information necessary in the various disciplines, and thus aims to a basic knowledge to be in possession of all students. The focus is on the product, considered as content, concepts and skills essential for the individual to act in the everyday life. The use of new technologies in the single-cognitive direction is certainly qualifying as it allows access to teachers and students in a number and variety of information resources previously never "achieved".

In fact, internet can be considered as the greatest repository of information ever had in the history, and it must not have forgotten that this information are not only texts and documents but also multimedia organized elements.

The direction that goes towards the perspective of the achievement of competences of meta-cognitive type tries to promote the ways of a "scientific thinking", that is, stimulating the use of the methods and techniques of investigation that allow not only the production of knowledge, but also the possibility to conceptualize and generalize the acquired knowledge and skills. The focus, in this case, is directed to the process, namely to the testing tools (attitudes, methods and techniques) aware and transferable learning. In this perspective, the use of electronic instrumentation, risking much to facilitate access to "ready" knowledge needs a more critical approach of teaching, and computer applications than use the type only reproductive, facilitated by the ease with which machines are proposed to the individual.

The fanta-cognitive direction aims to stimulate each student to entirely personalize learning through the enhancement of himself, of his own life, and his own motivations. In this way, the subject can build original paths of understanding and reinterpretation of culture through the discovery of new knowledge and exploring the world of self-knowledge already known.

Attention is then turned to the subject and his experiences as a starting point to reset an original knowledge and use them in everyday life. What education should therefore propose is to enrich and structure the individual experience to direct him to the back through a process of awareness and awareness of his own limitations and their own resources.

New technologies can be used as instruments to enable experiences that put the person in touch with the world and stimulate the ability to express themselves and discover an original, creative and oriented to understand the other. In this direction all the electronic instruments are to be favoured, that can expand the aesthetic perception of the individual.

In terms of socialization, the problem setting makes necessary to design an ethical/social education able to form an individual for the whole range of social situations: from those that require a high capacity of individual autonomy (of resistance to group, defence of their values and knowledge), to those which ask the conscious participation to the social experience (through knowledge and critical practice of the rules of co-existence), to those, finally, which postulate the need of sharing (cultural and existential, of knowledge, of projects, of values) with other individuals and groups. Even in this sphere of education, the technologically critical practice of new ICTs can bring an important contribution. The computer, being an instrument of unparalleled effectiveness for processing and maintaining documentation, may constitute a cultural itinerary for the individual in respect of its critical use, with which the ability to establish and defend own identity and turn towards autonomy of thought can enhance. The network is a huge opportunity for participation of all matters and at all levels if the rules of the many discussion boards are known and critically used. The tools of telematics, finally make possible for all the highest form of share, namely that of the social construction of knowledge

always with the support of appropriate educational models, such as cooperative learning, can become a cultural sharing in the development of messages.

Following this model, it can be said that the educational innovation does not lie outright in technological innovation but rather in the methodological renewal. And if the method is to be the true mediator between the dynamics of learning and the subject content [21], the reflection on not only technological and methodological renewal is essential for maintaining a concept of open education to the adoption of new tools and their new procedures of use, and capable of simultaneously designing the new anticipating purposes and not just the tools.

Conclusions

Even though an analysis of the role of education in the evolution of the continuous changes in society is complicated, it is undoubtedly essential to place it in evidence respecting its function and its value seen as discriminating differentiating humans from other living species, and therefore, as a condition "sine qua non" which justifies the non-extinction of humans. In this regard, it may be useful to recall, such as "in the case of man seems that nature has adopted a directive of very original solution to achieve a biological system with a high adaptive potential within a wide range of environmental conditions: and that is, a set of interactive structures no longer solely predetermined by genetic inheritance, but permanently available in a modeling morphogenetic some extent reversible by the current stimulation" [21]. In these terms, the role of education in the context of the evolution of species can fulfil a dual task: what is inherent in the transmission of cultural patterns of behaviour highly consensual social that can only take place if not through teaching; what is inherent transformative interaction understood as modifying the environment designed for the purposes of which can only take place if not through learning. Based on these two tasks, it does not end all the functions cited, in general terms, the role of education, in society, but it is possible to delimit its function, in specific terms, by the extension of teaching - learning - transformation that, according to the use now prevailed in contemporary pedagogy, constitute the three fundamental dimensions of the expression "educational process". This latter seen today in its broadest sense as including any activity or effort directed to change the character and attitudes of a person, with no limits of age or circumstance, can rise to the passing of at least one of the contradictions that characterize or that indicated by the theorists of education in the form of old dichotomous training social / human formation. This dichotomy characterized, as always, as a criterion of problematization of the relationship and the educative process went through, fed and together undermined every evolution of the educational process to the extent that, has always the choice between the two types of training as a option undecidable. If this dichotomy is recognized rather than the status of antinomy, the status of "law" within this process, it is possible to admit a contamination between the two forms of education to the extent that the educational process, albeit primarily, turns to the formation of human subject, in view of self-realization, it is not simply a private matter of the person himself, does not occur only in the privacy of the person, but involves an exchange of actions and reactions between it and other people such that always contains an eminently social. So there is a symbiosis between the particular and the universal, between the individual and society, between society and nature, such that each event influences other events and is influenced by them in a two-way movement and circular, structurally open and dynamic cannot use an interpretive analysis that follows the logic of the watertight compartments, but needs a continuous remodulation of logical structures able to identify the innumerable variables underlying the multiple and complex events that mark the existence of all living beings, for the

purpose of a possible hermeneutic able to highlight the logic of the concatenation of the factors that act as basic elements of the same existential structures. In these terms, "the idea that one that the individuals believe to be the truth or knowledge is influenced, if not determined, by their social environment is not new: the beginning of the modern era - to name three famous examples - image Francis Bacon of idols, (the tribe of the cave, the market and the theatre), the observations of Gianbattista Vico on "arrogance of nations" and the study of Cherles de Montesquieu on the relationship between the laws of different countries and climate systems and their politicians, all they expressed this fundamental insight in different ways" [2]. It follows that, the individual and the collective, can also be understood as categories of interpretation of social, within the educational projects, can only act through the intersection and pursue educational action planning intervention on the future. This implies overcoming the compartmentalization and limited concept of school education, and a broader reflection on the inclusiveness semantics of the concept of education and therefore on the pervasiveness of his work from some of the implications of such methods and means that are and convey, must be able to respond to instances of more general knowledge and the relationship of the latter with the stresses historical and social, that is, with what is usually called cultural foundation of a society. That being so, culture and knowledge, are covered by these two trajectories, where some move knowledge based on rules, codes, systems of signification rationally and logically set up, but also the knowledge that you leave the multiplicity of rules, codes, systems signification, theorizing and practicing the multiplicity of truth, the opening (almost infinite) interpretation of the work [5]. Failure meeting point between these two trajectories, which sealed a sort of distinction between instructing and educating, forcing the contemporary reflection of a functional vision of teaching, purged of the function design, is no longer sustainable in this century of knowledge defined and training. In fact, although the distinction between instructing and educating is served to the construction of a scientific view of educational sciences, such a distinction, however, has led to a internal dialogue among the different disciplines that make up the science of education, providing a distorted disciplinary autonomy that has fed theories and practices inadequate investment that involves the act of educating or to establish a certain degree of government of the future. Specifically, if the teaching aspiring to its disciplinary autonomy detached from pedagogy has been taking on a head of a speculative and practical body [20], it established a distinction between the roles of educator that, following this vision falsely autonomous, and limited knowledge of the different, no longer has reason to reflect on methods and teaching strategies and the same teacher who no longer has the title to be heard on the purpose of education.

But now, if the role of education as outlined, inhibits the transmission of cultural techniques of use, of production, of behavior by which the community which is the group of people who form the society is able to fulfill its needs not to become extinct and the manner in which such transmission is ensured and are aimed at training balanced and harmonious man as such, it is necessary to take into account the fact that the terms in which the needs of the individual and instances the collective relate, requiring a balance in order to establish cohesion between man and society. If on one hand, the social character of education is evident by the fact that its task is to bring the individual to the level of the culture of the social group to which he belongs, on the other one it is equally obvious the vocation of autonomy of the education that is inherent in the need implicit in its innovative research discipline that should guide people through an independent assessment of knowledge and institutionalized morals. In these terms, the educational institutions must have both the task to communicate institutionalized forms in the group and that the group considers essential to their lives and to their conservation through adequate preparation and skilled and responsive to the needs of increasingly accurate and differentiated social life, but in order not to impoverish the individual in the sphere of its

interests and reduce him to be an instrument of the task that now calls him to perform, they must move from the awareness that you cannot educate a man, if not using the powers and skills that are in his possession, or to consider it as a reality in itself which, although in constant relationship with the surrounding reality in which he lives, remains a reality in itself unsolvable in social elements that can be recognized in it.

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