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ABSTRACT

We usually stress the fact that changes have a strong impact on present times, but we are rarely informed about the real, deep, daily, concrete impact that changes have on lifestyles, on thinking styles and processes, on learning styles and processes. Among the different changes, at least the present compression of time and space, the presence of technological tools and the change of the perception of virtuality are able to produce a significant and deep impact on the learning and cognitive strategies of younger generations. Teachers, professors, educators, trainers have the professional and ethical duty to update their competences and skills. Future educational opportunities either highly depend on new methodological and didactical approaches or will be meaningless and will reduce the role of adult generations to the one of pure spectators. Future educational opportunities highly depend on new educational categories, on new didactical aims; all of them must be coherent with the younger generations' learning needs and with the impact that changes produce on their right to education, on their right to participate to their contexts, on their aims at achieving competences and skills coherent with the answers that their present will ask them to give.

KEY WORDS: educability, learning strategies and processes, new educational categories, new generations' rights to education.

RIASSUNTO

Sentiamo dire in genere che i cambiamenti producono un forte impatto sul presente, ma raramente siamo informati sul reale, profondo, quotidiano, concreto impatto che i cambiamenti hanno sugli stili di vita, sugli stili di pensiero e sui loro processi, sugli stili di apprendimento e sui loro processi. Tra i diversi cambiamenti, la compressione di tempo e spazio, la presenza di strumenti tecnologici e la trasformazione della percezione della virtualità sono in grado di produrre un impatto significativo e profondo sulle strategie cognitive e di apprendimento delle nuove generazioni. Insegnanti, professori, educatori, formatori hanno il dovere professionale ed etico di aggiornare le loro competenze e le loro capacità. Le opportunità educative del prossimo futuro dipenderanno marcatamente da approcci metodologici e didattici innovativi oppure rischieranno di essere prive di significato e di ridurre il ruolo delle generazioni adulte a quello di puri spettatori. Le opportunità educative del prossimo futuro dipenderanno marcatamente da

nuove categorie educative, da nuovi obiettivi didattici; tutti dovranno essere coerenti con le esigenze di apprendimento delle nuove generazioni e con l'impatto che i cambiamenti producono sul loro diritto all'istruzione, sul loro diritto a partecipare ai loro contesti, sul loro obiettivo di acquisire competenze ed abilità coerenti con le risposte che il loro presente chiede.
PAROLE CHIAVE: educabilità, strategie di apprendimento e loro processi, nuove categorie educative, diritti delle nuove generazioni all'istruzione.

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PRESENT CHANGES IN LEARNING PROCESSES OF YOUNGER GENERATIONS

LE TRASFORMAZIONI DEI PROCESSI DI APPRENDIMENTO DELLE NUOVE GENERAZIONI.

Vincenzo A. Piccione [1]

1. PRELIMINARY CONCRETE ISSUES

Having the different contents of the following pages many and very long references to the scientific and cultural state of the art, I will avoid as much as possible the potential quotations, concentrate on concrete issues and simplify the logical sequence of the discussed themes.

The pedagogical observation of learning processes that must be used while learning (from analysis to representation, from memorization to selection) highlights at least three simple and concrete facts that are transforming the access to knowledge and the learning strategies necessary to manage them:

[1] Ricercatore confermato, di ruolo, Facoltà di Scienze della formazione dell' Università Roma Tre e presso la SSIS Lazio, titolare di più discipline di taglio pedagogico e metodologico-didattico, tutor di tirocinio in azienda. Docente in corsi di formazione e aggiornamento di formatori e educatori. Titolare e responsabile di progetti, ricerche e sperimentazioni nel settore della formazione professionale e degli educatori, della valorizzazione delle risorse umane, in Italia e in Europa. Traduttore di pacchetti formativi multimediali. Direttore e responsabile di un Laboratorio di ricerca e sperimentazione presso la Facoltà di Scienze della formazione dell'Università Roma Tre. Autore di volumi ed articoli sulla formazione e sulla valutazione.

1. younger generations, at present, as never before in human history, have a kind of knowledge, the technological one, about which the adult generations are not unique and total holders, in terms of contents, meanings, usability and re-usability, communicational codes and channels, specific languages, cognitive strategies involved in managing it, educational aims, didactical tools, perception of educational settings;

2. younger generations, at present, as never before in human history, have at their disposal a kind of knowledge which gives an additional instrumental potentiality: the use of technologies can allow the pure access to different kinds of knowledge without the necessary physical presence of adult generations;

3. for younger generations, at present, virtual space has become space of action, an environment where human experience is possible; the transformation of the perception of virtuality can, not only, allow the transformation of the perception of physical reality, but even modify the perception of different kinds of knowledge, to produce an impact on the use of knowledge and on its reliability.

2. CHANGES AND PHENOMENA: A PEDAGOGICAL POINT OF VIEW

In this part, I will highlight how some present changes produce several consequences and implications that affect the learning styles

of younger generations and the educational styles within all educational settings.

2.1. THE PERCEPTION OF TIME AND SPACE

Here, I will, of course briefly, examine some issues related to the individual and collective perception of time and space; I already commented[2] on those issues and the contents of that contribution still keep their scientific validity within the current state of the art, but in this context I aim at defining the pedagogical implications on which I then started to think about. What I want is to report back to the perception of time and space as categories, or, better, to the characteristics of time and space which deeply affect lifestyles and learning styles.

My working hypothesis, four years ago, was: the perception of time and space has undergone such a transformation that they can no longer be read only by the descriptors of *duration* and *distance*. Therefore, I said, they must be respectively integrated with additional descriptors; today, I am even more convinced of that idea, and prefer to read them by the descriptors of *intensity* and *orientability* (that is,

[2] See PICCIONE, Vincenzo (2007): *Pedagogia delle neuroscienze*. Roma: Seam., pp. 15-22. At that time, I considered the four guidelines that see the time 1) as an objectively existing flow reproducing itself, 2) as an experience lived in a subjective and collective way, 3) as a witness of development, which lives and elaborates its concrete and symbolic memory, 4) as a source of identity because it brings to light contents, meanings and processes of individual and social lives. There, I also pointed out the authoritative position of Kant, who believed that time and space must be represented by a synthetic *a priori*, that time is a form of the innate, immutable human nature.

our necessity of choosing rapidly a direction to be taken with the deep awareness of ourselves and of our life context)[3].

My speech, in a few words, follows a pedagogical point of view and refers to the scientific state of the art introduced, among the others, by Marshall McLuhan: the present contractions determined by the use of technical / technological tools and means[4] actually produce deep, even anthropological, consequences in all areas of acting, thinking and perceiving. To explain better: as it always happened in human history, every time we experienced a contraction of time and space in all sectors and dimensions of our life, the following transformations have been producing deep changes in our reality and in our perception of reality. The matter does not seem immediately interesting and influential in terms of educational meaning, but it is in terms of social / communicational / emotional behaviours and attitudes, in terms of thoughts and perceptions, of elaboration and re-elaboration, of learning procedures / strategies / processes.

Some examples can help: the category of *simultaneity* imposes such real time rhythms which produce a time densification experience, sometimes impose a fragmentation disorienting our intimacy and relationships. Probably, it is only in Eugène Minkowski, who has surely given the major impetus to the birth of phenomenology, that we can find one of the first hints at the impact and meaning of densi-

[3] See, for a deeper analysis, PICCIONE, Vincenzo (2007): *Pedagogia delle neuroscienze*. Roma: Seam., quoted, PICCIONE, Vincenzo. *Mappe educative e formative 1. I nuovi setting educativi*. Roma: Aemme, 2008, and PICCIONE, Vincenzo. *The new pedagogical settings*. Roma: Aemme, 2011.

[4] The contractions of the life-cycle of all kinds of knowledge should here be discussed together with the concerned main themes; anyway, the width of my speech could grow and I prefer therefore to quote my books, some in Italian, some in English, while one of them, at the moment, is going to be translated into Spanish.

fication: the perception of a dynamic self, the need of quick answers to the questions raised by our thought, the responsible behaviours asked by the need of rapid and reasoned choices are just some of the reasons that confirm the disappearance of the categories of time and space as absolute and their transformation into relative and independent dimensions. In other words: the perception and perspective of a "here and now" modified into a new perspective which our languages have not yet denominated and that can be defined by the locution "one here and one now"[5]. On one side, simultaneity requires new times and new areas of action, reaction, participation, relational and communicative exchange, thought, reflection, etc., on the other simultaneity either hides or modifies or even deletes the perception of *eternity*: the measure of years, decades, centuries is at present unthinkable. The short duration of the life of objects, technologies, feelings is more realistic, because it is impossible to predict or promise that they will never change; no one can judge whether they became ineffective or poorer than before, but of course everyone is obliged and has the responsibility of proposing alternative models of consumption and use, new forms of loyalty, fidelity and so on. Job, professions, marriages, political beliefs, moral visions that last forever can be no more, and the values that were related to them must to be changed. In the name of brevity, efficiency and rapid achievement of objectives, it is essential that rapidity is the norm in daily dealings, professional matters and speeches, because it is important not to be distracted and be able to examine with clarity and depth, to work for additional targets, to update skills. No one can judge whether this is

[5] PICCIONE, Vincenzo. *Pedagogia delle neuroscienze*, quoted, p. 26.

negative or not, but surely clear and significant codes for behaviours, languages, attitudes are needed.

The category of *stability* seems to disappear as well, as a consequence of the contraction of time and space. The human need for stability does not disappear, because it is still supported by different needs: coherence, continuity, consistency, our need to perceive ourselves as members of a community. It is the guarantee of stability that disappears, as a result of professional, geographical, emotional conditions. We are no longer able to know if we will have the same job for the rest of our life, we are no longer able to promise anyone that we will live with him or her for the rest of our lives, we cannot think of living in the same city because the job, the choices, the directions that we undertake do not guarantee permanence, perennial residence and constant citizenship, but require openness to change, flexibility, eco-citizenship. In other words, we are asked to have the competence of *mobility* among jobs, professions, places, languages, micro- and macro-social contexts, to overcome tangible and intangible boundaries. Paradoxically, reliability, one of the categories that should not be affected, neither by contraction nor by reduction, but, rather, by a strengthening in terms of efficacy, seems to fade[6].

The implications arising from that combination also lead to the paradox for which the exponential increase of speed will eventually cause a substantial immobility. If we read between the lines of this prophecy, the real content of this statement becomes clear: if I can meet with anyone in the world in real time, if my work can be done

[6] From a sociological point of view, the problem has been defined by Zygmunt Bauman's concepts of liquidity and solidity.

remotely, if my communicational experiences can be conducted mainly through a screen, then the need to move geographically and the need to communicate will, probably, have different categories of reference, because my travels can only be determined by actual and intense reasons, and my communicative exchanges can be significantly realized through eye contacts and paying attention only to the reasons of such an exchange. In other words, I could only talk about distance in terms of space between places rather than in terms of space to be traveled; I can pay attention to distance in terms of space existing between cultural positions or ideas rather than to different expectations among partners that exchange ideas and express personal views.

Undoubtedly, this kind of implication can be considered from different points of view: a pessimistic approach may only make me consider the possibility of an overbearing artificiality coming from everyday reality and communication, while an instrumental approach can only provide me with an additional complexity to my daily life, an approach based on the wish to enhance my humanity may suggest that new instruments and new attitudes must enhance directions and guidelines that are attentive to the efficacy of relations and to the significance of the objectives, with new procedures and methods of control of the complexity. In other words, different interpretations could be directed to emphasize my ability to give a meaning to myself and everything I do, rather than allow freedom of expansion to artificiality. In any case, the way I live, think, act, choose, communicate, learn, produce, wish, dream, changes; and the relationship with my body and my mind changes as well. And, at the same time, it also

changes for those who, like me, have an easy access to the use of technological tools. And my body? And my mind? How would my relationship with them change, with my intelligence, with my rationality? It is not necessary to continue stressing that the body participates in the construction of our knowledge, it is not indispensable to certify again that nature produces different effects than artificiality: on the one hand, the same vocabulary suggests the significance that the two terms convey; on the other, Derrick de Kerckhove has already shown how the alphabetical brainframe acts in sequential terms, whilst the TV brainframe requires quick generalizations and therefore a sensory and cognitive functioning in terms of non-sequentiality. In short: yes, whatever the new categories of reference cause, is essential.

Let us summarize: the change in the perception of time and space has contributed to the fragmentation of the categories of duration, eternity, stability, distance, boundaries; this transformation has promoted new additional categories: intensity, simultaneity, flexibility, mobility, permeability. Apparently, the unique dimension that separates and integrates these two classes is movement, but surely they show that, from the pedagogical point of view, it is necessary to modify and integrate new educational approaches and objectives, as the younger generations will need new, additional, important competences, skills, learning tools[7]. At least, younger generations will have to be highly flexible, deeply aware of themselves, skilled and competent while acting and thinking in "one here and one now". Even when they use their mnestic skills, they do in a very different way than I

[7] See, for a deeper analysis, PICCIONE, Vincenzo (2008): *Mappe educative e formative 1. I nuovi setting educativi*. Roma: Aemme.*1*, quoted, pp. 21-31, and PICCIONE, Vincenzo (2011): *The new pedagogical settings*. Roma: Aemme., quoted, pp. 19-28.

learned to do only a couple of decades ago. I used a sequential memory while studying the humanistic and scientific culture from an historical point of view: ancient times, ancient events, ancient human tools and masterworks, up to contemporary ages, from the far past up to the present; I studied geography by the use of the category of distance: my town, my country, my continent, the continents, the earth, the space around the globe, from close to distant places. I was used to manage sequentiality even while working with logical connections, while distinguishing reasons and consequences, while organising strategies and methodologies, while using tools, while reflecting, and so on. At present, the pure existence of an online link produces the effect of multiplying the characteristics of connections: by the links that I find on a webpage, I can choose whether going on by cultural connections or logical connections or pure thematical connections (i.e., if I am reading, let's say, a webpage on Henry VIII, I can, by the possible links, respectively, choose whether reading a new webpage informing me on the Tudors or a different one on the values concerned with the human relationships with women or still another one on the widest collections, wide world, of musical instruments).

This means that present younger generations have, at the same time, the opportunity and the need of using both more complex forms of analysis, synthesis, selection, representation, and new more complex motivating suggestions, new and more complex needs of choosing, deciding, being interested. They must use different forms of their sequential memory, new and more complex logical skills and competences, and so on ... not to speak about the effects of iconic contents and representations. In other words, for younger generations, to be-

long to their own times and contexts not only means to use their cognitive strategies with an original style, unimaginable some years ago, but that their educational rights have been rapidly changing and thickening.

2.2. THE PERCEPTION OF VIRTUALITY

Virtuality is the core issue around which the transformation that we shall deal with in this part operates. This is a very complex issue, full of interesting suggestions, because it introduces a second change, beyond the perception of time and space, so profound as to determine implications in the perception of reality and in the perception of self.

The virtual environment, the opportunity to find new and additional spaces for action, the additional possibility of interacting with other individuals and groups, and, moreover, the possibility of new languages and comparisons, increase the dimension of the symbolic and cultural "movement through" new thresholds and new access(es), new forms of surprise and expectations, new rituals and limits, new narrations and procedures, new behaviours and attitudes, new perceptions and concreteness(es), as well as new obstacles and difficulties, new familiarities and unknown(s), new negotiations and mental processes.

My working hypothesis is: "virtual" cannot be anymore considered as it was; in a few words, it does not only mean "potential", it does not only mean "intangible", it also means "tool and space usable to know and participate". In my view, this transformation changes

and amplifies the areas of educational settings, finally including unique and unrepeatable bodies, minds, brains. Maldonado and Anzieu are here my essential scientific references, because their voices anticipate, I think, meaningful reflections for the pedagogical point of view.

In synthesis, the issue: all sophistications and manipulations that are possible through the use of technological tools seem to significantly change the relationship between reality and its representations. Some authors fear the risk of the gradual redefinition of the relationship between tangible and intangible, real and virtual, permanent and temporary / unstable, material and immaterial. The problem is posed by others on the basis of a necessary distinction: they prefer to stress the concreteness of objects, products and tools that we all use everyday, according to conventional modalities and procedures. With our perceptions, we always gave them the two properties of uniqueness and stability, as they still have specific functions and roles that make them tangible and structured as forms and profiles. Well, at present, the speed at which objects become obsolete is so intense that it causes the reduction of the life cycle of entire classes of them; the phenomenon is characterising not only the products marketed for consumption, but also the instruments used in professions and trades, communications and relationships. And, at the same time, technologies can now produce representations of reality that are defined as more real than reality itself. In other words, the tools at our disposal allow us an important extra processing ability: the objects, the environments, the contexts are not presented, but can be represented on different screens, are there before our eyes, can be ob-

served from different topographic perspectives. With the new long-distance tools of communication, it is extremely common but unavoidable to say that we can come into visual contact with people far away in space, without a real and physical relationship, but with attitudes that require new models of communication and new procedures for information exchanges. However, that all this can lead to a rapid process of dematerialisation of our physicality, of reality, of relationships, seems to be an exaggeration.

Maldonado said that, even if we had to accept the idea for which high fidelity seems to assume a dominant role compared with tangible and visible reality, it is impossible to think at a total impact of dematerialization because our brain, producer of only intangible items, is a material, concrete instrument, system, player, analyzer, observer of recognized and recognizable pictures and iconographic languages. In other words, he says: it is extremely different to state the possibility that we are unable to touch an object, and to state the real dematerialization of reality. In short, interpreting his words, it's time to close the debate between those who argue that reality is the reality in which we move and we can move, and those who argue that technologies are only producing false perceptions of reality. Virtual reality forces us reconsidering our relationships with and our perception of the physical reality, but defines the environments in which human experience is possible, urges the analytical and synthetic skills of the observer, as well as the use of additional cognitive strategies, for example classification, categorization, differentiation, representation, abstraction, symbolization, etc. And the younger generations need to manage them, to be highly skilled at least to live their times,

their world, the tools and communicational styles of their contemporaneousness. If adult generations, like all the other past generations, had always the opportunity of interacting with their world and to achieve those skills and competences that were coherent with the lifestyles of their own contemporaneousness, they make probably several (at least, educational) mistakes when stating that they neither love nor like technological tools, when swearing that they will never use them, when considering them deeply dangerous. Anyway, it is and remains their own problem. It is not younger generations' problem. The latter, at least, have the right to participate, to read, to write, to explain, to deepen, even on webpages, in blogs, in social networks.

Maldonado's ideas are of a particular interest here: they actually open the significant problem about the relationship between a "virtual author" and "a virtual reader". The main effect to be examined here is clearly linked to the centrality of the author and the remoteness of the reader: again, in perfect consistency with what we have previously stated, the distance shrinks, because the online webpages allow the different positions of co-authors and co-readers. To summarize: it does not disappear, in webpages, the position of the original author, who defines an initial track and can affect the routes of the subsequent co-authors; his unquestioned authority, his absolute independence, his unique location, his private staff certainly disappear. The cognitive strategies and procedures involved in coding and decoding, and even those requested by the mnestic systems, do not change; the need to integrate logical and procedural links, to represent and categorize, to think and act in terms of collective relations,

deeply alter the perception of the individual self and the social self, the systemic relations between memory, reminiscence, mind. But three dimensions, in particular, change.

The *first*: the individual memory and the collective memory become public, integrated, representative, synthetic, cognitive processes.

The *second*: the possibility that the author and the reader are visible, can meet in real time, changes perceptions, representations, distances, identities.

The *third*: a transformation occurs of the perception of the writing space, the place which anyone can access, wherever he is.

Why, then, if knowledge is essential for children and adolescents, should we only think that the use of technology is harmful? Why, then, if the use of information technology calls for more sophisticated skills, expands the opportunities for creative expression, increases the possibilities of relationships, should we reduce the access of the new generations to technologies? The answers, generally, are:

— because the use of technology risks limiting the direct, sensory, cognitive, relational involvement of children and adolescents;

— because the use of technology would first of all interfere with the direct interaction with the world and even reduce the chances of a significant relationship with it; the use of technology would therefore limit the opportunities of the child who, at least until the age of four, is hyperactive and unable to restrain his curiosity and his exploration;

— because the use of technology would reduce the necessary space and time needed to concentrate and think, at least from the age of four onwards;

— because the use of technology, especially videogames, on the one hand reduces the chance of having important logical, analytical, synthetic, strategic, methodological experiences, whilst on the other hand would stress non-essential intuitive powers and reduce strategic abilities to simple tactical abilities;

— because the use of technology, especially videogames, would lead to a less competent use of language, impoverish the resources of vocabulary, limit a representative use of the language through the adoption of alternative graphic symbols, contribute to the weakening of significant relational skills.

Then, the technological tools would not allow either exploration or concentration, would lead children and adolescents to a mental and physical passivity that would prevent their perception of the real world, would distract them and cause neglect and isolation, would disorientate and annihilate. Of course, all this should

— confirm that, in children, the path that leads to the transformation of external reality into internal reality, in terms of information processing, should be nothing more than an unwitting and uneducated selection of some insignificant aspect;

— point out that, for children and adolescents, the ability to think logically, to reflect, to make inferences and perceptions,

analyses, syntheses and deductions should be limited and indeterminate, thus enhancing scarce powers of intuition;

— confirm the emotional poverty of children and adolescents, associated with mnestic poverty, poor selection of information sources / information / data, lack of emotional awareness;

— confirm the annihilation of symbolic representations and the impossibility to refer to meanings, values and principles;

— highlight that for children and adolescents brain activity is limited to cognitive development;

— stress that social relations and patterns of communication by children are based on the absence of inner dialogue, on the lack of introspective capacity;

— note that even the recent data on the behaviour of mirror neurons would be valid for adults only.

On the contrary, studies and researches seem to underline that, at least: those who use videogames more frequently or regularly manifest greater visual attention and willingness to acquire information; those, more often women, who use videogames frequently and regularly, in particular three-dimensional versions, improve physical and motor skills; those who enter frequently and regularly onto the Internet show greater willingness in socializing if introverted, less availability if extroverted. What can be noted, in summary, is that the researches always confirm very different approaches: the many, usually scarcely informed, who identify the overall reduction of skills and

associate the use of the media with aggressiveness, anxiety, isolation, disillusionment; the very few, usually widely informed, who make positive remarks in relation to the use of cognitive, perceptual, motor strategies, to the use of language skills and vocabulary. Not to speak about the technological tools used to learn, to know, to participate, to access, to discuss.

I think that the adult generations are losing again an opportunity to understand and deepen. Technological tools are and must remain instruments, whether for cultural or educational purposes. But too many generic words remain too many generic words.

2.2.1. HYPERTEXTS

The mere fact of writing texts, using different procedures of rapid editing, modifiability and reusability, does not eliminate the need for a person who writes, for a writing instrument and for a medium to write on.

And it does not even cancel the action of different systems, since the motor-perceptual, sensorial, muscular, cognitive, nervous ones are always involved and require the use of cognitive strategies, at least, again, analysis, synthesis, codification, decodification, representation, logic, sequentiality.

At least, the opportunity of writing reusable and editable texts requires different mnestic skills, different procedural strategies, different interactions and processes.

The contribution of the instrument (a keyboard, a mouse) used to write is not deleted, because, like all other instruments used by

man in history, keeps its peculiar concrete and symbolical features, rituals, procedures, reliability, effectiveness; furthermore, it specifically participates in the elaboration of thought, shows different ways in producing obstacles to its flow. It may even be perceived as the pen and his ancestors, pure and practical extension of the hand which have been, and are, the instruments, according to Maldonado, of

> — a descriptive and uni-directional *linearity* of the narrative or argumentative flow;
>
> — a logical *sequentiality* (the link between preliminary and conclusive issues, between antecedent and consequent, between subject and predicate);
>
> — a *completeness* (the text has a starting point and an end);
>
> — an *end*: the text is sealed, does not allow further actions by a reader or by a second author, does not allow links with other texts if they are not indicated by the author of the original version[8].

On the contrary, an electronic text is defined in terms of non-linearity, non-consequentiality, non-completeness and does not have an end. In other words:

> — the printed book is linear, bound and standard, while the hypertext is associative and, potentially, unlimited;
>
> — the printed book is unique and autonomous; the hypertext is inclusive and social;
>
> — the printed book is a product, the hypertext a process;

[8] Id., PICCIONE, 2008, pp. 19-28; and PICCIONE, 2011 pp. 63-65 and 58-59.

— the first must be bought and can have its own place on a book-shelf, the second is suitable only for temporary access;

— in a printed book there is a copyright owner, in the hypertext it is sometimes impossible to identify the borders existing among the contributions of different co-authors.

In the elaboration of a hypertext, the strategic and cognitive processes involved do not change: at least, codification, decodification, and even the processes promoted by the mnestic systems are always involved. Of course, again, as I already stated about pure virtuality, the need to integrate connections and links, to represent and categorize synthetically the narrative directions, to think in terms of collective relationships, deeply alter the perception of the individual self and of the social self, the systemic relations existing between memory, reminiscence, mind. The emotional quality of the contribution offered by each author and each reader does not disappear; even the narration of private dimensions does not disappear.

3. A NOMADIC AND NARRATING SELF

It is my opinion that the above discussed problems already introduced new metaphors and contents within the pedagogical lexicon. The competences that I have been indicating, the younger generations' needs that I have been stressing, the effects of the changes that I have been underlining, have already, for example, modified the representation that we have of a scholar, of the man / woman who studies. He / she cannot be imagined anymore as a silent, concen-

trated figure who, all alone, silently reads or writes in a silent room. At present, his / her representation must be modified: the access, the participation, the contribution as co-author, can produce the representation of a concentrated figure, but deletes the presence of silence; he / she has different motivating and interesting sources, more opportunities to foster his / her own creativity, new boundaries to fight against, but, above all, can be defined as an *internauta* who needs to manage a nomadic, social, narrating self, who needs to live with his / her contemporary and previous metaphors, with his / her pairs and with the adults, who needs to know their experiences to understand better his / hers. Actually, the contents of our experience are defined, clarified and explained by *their historical connection, unique and unrepeatable, and nothing else; this concept refers to the introduction of the concept of the history of inner life*[9]; the value and meaning of each individual story of an inner life cannot be perceived as being determined by either functions or operations. That value and that meaning can be understood in their design, but they have to be perceived as determined by individual choices and motivations, above all they must be considered as belonging to an original, unique, unrepeatable, psychophysical and spiritual synthesis. Of that synthesis, the author of an inner life story narrates the threads and knots of the patchwork describing the basis of a temporal relationship that binds a specific moment to a story that lasts many years, from a viewpoint that may be different depending on the simultaneous presence or absence of an author, a storyteller, a character. The goal that this defi-

[9] See BINSWANGER, Ludwig (1955): *Ausgewählte Vorträge und Aufsätze*. Bern: Francke, p. 44. See, also, to deepen Ludwig Binswanger's point of view on narration, my *Pedagogia delle neuroscienze*, quoted, pp. 22-37.

nition of narration allows us to achieve is important because it allows, first of all, to overcome the distinctions that separated the individual from his social micro-groups and social macro-groups; it enables the definition of the space, any space, as a common area; it allows us to overcome the distinctions that separated the relationship between external and internal, near and far, above and below the sky; but doesn't propose at all the elimination of spirituality. On the other hand, it allows one to reflect on the reality in a systemic relation, suggests a connection between original public and private spheres, proposes cultural growth as a quest for meaning and not as a lack of notions and expertise, solidifies the senses of "being part of", requires participation, chooses a nomadic life as a value, summarizes the opportunity to combine executive, iconic and symbolic representation; enhances the process of internalisation.

This model of narration owes much to Jerome BRUNER[10], because it chooses the stability of self-reflexive and aware behaviours and attitudes.

3.1. TELLING AND DESCRIBING AS REFLECTING

The possibility of finding more and more space for action, the possibility of additional dialogues with individuals and groups, as well as the possibility of new languages and comparisons, increase the symbolic and cultural dimensions of the "movement through" new thresholds and new inputs, new "Hercules' columns" and routes, new forms of surprise and expectations, new rites and limits, new narra-

[10] See BRUNER, Jerome (1986): *Actual minds, possible worlds*. Cambridge (Mass.): HUP.

tions and procedures, new behaviours and attitudes, new perceptions, as well as new obstacles and difficulties, new familiarities and unknown(s), new negotiations. Whilst, however, for the contemporary adults the new virtual territories are often *no man's lands*, for the new generations they are and must be the land of possibilities, to be visited to learn; the pedagogical problem is that, as always, children and adolescents have the right to be protected during the tests that the movement to and fro new thresholds and accesses, have the right to be accompanied in the making of an identity which may have the features already defined as of a *border identity*: they are identities that not only perceive and experience culture, knowledge, languages, vocabulary, comparisons, even the awareness that exists on both sides of a threshold, but perceive and experience the wealth of additional opportunities, habits, meanings, values, principles, curiosities. Obviously, the border identity is to be understood here as a dynamic identity that lives close to a threshold, whether it is a real geographical border or a metaphor. Which are the characteristics which that identity should have? Summarizing, the categories of permeability and superability define the thresholds, the category of availability, mediability and ductility define the identity of the border. In short, a border identity is a protean identity, multiple, usually able to recognize the others, to explain, to access, to accept differences and distinctions, to negotiate contents and meanings, to reduce "extraneousness", to get used to cross through and back. But above all, the border identity does not perceive the space to cross as empty, as a distance or an absence, but as a stable, dynamic and transforming place. The border identity may then well be a *nomadic identity*, that chooses when, how, why to move, with whom, where, why to meet,

what to learn in a coherent way with his motivations and interests, what to introduce in his dialogues, monologues, narrations. Actually, he is able to read, write and participate to micro- and macro-narrations.

The reason why the great narrations deserve a great pedagogical interest today, even with the use of currently available technologies, is in the possibility of elaborating biographies, autobiographies, socio-biographies and psycho-biographies. The collective narration is more than just word processing, it becomes reading and interpretation, immediate awareness within a multi-projectual seat. And of course it fosters primary skills, supports the improvement of secondary skills, at least:

— *analytical*: not only do they ask us to understand ourselves, our competences, our limits and preferences, but also our awareness of the characteristics of the context within which our designs may be effective. They correspond to: what do I know and what can I do best, what do I want, what do I prefer, what exists around me, what features does the world around me have, what are the characteristics of my specific field of interest;

— *synthetic*: they require the ability to find significant relationships between the results of the analytical process and a kind of overview that can not be the sum of the identified details. They correspond to: which kind of compatibility exists between what I do best, the world around me and the scope of my specific interest; which are the reasons for that compatibility, which is the significance of the details captured by my anal-

ysis, which is the meaning of my synthesis, which is the meaning of the analyses and syntheses produced by individuals who have the same specific interest I have;

— *metacognitive*: they require the use of cultural, mnestic and interpretative tools. They correspond to: which are the concepts and cultural tools, that I have and can get quickly, that allow me to better understand my analyses and syntheses; which are the technical, methodological and strategic instruments, that I have and can get quickly, which enable me to find compatibility between myself and the specific context of my project; which are the compatibilities that exist between those skills, those concepts, those tools and my preferences, my wishes, the possible directions of my project; which is the overall compatibility that exists between all these aspects and the possibility that a context will approve and accept my project;

— *orientative*: they require refined skills of observation and reading of phenomena, aiming at understanding the possible direction of social and collective orientations. They correspond to: which are the reasons of preferences, decisions, individual and collective choices, which compatibility exists between my analyses, my syntheses, my meta-cognitive approach, my directions and the collective ones;

— *re-elaborative of values*: they require sophisticated emotional skills in order to understand values and principles orientations that characterize micro- and macro-contexts. They correspond to: in the name of what meanings, values, individual and collective principles do the identified orientations move;

what compatibility exists between the values and the actual and possible principles of the close future;

— *programmatic*: they require skills in planning and programming a project. They correspond to: which are the times and spaces that my project must foresee in order to guarantee consistency between what I intend to do and what will be possible in specific times, which are the crucial strengths and weaknesses of my plans and project;

— *reflexive*: they require sophisticated logical, representative and interpretative skills. They correspond to: what are the reasons that can make my project work, what makes my plan original, in this context, what are the characteristics that ensure that my project will be able to give meaningful answers in projectual terms.

Introspective and retrospective thinking, perspective thinking, narrative thinking, all of them reflect upon the contents of the processes previously indicated from a point of view that argumentative or logical-argumentative thinking might have missed, because they are all defined by characterizing specific procedures, not from mere historical reporting. In fact, the former come from a deep reconsideration, both deconstructive and reconstructive, logical and exploratory, symbolic and hypothetical, self-critical and meta-cognitive. This reconsideration should be achieved through procedures that require research, reasoning, intent, motivation, selective and distinctive skills, discernment and insight. In other words, it includes, at least, research, analogical reasoning, quasi paradigmatic logic. The narrative

thinking therefore requires the actions of different tools, competences, approaches, dimensions, and among them:

— mind and memory,

— reasoning and interpretation,

— re-evocation and recognition,

— association and differentiation,

— abstraction and symbolization,

— denomination and semantization,

— description and representation,

— regulation of behaviour and communication styles,

— comparison and contextualization,

— organization and reorganization,

— access to knowledge and skills,

— investigative styles,

— curiosity and interest in one's and other's plots,

— motivation to read and write plots.

In the autobiographical narration, then, different shapes and models are shown; they depend on the same perception that any author or co-author has, and therefore on further revisions consistent with purposes and functions. In other words, it may foresee formal, operating, strategic procedures[11].

[11] See, to deepen, PICCIONE, Vincenzo. *The new pedagogical settings*, quoted, pp. 111-25.

4. A NEW CHALLENGE: TOWARDS EDUCATION'S CORE

The keywords in the pedagogic vocabulary do not change, because they still are responsibility, creativity, intentionality, choice, autonomy, participation, sense of citizenship, etc.

To renew the reasons of education means, from my point of view, to support a new idea and new forms of educability, based on different dimensions:

— accessing in order to learn,

— perceiving in order to learn,

— interacting in order to learn,

— knowing in order to learn,

— understanding in order to learn[12].

And it means that new categories for educability must be elaborated; at least:

— as to reasons: logical and phenomenological consistency, adequacy, credibility, significability, mediability, interestability, motivability;

— as to contents: logical and argumentative consistency, appropriateness, reliability, functionality related to objectives and tools, understandability, coherent modularity, flexibility, usability and reusability, customisability, contextuality, updatability, plurality of viewpoints;

[12] See, to deepen, ivi, pp. 136-77.

— as to methodologies: logical and organizational consistency, systematic propaedeuticity, malleability, intentionality;

— as to resources and settings: logical and instrumental consistency, usability, flexibility, planning of experimental workpackages, dynamism, shareability, synchronicity.

4.1. A HEAD WELL DONE, OR EDGAR MORIN'S WELL HANDLED CHALLENGE

The challenge seems to be well taken up by Morin, but perhaps we should say something about the way it is conducted: in my opinion, it is not a question of agreeing or disagreeing with the contents and means of his proposal, because it is not difficult to agree with him. What we should note is the total absence of any reference to technological tools, as if they were not included in a humanistic culture, as if they could not be used to access or to produce it. In short: Morin says that humanistic culture is classic culture.

I think that a new definition must be used pedagogically; at least, pedagogy should even use a lexicon coming from other scientific fields. In this case, even the definition of *widespread knowledge* can help, because it seems to be concerned with all the issues that I have been analysing so far:

— logical and nomadic, non-linear, non-sequential access to knowledge,

— parallel and non-linear processing,

— competences in selecting and choosing while connecting,

— competences in selecting and choosing actions and not only expectations,

— availability of technology tools,

— integration between personal pleasure and games in the workplace,

— integration of non-tangible solidity in reality,

— wide integration between graphics and sonority in textuality.

In other words: the necessary availability to change asks for new attitudes and new approaches. It asks younger generations to be global, it asks adult educators to re-think roles and ethics. Of course, those effects fall within traditional scholastic settings and within non-scholastic educational settings or parallel school. Above all, they allow the opportunity of elaborating new educational approaches, new educational methodologies and strategies, aiming at overcoming the boundaries that still exist among different educational settings.

Actually, the effects of these preliminary issues stress the necessity

- to integrate formal, non-formal and informal skills,
- to strengthen the relationship between content, concepts and meanings,

or, better, they stress the necessity

- of interdisciplinary choices,
- of permanently moving the attention on learners,

- of network actions and collaborations.

As one can see, new necessities do not appear new at all, but their meaning and sense do. Either we accept the fact that traditional approaches and strategies cannot face new challenges or we must say that Neil Postman, more than ten years ago, was right: if schools do not change their styles, it will be better to close them and give younger generations, at least, the opportunity to be free to learn wherever better opportunities will be available.

What for us, either as educators or pedagogists or adults, should be of interest is: personal responsibility and professional ethics are forced to mature quickly and regain the true role of education, which is to foster interest, motivation, pleasure to learn and use critical thinking, because the skills and awareness(es) required, to those who like to know, are many. Secondly, it reaffirms the value and meaning of great narrations, in terms of participation and promotion of the perception of being part of a macro-society. The re-appropriation of the content and meaning of the great narrations must have the aim of opposing standardized concepts and sources of knowledge.

The reason why the great narrations of modernity confirm to have values and meanings deeply renewed is in the fact that they can become biographies, autobiographies, socio-biographies and psycho-biographies. The narrative approaches become collective as well as word processing, become reading of single and social identities as well as interpretation, become "movies" instead of "snapshots". The collective narration is able to promote core competencies as it fosters

the continuous re-elaboration on the meaning of identity, and supports the improvement of important skills because it requires new communicational, social, projectual tools. In a few words, it requires completely different processes, at least analytical, synthetic, metacognitive. And even collective. In fact, why should there be problematic situations in promoting a collective or cooperative thinking? What is the loss of value in the collective processes which define and make meanings, relationships, therefore use knowledge, collective memories, proposed and shared meanings? The thinking, whose processes and procedures are fostered within a giant document distributed and in constant construction, is an anti-dogmatic, experimental, ironic thinking, able to aspire at global perspectives, interdisciplinary syntheses, immediate and emotional responses. To the distances among individual thinking styles one adds the ability to contribute to a collective thinking, to the figure of the unique author one adds the co-author, to the unique text one adds the text produced with the participation of several cultures, to the perception of the body that writes and thinks in solitude one adds the perception of the body which also acts in other spaces and other times, to the perception of the mind that reflects and focuses one adds the mind that makes knowledge and meanings with the others. And all of them — personal and collective thinking, unique author and co-author, single and collective text, own body and collective body in concrete and virtual reality, own mind and integrated mind, individual and collective memory — are integrated with each other online and according to dynamic relationships. Once again, therefore, I believe that the educational problem is elsewhere: in this reality and with these perspectives, what is the sense of self, the perception of identity that the growing generations

have the right and duty to develop, what are the skills that they have the right and duty to improve, what are the reasons for which the educational professions have the right and duty to state the importance of their role and their functions, what are the reasons for which all the educational figures have the right and the duty to foresee the meaning and content of their profession? The new identities need to provide for additional reference categories, which cannot be false or fake; those identities must clearly perceive themselves as competent in the relations me / world, inside / outside, internal / external, real / virtual, natural / artificial, here / everywhere, here now / everywhere now, material / immaterial, permanent / transforming, stable / temporary, defined / partial. But the perception of self as identity and integration of body and mind cannot disappear, the possibility that technologies manage to change our bodies in cyborg bodies will undoubtedly foster someone to change his appearance, but if educational projects will work, the risk should be limited because they will be able to demonstrate with authority and clarity the importance of meanings, values, human principles, because they will be able to explain that to the traditional extensions of the body (shadow, voice and strength) one can add the extension of thinking.

Actually, the processes of dematerialization and the appearance of virtuality, as well as the modification of the categories of duration, stability, distance, symmetry, sequentiality, linearity, causality, predictability, brought new reference categories: intensity, simultaneity, adjustability, ductility, flexibility, reticular, logical and procedural sequence, integration, narration, mobility, permeability, negotiability. That which separates the two classes of categories, in this case, is of

course only in one's intent and ones' motivation, provided that the world is reliable, credible, flexible, reachable.

CONCLUSIONS

The problems above discussed give the opportunity of elaborating several conclusions, some of them general, some more specific.

A. The key words of the pedagogical vocabulary do not change, because they still are responsibility, creativity, intentionality, choice, autonomy, participation, sense of citizenship, mediation, reliability.

B. At the centre of the learning processes there are not the contents to be learnt (which remain necessary), but the educational objectives, the strategies and methodologies aiming at fostering the achievement of learning competences.

C. The possibilities to define thematic connections, to build thematic networks, strongly insist on the need for interdisciplinarity and on the need of a kind of knowledge which allows understanding and narrating.

D. Children and adolescents need to belong to their contemporary world, to know its instruments. They have the right to socialize their contents and techniques of use. They do not have the right to own them, but have the right to be guided by adult generations.

E. Above all, children and adolescents have the right to be accompanied while making their identity able to experience and

live culture, knowledge, languages, vocabularies, critical thinking, awareness(es), motivation, opportunities, practices, meanings, values, principles, curiosity, respect, changes.

F. Therefore, skills, competences, preferences, personal styles when communicating, participating behaving, when living — with a "well-done head" — social relations, self-perceptions, cultural objects and tools, should allow children and adolescents to

— live the greater involvement made possible by networks and their processual interdependence;

— perceive themselves significant and committed, able to interact online through processes which are at the same time cognitive, social and communicational;

— act in a responsible manner, fluid and diversified, depending on audience and contexts;

— reflect on multiple stages, within individual and collective scripts;

— participate, cooperate, taking on new ethical standards;

— use a systemic, organized thinking;

— be aware of the value of the thoughts of other people;

— be aware of their creative abilities, breathe social trust, empathy, intimacy in their social relationships, aware of the role of culture for the preservation of civilization;

— access to learn, perceive to learn, interact to learn.

G. To think about the use of technologies as educational tools, for example as writing tools (pen and pencil may well be accompanied by keyboard, mouse and laser), means thinking about tools that enhance visual-spatial, motor, perceptual, cognitive, neuropsychological, narrative abilities, and allow the perception of reality in terms of systemic connections, in terms of connections of inner and outer spaces and times;

H. In concrete, children and adolescents are offered significant opportunities:

— the boundaries among the educational settings disappear;

— the boundaries among the settings, where formal / non formal / informal skills are acquired, disappear;

— the boundaries among the settings, where individuals and social individuals test themselves, disappear;

— the need for the systemic educational role of the adult generations is reaffirmed;

— the need is confirmed for a pedagogy aiming at care, a pedagogy by objectives, a pedagogy that can grow and become a model.

MAIN BIBLIOGRAPHICAL SOURCES

ANZIEU, Didier (1994) : *Le penser, du moi-peau au moi-pensant*. Paris: Dunod.

BATESON, Gregory (1980). *Mind and nature. A necessary unity*. New York: Bantam.

BAUMAN, Zygmunt (2006): *Consuming life*. Cambridge: Polity Press.

BINSWANGER, Ludwig (1955): *Ausgewählte Vorträge und Aufsätze*. Bern: Francke.

BRUNER, Jerome (1986): *Actual minds, possible worlds*. Cambridge (Mass.): HUP.

CAMBI, Franco (2005): *L'autobiografia come metodo formativo*. Roma: Laterza.

GARDNER, Howard (2006): *Five minds for the future*. Boston: HBSP.

MCLUHAN, Marshall (1962); *The Gutenberg Galaxy. The Making of typographic man*. Toronto: UTP.

MALDONADO, Tomás (2005): *Memoria e conoscenza. Sulle sorti del sapere nella prospettiva digitale*. Milano: Feltrinelli.

MORIN, Edgar (1999): *La tête bien faite*. Paris: Seuil.

PICCIONE, Vincenzo (2007): *Pedagogia delle neuroscienze*. Roma: Seam.

PICCIONE, Vincenzo (2008): *Mappe educative e formative 1. I nuovi setting educativi*. Roma: Aemme.

PICCIONE, Vincenzo (2011): *The new pedagogical settings*. Roma: Aemme.

SEVILLA, Jean (2007): *Moralement correct. Recherche valeurs désespérément*. Paris: Perrin.

SMORTI, Andrea (1994): *Il pensiero narrativo. Costruzione di storie e*

sviluppo della conoscenza sociale. Firenze: Giunti.

STERNBERG, Robert J.; SPEAR SWERLING, Louise (1996): *Teaching for thinking*. Washington: APA.