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Among the challenges of research in the fields of education, science and the arts, we can highlight the search for partnerships and the different forms of international cooperation that have provided true experiences of alterity as part of the growing internationalization of our universities. In the search for dialog that seeks to affirm the singularity of each context, going beyond geographic and cultural frontiers, we face increasingly hybrid and interdisciplinary educational initiatives and the creation of new research centers, courses and curricula that reinaugurate discussions and indicate the emergence of new questions.

The proposal and theme of this volume arose in this context, with the objective of reflecting on some of the challenges that contemporary society has presented to consider the relationships between culture and technology from the perspective of education. To do so, we chose to take a look at public policies, experiences with research, and teaching and learning with digital technologies and their new methodologies, ethics and aesthetics.

The diversity of educational and cultural practices and styles that has appeared for confronting the difficulties that each school and university faces to continue to fulfill its role in recent years has indicated different perspectives, tensions and dilemmas in the education of children, youth and adults, from early childhood education to universities. Among these many challenges we highlight the importance of social, digital and cultural inclusion, understood as forms of mediation, which help avoid polarizations and minimize and reduce the gaps between teachers and students, particularly when it comes to using technology. These gaps are generational, between the formal and informal, or may relate to participation, language, knowledge and culture, as Rivoltella affirms (2013, p. 17).

At the same time in which we face these gaps that separate the different contemporary forms of searching for possible responses to the crises in education found in different countries, we recognize the desire to establish networks and bridges. In the epigraph of his book Polegarzinha, Serres (2013, p. 11) inspires us and incites us in the art of this undertaking: “Before teaching anything to someone, it is at least necessary to know this person. These days, who is a candidate for school, from elementary school, to the university?” The responses to these reflections point to the need to not only construct new contents but new methodologies, and to have the courage to face the unknown and the daring to invent, considering that for Serres “the only authentic intellectual act is invention” (54).

Efforts to invent and or reinvent new contents and new ways of teaching and learning in the context of the inclusion of “new technologies” in schools, based
on different public policies, create opportunities for reinterpretations. To signify the new cultural practices resulting from this relationship that we observe in studies and in pedagogical practice, Serres recalls the importance of listening to many sources including the noise coming from outside the school, to the conversations in the halls, to the murmur of students in the back of the class, and to the silence provoked by the exchange of messages sent from under the desks, hidden by books, notebooks and or different screens, at times disobeying the teacher’s request. As one 9-year-old Brazilian student said about the use of laptops in school, in the context of a study about the One Laptop per Child Project: “the school remains the same, its just more technological” (in Fantin, 2013).

This sincere observation, which can also be understood as a child’s refined perception, reinforces the conclusion of various studies: that the insertion of technologies in the school is not enough to transform pedagogical practices. This leads us to perceive the “communicative ecosystem that constitutes the diffuse and centered educational surroundings produced by the media” (Martín-Barbero, 2004, p. 59). It is a look that contrasts the modern with the traditional, based on the cultivation of memory and creative intuition, but which also strives to establish dialog and the sustainability of our projects in schools that indicate the need for changes: changes in learning environments, in the reconfiguration of educational spaces, in the emergence of new educational paradigms and in new models for teaching and learning.

Nevertheless, as much as the rapid technological growth changes the forms of interaction, production and dissemination of knowledge in different spaces of society, we know that public education policies and schools do not always accompany these changes. This leads to even more questioning about the role of schools and our role in this formative context that varies according to social, political, economic and cultural conditions.

We organized this edition to discuss some of these questions and to problematize a number of issues such as: the way that public policies for insertion of technologies in schools have dialoged with academic studies; the ways that different socio-cultural contexts have faced the challenge of social, political and digital inclusion; the importance that scientific and academic debate enrich and qualify the diversity of pedagogical practices and forms of appropriation of technology in schools; the need for new theoretical-methodological approaches to research to capture the intensity, effervescence and diversity of phenomenon that emerge from the culture; the creation of new methodologies to transform and or enrich the teaching-learning processes inside and outside schools; and the importance of new sensibilities and aesthetics in this creative context.

This volume brings together researchers from different countries and universities, who share a bit of their studies. It is organized in three sections.

The first section addresses aspects of the relationship between children and youth with the digital culture, whether mediated by the family or mediated by the school as a result of public policies for digital inclusion.

Upon discussing the aspects of childhood and its unprecedented daily mobilities, the text Unfolding the Pushchair. Children’s Mobilities and Everyday Technologies, by Susana Cortés-Morales and Pia Christensen, of the University of Leeds, invite us to consider mobility as the effect of multiple human, social and material relations and their technological interdependences. Based on actor-network theory and new social studies of childhood, the text is based on an ethnographic report and suggests that certain technologies found in the daily life of babies can also act as extensions of them and serve for the mediation and cre-
ation of networks of interactions that are part of the social life of children and their families, constructing other forms of agency.

The article *Education and Digital Culture: Constructions of the One-to-one Learning Programme in Buenos Aires City*, Maria Florencia Ripani, Ministry of Education of Buenos Aires City, presents the experience of the Sarimiento Plan in the city of Buenos Aires. Based on a qualitative and quantitative study, the article presents aspects of a pedagogical proposal for the insertion of mobile technologies in the one-to-one model by means of observations, commentaries and statements of children, parents and teachers. It thus gives visibility to changes in practices and attitudes based on motivations from digital integration and inclusion, which can create new spaces for consensus and collaboration and point to new directions for the construction of this type of project.

Based on an inter-institutional study of the One Computer Per Student Project: Administration and pedagogical practices with the laptop in Brazilian schools, in the text *Education-Research in Schools: Places and authorships in question*, Elisa Maria Quartiero, of the State University of Santa Catarina and Monica Fantin, from the Federal University at Santa Catarina, Brazil, examine a case study and emphasize the relationship between the university and the school based on a conception of research-education. It involves a reflection on an experience with the participation of student-instructors, who in a process of learning, use and appropriation of mobile technologies in school, question authority and knowledge and create new dimensions in the relationship between teachers and students.

The article *Growing and learning in multidimensional surroundings. Connecting inside and outside school experiences*, Juana Sancho-Gil and Adriana Ornellas, of the University of Barcelona, presents other meanings of the changes that young people experience through social experiences of learning in contexts mediated by digital technologies and social networks. Experiences, expectations, values, attitudes and forms of learning that are distinguished from modes of learning are problematized in a collaborative study with and about young people.

The second section addresses two experiences with and about e-learning, one in elementary schools and another in higher education.

In the text *Applying a flexible approach in a professionalizing online course: a case study*, Lorella Giannandrea and Laura Fedeli, of the University of Macerata, address a case study of an online professional course for the education of instructors. They highlight the potential of flexible designs and of different spaces and tools used in the course to reflect on learning processes and new attitudes constructed by elearning. This flexibility is also understood as a characteristic necessary for the construction of the professional profile of teachers and instructors.

Meanwhile, the article *Social Network Analysis of a Blended Learning experience in higher education*, by Pablo Maraver López, Ángel Mojarro Aliño and José Ignacio Aguaded Gómez, of the University of Huelva, reflects on elearning based on a research experience that combines face-to-face proposals with online/virtual sessions in higher education. The authors call attention to the structure and construction of networks in learning environments based on forums for discussion and analysis of messages shared by teachers and students.

The third section presents methodological and aesthetic questions that permeate different processes of learning and various relations discussed above.

In the text *Episodes of Situated Learning. A New Way to Teaching and Learning*, Pier Cesare Rivoltella, of the Catholic University of Milan, presents aspects of a new methodology that seeks to articulate informal and formal learning by means of a conceptual framework (based on microlearning, theory of simplicity,
neurodidactics) and its structural operationalization based on Italian studies conducted in schools and universities.

Finally, to complete the volume by raising other questions, the article On the Sense of Aesthetic Experience, by Roberto Diodato, of the Catholic University of Milan, discusses sensitive and corporal knowledge, its changes, expressions and the variations in sensitivity and in cognition provoked by new technologies and by virtualization processes. Among the specific and current tasks of aesthetics, the author discusses the challenge of the aesthetic experience and of philosophical thinking in the context of art and philosophy.

In this route that involved a careful educational, cultural, philosophical and aesthetic examination, we express our special thanks to the trust of Prof. Pier Cesare Rivoltella and the support of Prof. Andrea Garavaglia, to the editors who agreed to contribute to this issue and to all the colleagues who accepted this invitation. We hope that the good company of these authors and their texts will offer pleasant surprises that are part of an adventure in knowledge and that any bewilderment caused by cultural differences do not inhibit continuing and or constructing new exchanges and bonds.

As an invitation to this “reading excursion” through so many known and unknown places, and the other possible literary, poetic, scientific, philosophical and academic partnerships, I seek inspiration from the Infinito viaggiare, by Claudio Magris: “‘Why do you travel through these lands?’ the standard bearer asks the Marquês who is at his side in Rilke’s famous ballad. ‘To return’, he responds.”

Santa Catarina Island, December 2014

References

Within the social studies of children and children’s geographies a long-standing concern has been to study children’s everyday mobility, where mobility has been thought about as an individual independent capacity. In this paper we argue for a conception of mobility as an effect (or product) of multiple human, social, material including technological interdependent relationships and connections. We draw upon Actor-Network Theory, particularly in the way it has been developed in the so-called ‘new wave’ social studies of childhood and in relation to perspectives in wider studies of mobility. Bringing these frameworks to the study of children’s mobility suggests that everyday technologies, like the pushchair, can act as extensions of the self, having a key role in creating, changing and (de)stabilising the networks of interactions that compose the social life of children and families. In illustrating and discussing some of these ideas we focus on a simple ethnographic account: a family journey to a playgroup. We unfold the role of the pushchair in young children’s mobility as a non-human artefact performing a circulatory role in different directions and as an extension of different agencies.

Life of pavement stones. We are walking my son and I. He is three years old and we now move at his pace. A few minutes earlier I had tried to gently pull him along with me - making encouraging noises and comments: "Come on, now let’s go!" but then I became fascinated with his preoccupation with 'seeing the surface of the pavement stones' as if it was the first time. The pavement stone we had stopped at was full of life – the life of a few ants running in different directions. My son follows one of the ants with his finger maybe in an clumsy attempt to touch it? This is for me a magic moment of the everyday, which I am now sure I would have missed if we not both had looked down to the ground, to our feet, bending down, touching and looking at life from many different angles (Author 2, family notes 1987).

"Lisa chose to walk for a bit. Already for a little while she had strenuously attempted to crawl out of the pushchair. Her mum Gabrielle had just stopped to offer her a supporting hand to get onto her feet. Now standing next to us, Gabrielle told Lisa to hold my hand, encouragingly asking me: ‘Can you hold her hand?’ I did. The sidewalk was quite narrow, so Gabrielle was walking in front with the pushchair carrying Jasmine, who is still a baby on her arm. (…) Our walk was very slow and often interrupted, as Lisa stopped at flowers she spotted at the side of the road: ‘Look at that one!’ she would say to me pointing to a flower. I replied dutifully: ‘Oh, yes, tulips!’ or ‘oh, orange flowers’ and ‘purple flowers’ then beginning to feel real engagement in Lisa’s company and the flowers we encountered, I asked: ‘Which one do you like the most, Lisa?’ and so on, and then add ‘ok, let’s go Lisa’ as I was aware we were slowing down the walk home. Every so often I observed Gabrielle made a halt to see whether we were catching up with her (…) After a while Gabrielle asked Lisa if she wanted to go on the buggy again and Lisa agreed. She climbed onto her seat (…) we kept walking, but for the remainder of the walk I noticed how I was now chatting with Gabrielle, whom I had direct eye contact with, and none of us spoke to Lisa, who sat with her back to us looking ahead on the pavement”. Today, I realised that often I have used my walks to and from shops or playgroup to talk with the parents, - now when everybody is walking, the dynamic of our relationships is very different, and the rhythm is marked by children’s own pace and experiences. (Author 1, Fieldnotes, walking to church playgroup with Lisa, Jasmine and Gabrielle, 29/04/14).

Introduction

As an everyday technology, the pushchair allows adults and children to move forward together at the same pace. In the fieldwork notes above, it becomes apparent that the pushchair forms an important part of a ‘network of walking’ that influences how interaction between the humans takes place and how they experience their environment, including, for example, encountering flowers. Imagine the smooth rolling of the pushchair’s wheels on the asphalted pavement that allows steady and quite speedy progress on the road. However, when Lisa (the young girl) is in the street as a pedestrian, walking and holding hands of the researcher, the patterns of movement and interaction change. Instead of sitting relatively passively in the pushchair, Lisa emerges as a powerful influence on the
pace, direction and rhythm of the walk: stopping, stepping forward, taking a new
direction, stopping, moving ahead. The social interactions change to lively point-
ing, looking and chatting – contrasting with when she sits in the pushchair being
pushed forward by her mum, when the main communication becomes one be-
tween the researcher and her mum. With both feet on the ground Lisa also di-
rects attention to the flowers, the soil and the asphalted surface of the street
and thus changes the view and experience of the street.

In this article we discuss the role of everyday technologies in children’s mo-
bilità from both theoretical and methodological points of view. In doing so, we
draw upon Actor-N etw ork perspectives of the social (Latour, 1993, 1999a, 2005),
particularly as developed by Alan Prout (2000b, 2005) and André Turmel (2008)
in relation to childhood and technologies. From this theoretical point of view we
reflect on ethnographic data from studies of children’s mobility. In the paper our
starting point is the notion of “everyday mobility”, although we later will go on
to problematise it. Everyday mobility refers to the whole spectrum of bodily mo-
tion that children engage in during their daily activities (WHO, 1998), from the
stationary activities made while staying in place to the more vigorous physical
activities made within a place (Casey, 1996), including the notion of everyday
mobility in terms of travel between places, defined as:

... all travel from home undertaken on a temporary basis. This includes
frequent and regular trips such as the journey to school or to work; less
regular but still frequent trips to visit friends or relatives, to shop, for sport
and for other leisure activities including children’s play; and trips under-
taken only once or twice a year such as holidays and visits to distant rel-

Research on children’s mobility within the social studies of childhood and
children’s geographies has mainly focused on children’s journeys between home
and school and to some extent their wider use of their local communities. This
research has contributed to establishing a knowledge base and significant public
debate, arguing that within the last two generations European and North Amer-
ican children’s mobility patterns have changed radically (Hillman et al., 1990;
Karsten, 2005; Keim, 2005; O’Brien et al., 2000). Compared to the childhood(s)
of their grandparents, children in contemporary Europe and North America are
subject to markedly greater restrictions on their everyday movements (Pooley,
C., Turnbull, J. & Adams, M. 2005, p. 139-157). This increased regulation and
monitoring of children’s outdoor activities (O’Brien et al., 2000; Valentine, 1997),
it has been argued, arose out of a greater institutionalization of childhood (James
et al., 1998; Rasmussen & Smidt, 2003; Smith & Barker, 2000), and heightened
risk awareness among parents and children themselves (Hillman, Adams, &
Observations of children’s increased dependency on adults for everyday journeys
led childhood researchers to argue for a focus on children’s independent mobility
as a lost common good.

A suite of studies developed in the context of the new social studies of child-
hood emphasises on the idea of agency as a key concept in the understanding
of children (James and Prout 1990/1997). The radical decrease of children’s in-
dependent mobility observed, within this framework, was understood as a criti-
ical phenomenon detrimental of children’s agency. Methodologically this implied a preference for studying children ‘on their own’ (Kraftl, 2013), implicitly celebrating the physical absence of adults, as the key characteristic of children’s independent mobility (Author 2, 2009). But this approach provoked questions: where are the rest of the community, among whom the children live, and from whom we can barely hear a distorted voice, or see a hint of a foot? Where are the elders of these children and how do their mobilities relate to the children’s?

The idea of independent mobility has contributed to greater understanding of the societal changes that have re-shaped children’s mobility practices over time. But the concept of ‘independent mobility’ has been used without clarifying or questioning its theoretical underpinnings (Author 2, 2009). Most studies rely on the developmental assumption that young children are essentially dependent on adults but only as a stage to be overcome. This is an assumption that may well have contributed to an apparent lack of research concerned with the mobility of young children. The consequence is that research on children’s mobility focuses on the age at which children are expected to move ‘on their own’, namely without adult company, thus cutting the wider networks in which children’s movements are located (Author 2, 2009). This body of work views mobility “from the perspectives of adults and not from children’s own meanings of it (…) and reflects a cultural focus on individuality and autonomy” (Author 2, 2009:39, 40).

Treating the idea of agency underpinning children’s independent mobility as an essentialist and humanist concept: agency is here comprehended as a human attribute that belongs to (independent) individuals (Prout, 2005; Turmel, 2008).

Mobility is usually referred to as the physical movement of people, leaving out of the picture other ways of movement such as virtual, communicative and imaginary and the movement of things, ideas and images that are currently taken into account as part of a wide range of mobilities characterising contemporary societies (Cresswell, 2010a, 2010b, 2012; Urry, 2007). Studying children’s mobility with an emphasis on children ‘on their own’ has, as a consequence, advocated an understanding of children as isolated beings whose lives are not analytically connected to wider social, economic and cultural processes that take place at not necessarily immediate scales but to which children are connected through more complex forms of circulation and mobilities. The problem involved here, we would argue, relates to a dualistic approach that has characterised the ‘new social studies of childhood’, particularly in relation to the concept of agency and structure (Prout, 2005). In this paper our aim is to re-think children’s mobilities drawing on ANT and particularly some recent tenets of ‘the new wave’ childhood studies that attempts to take the study of childhood beyond the traditional dichotomies (Ansell, 2009; Kraftl, 2013; Prout, 2000a, 2005; Ryan, 2012; Turmel, 2008).

1. The social as an assemblage of heterogeneous entities

Agency has usually been understood as an attribute that certain humans or groups of humans may possess, as opposed to the forces of structural power. This picture of society makes sense in the frame of predefined hierarchies of power relations. Actor-Network Theory (ANT) is one of the attempts for understanding society in a
different way, in which circulation rather than structure is the metaphor for visualising how the collective is organised, changed and stabilised. Among its main propositions, ANT embraces the principle of symmetry, arguing that social analysis needs to level the distinction between diverse actors in terms of power or their position in society, but also in terms of their ‘nature’: human and non-humans, social and technological, and by logical extension adults and children (Turmél, 2008). This principle aims, in the end, at registering differences or asymmetries that compose the social fabric, unveiling the practical means through which some collectives dominate others (Latour, 1993) but not taking them for granted from the beginning: inequalities should appear as a result of sociological empirical inquiry, not as the starting point of them (Latour, 2005; Prout, 2005; Turmél, 2008).

As a result of levelling the status of different actors, the heterogeneous entities—human and non-human—that are part of the social fabric become visible and their role as circulating entities unveiled. The non-human entities are seen not as simple intermediaries between human actors, but as ‘extensions of the self’ (Strathern 1999, in Turmél, 2008) considered as mediators in the network of relationships they are part of. As mediators, these non-human entities have the ‘capacity to translate what they transport, to redefine it, redeploy it, and also betray it’ (Latour, 1993: 81). Turmél refers to technical devices as the extension of the self, human action and its scale: “allowing certain human capacities to migrate to objects... (which) ...in turn become efficient, intelligent, coordinated or ‘purposeful’” (Turmél, 2008: 50). This is not to say that technological devices or other non-human entities necessarily possess their own subjectivity or that machines operate like social actors (Turmél, 2008), but that any collective extends its social fabric to non-human entities or to what has been called quasi-objects and quasi-subjects. These can be considered as collective (and therefore part of the social world) because they attach humans to each other and through their circulation form and sometimes define the social bonds between people (Latour, 1993: 89). This perspective shifts the traditional understanding of human and technology as separated and opposite entities, now seen as intertwined parts of the social as a network of relationships that “does hold, mobilize and stabilize itself with and through the non-human objects (graphs etc) which mainstream sociology considers as a residue” (Turmél, 2008: 47-8).

Latour (1999b) distinguishes different operations in the mediation of these technical devices. Among them, we identify enrolment, mobilization and displacement as particularly important in our understanding of technologies in children’s mobilities. Enrolment refers to the ways in which non-human entities are induced into the collective; once enrolled, non-humans are mobilized inside the collective, so that they add new resources to it, resulting in the creation of new hybrid entities that form part of the collective; displacement refers to the new direction that the collective takes once its shape, extent and composition have been altered by the enrolment and mobilization of new actants (Turmél, 2008: 50). The nature of these technical devices is hybrid or ‘impure’, so that they cannot be completely attached neither to nature nor to culture; neither to the social nor technology: “In reality there is much (but not everything) about technological artefacts that is ‘natural’, just as there is much (but not everything) that is ‘social’.” (Prout, 2005: 56). As “hybrids of culture and nature” technologies cannot be defined in an essentialist way, as they change according to the assemblage within
which they perform. The particular contexts and connections between human and non-human entities are endlessly constructed and reconstructed, in the same way that what it means to be a child is not an unchanging, stable entity (Prout, 2005: 120).

2. Re-thinking agency, childhood, children and mobility

Within this theoretical framework the concepts of agency, childhood, children and mobility are reconstituted. Agency and competence (children’s and adults’ alike) are no longer the essential properties of human individuals, but “the effect of the relations, the connections and the circulation made between a heterogeneous array of materials including bodies, representations, objects and technologies” (Turmel, 2008: 44. See also Author 2, 1998). Childhood can be thought of as “a heterogeneous assembly in which the social, technological and biological aspects of childhood are already ‘impure’ entities”, or hybrids of nature and culture, social and technological” (Prout, 2005: 58). The person, child or adult, is seen as “an intersection in a network of relationships upon which it broadly depends” (Turmel, 2008: 44), so that children might be understood as ‘nodes of material connections to places near and far”, taking into account that these are embodied nodes that perceive, act, express and are connected to other humans and non humans, natural and social beings (Ansell, 2009:199). It also implies that the world children are part of and interact with extends beyond their immediate surroundings, being the product of “events, policies, discourses and decisions with diverse origins in time and space” (Ansell, 2009:200). In this way, children’s direct experiences contain “intrusions from further afield”, whilst at the same time “children infiltrate many spaces from which they remain physically absent and often unaware” (Ansell, 2009:200-202). The theoretical tenets of ANT have been also the base for what has been called the ‘mobilities perspective’, which proposes an integrated approach to movement across diverse scales, emphasizing its key role in social life (Cresswell, 2010a; Urry, 2007). We will now explore how these new ways of conceptualising agency, childhood, children and mobilities can be drawn upon in our understanding of children’s everyday mobilities and the role of technologies within them.

3. Technologies in children’s everyday mobilities

Introducing this article we presented two sets of notes. One focused on the experiences of a mum walking with a young boy and how she became led by him up close to life on a pavement stone. Similarly the second account, involving the technology of a pushchair, alerted the ethnographer to the different spatial and social arrangements accentuated by a young girl’s (Lisa’s) changing mobility. ‘Keeping in pace’ was central to both these accounts, resonating the demands of an accelerated society where journeys are underscored by keeping up speed and tempo. In this next section we will explore in more detail how everyday mo-
bile technologies connect children to other actors such as parents, other children, animals, institutions and us, as researchers and show how these technologies extend children’s and adult’s actions and scales of movement.

In a study carried out by Author 1 in a town in the Midlands in England, she observed the mobility patterns and experiences of young children aged up to 5-years-old. Contrary to the conventional assumptions, she was not looking at children ‘on their own’, but at the joint mobility practices in which parents – mostly mothers – were involved. A key feature of the young children’s mobility was that it involved many more entities than the children and their families. It is not possible to recall from this fieldwork any journey in which a parent and a child would go out of their home with nothing other than themselves, walking together and just holding hands. Some sort of artefact or more than one always mediated their mobilities: children’s leashes, pushchairs, cocoons, car seats and restraints, cars and buses (with their different spatial positions and distribution), among others. The familiarity of these artefacts should not make us ignore their historical and cultural particularity, or underestimate their role in shaping children-adults relationships on the move. The nature of artefacts cannot be taken for granted, as Prout (2005) warns in relation to technologies, their definition varies according to the context and particular assemblage they are part of, assemblages emerging as complex interdependent networks.

3.1 Taking the bus, unfolding the pushchair

One winter morning a family of two girls, Lisa (2-years-old) and Jasmine (7-months-old), and their mother Gabrielle are going to a church playgroup in a neighbouring town. Mark, the father, has taken the car to work, so the rest of the family ‘take the bus’. ‘Taking the bus’ is an abbreviation of how the journey is actually performed: they use a double pushchair where Jasmine’s cocoon is placed underneath the chair where Lisa sits. Gabrielle pushes the buggy down the road to the bus stop. There they take the first bus, placing the pushchair in the pram area. After a 10 minutes journey they alight, Gabrielle pushes the buggy down the steps of the bus and then onto to the next bus. After another 10 minutes or so they alight again and Gabrielle walks pushing the pushchair for a couple of minutes to the church. Meanwhile, Lisa has been looking around inside and outside the bus, singing and swinging her legs; Jasmine fell asleep at the beginning of the trip, and when she wakes up she is in a completely new place.

Narrating this journey in a little more detail than just ‘taking the bus’ unveils the complexity of this joint mobility practice, involving three people (and a fourth one that, although not present, has partly defined the nature of this journey by his own mobility) and at least three transport media – walking, public bus and pushchair. The complexity also relates to the purpose of the journey - to attend a baby and toddler playgroup –, which is not clearly attachable to one single person.

This complexity and unity of purposes and entities articulated in the journey can be seen as an assemblage – actually seen in the picture below (Photo 1).
As we observe Gabrielle unfolding the pushchair and putting together its different parts the pushchair emerges not as a single artefact but as an assemblage of different parts that can be put together or taken apart according to the entities involved: it allows a baby to lie down into a cocoon, which is a separated but attachable artefact; it allows a toddler to sit down on the top of the structure; a whether plastic protector can be attached, and diverse items can be placed on the net at the bottom. The pushchair does not move on its own, but has to be pushed by a person who needs to comply with certain size and strength characteristics. However, the materiality and structure of its parts defines a particular quality of the movement. The size of the whole structure is also related to the design and spatial distribution of the public bus, where it can fit provided that the single space dedicated to that purpose has not been already occupied (which is not rare). And there are more features that we could attempt to disentangle: the safety measures embodied by safety belts, for instance, relates to safety standards or regulations in national or wider scales. These are all features shaping Lisa, Jasmine and Gabrielle’s interactions along the journey, and their experience of it.

The image of this assemblage of heterogeneous entities – some of them physically present in the journey, some of them transported or translated through technology – allows us to think about technology as extensions of the self in a rather plural and complex way. For example, we may wonder whose extension is the pushchair? This question can be thought about in terms of which interactions between diverse entities the pushchair allows or encourages. As an extension of the self, the pushchair allows all three people involved to reach a longer distance and scale of movement than their bodies ‘on their own’ would allow. In doing so, it brings with it, in its very design and structure, particular representations of children’s bodies, the composition of their families, and the demands of safety regulation. However, neither does the pushchair accomplish its role ‘on its own’ but as part of an assemblage of other transport means (the buses), urban infrastructure (the pavement), human strength (Gabrielle’s), size, and behaviour (Lisa, Jasmine and Gabrielle’s). On the other hand, as described in the introductory vignette about the researcher’s walk with Lisa and her family, enrolling the pushchair into their mobility practices made a difference to the social interactions of the family and others who became enrolled.
Endnote: This paper has focused on the role that technologies play in children’s everyday mobilities. However, it also invites reflection on the role that technologies have in researching children’s mobilities: technologies that are already part of the collective we as researchers come into relationship with (such as the pushchair), but also the technologies that researchers bring into the research process (the digital recorder, the camera, GPS, mobile phones, etc). This will be the topic of a future publication (Christensen, Mikkelsen, Nielsen, Harder, 2011).

Conclusion

In this paper we argue for a conception of children’s mobility as an effect (or product) of multiple human, social, material including technological relationships, connections and circulations. From this perspective agency, childhood, children and mobilities appear as relational concepts rather than fixed and dichotomous ideas. Technologies (such as the pushchair) act as extensions of the self with a key role in creating, changing and thus (de)stabilising the networks of interactions that compose the social.

Our focus has been on unfolding the role of the pushchair in a practice of mobility showing how it performs a circulatory role in different directions and as an extension of different agencies: first as a transport medium it extends physical capacities and thus the scale of movement of the humans involved; second, it circulates particular representations of young children’s bodies, families’ composition and needs, as well as safety standards (as well as fashions) encoded in the design and material ordering of the artefact. The pushchair also acts in relation to other entities: the bodies of the children it transports, the strength and physical skills of the person who pushes it, other non-human elements such as the bus and its design, the pavement, the weather and natural elements such as rain and wind, and the public transport system.

This brief analysis aims to awaken awareness of the complexity of children’s mobilities and the manifold interactions that compose them. Our interest is to approach children’s mobilities and to situate them as ‘nodes of material connections near and far’ (Ansell, 2009), therefore making explicit the interdependent networks that shape children’s mobility and experiences. In this sense our argument extends what has been previously argued by Mikkelsen and Christensen(2009) that children’s mobilities are performed in relation to a range of actors wider than only adults-parents. In addition to this, their relationship to others in mobility is not necessarily direct (co-presence) but mediated through technology or other artefacts (Mikkelsen and Christensen, 2009). In this paper this argument has allowed the creation of a narrative that demonstrates how children’s mobile experiences and practices are embedded in wider socio-technical-material networks.

References

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This paper seeks to establish whether the Plan Sarmiento BA, the one-to-one learning programme benefitting all state-run primary schools in the city of Buenos Aires, promotes pupil motivation and integration into digital culture, as well as the extent to which the results can be attributed to its design and implementation. A description is given of the Plan’s pedagogical proposal, and observations are made based on quantitative and qualitative information provided by reports, projects and testimonials from pupils, parents and teachers. The study then goes on to detail changes in attitude and practices that demonstrate an increase in the motivation of pupils and their integration into digital society, which also extends to their family group, thus generating a significant impact on socio-educational inclusion. It concludes by associating aspects of the Plan’s design with emerging changes and establishes the importance of creating spaces of consensus and collaboration in the construction of this type of project, as well as the need to conduct continuous observations in order to ratify or rectify the direction of work.

The study is of crucial importance since more knowledge needs to be generated regarding one-to-one learning programmes and their contribution to policy design.

KEYWORDS: One-to-one, digital literacies, Information and Communication Technologies (ICT), Digital Culture, Education.
One of the main challenges of education in the context of digital culture is to integrate contemporary practices into the educational community so as to ensure that knowledge building takes into account the characteristics and demands of twenty-first century society (OEI, 2010; UN 2005; Buckingham, 2007).

This cannot be accomplished by the mere incorporation of technology, but instead demands a much more comprehensive and complex programme of educational innovation (UNESCO, 2011). In order to meet this challenge, the Ministry of Education of Buenos Aires City created a comprehensive plan for digital education (Plan Integral de Educación Digital, PIED), in the framework of which various actions and projects are carried out to integrate schools into the emerging modes of communication and culture of the twenty-first century (Miguel & Ripani, 2011a).

The Plan Sarmiento BA (PSBA) was launched in 2011, as part of the PIED, which is recognized as an example of good practice by the United Nations (Sunkel & Trucco, 2012). The PSBA is a pedagogical innovation project based on a one-to-one model that seeks to promote quality education with equal opportunities and socio-educational inclusion. It covers all state-run primary schools in the city of Buenos Aires, including both ordinary schools as well as those providing special needs and adult education, and government-subsidized private schools. It is also implemented at teacher training colleges at the primary level. Its beneficiaries comprise around 600 educational establishments, 20,000 teachers and 250,000 pupils (“Implementation”, n.d. para. 1).

The equipment for the PSBA includes the provision of laptop computers for both pupils (netbooks) and teachers (notebooks), and wireless connectivity in schools and across the city (“Preguntas frecuentes”, n.d. para. 3). This is to ensure that access to cyberspace is available both while pupils are at school as well as during their free time, which is fundamental in order for them to continue with their learning and to facilitate the digital inclusion of the family group (CEPAL, 2010).

The main challenge faced by the PSBA is pedagogical innovation, with special emphasis on participation, collaboration, creativity, play, new modes of representation and the central role of the pupil as a producer of knowledge, among other core themes proposed, as expressed in the various documents that set out the framework for implementing the approach in the context of digital culture (Miguel & Ripani, 2011a; Miguel & Ripani, 2011b; Ripani, 2014 b).

This paper will attempt to explore whether it is possible to identify the emergence of changes in attitude and practices that encourage pupil motivation and the integration of the various actors in the education community into digital culture since the Plan was launched, and to determine to what extent they might be related to the design and pedagogical implementation of the project.

This hypothesis will be analyzed by presenting a conceptual framework, introducing the pedagogical proposal of the PSBA and observations on its imple-
mentation, based on quantitative and qualitative data. The information disclosed will include testimonials from different actors in the education community, projects carried out by pupils and teachers and follow-up reports.

The importance of this research lies in the fact that more knowledge needs to be generated about one-to-one learning programmes and the benefits they create for pupils, since this contribution is critical for policy design in this area (Valiente González, 2011; Área Moreira, 2011).

1. Methodology

The methodology includes the use of the PSBA’s documentation for its description and a number of sources of qualitative and quantitative information to make observations about its implementation. As the author is involved in the project, most of the qualitative analysis was conducted among various actors from the education community and based on semi-structured interviews, which were video recorded and published on the internet, from where they can be publicly accessed. A focus group, based on an educational video game, was organized by InTec at School Nº 5 DE 10 with the participation of 30 2nd and 5th year pupils and 4 teachers, whose testimonies were audio-recorded.

The quantitative data includes online surveys and questionnaires in digital format carried out by two departments from the Ministry of Education of Buenos Aires City: the Department for the Incorporation of Technology (InTec) and the Department for Quality Education (DGECE), in addition to a technical report about the use of the PSBA Internet Connection Network, produced by the service provider. The replies given by pupils (Figure 3) were taken from an online survey produced by InTec and DGECE, from a random sample of 85 state-run schools, including 52 ordinary primaries, 13 special schools and 20 establishments providing adult education.

The data for teachers and school managers (Figure 4) were provided by an online survey carried out in December 2013 by InTec among a random sample of 1643 teachers and 87 managers of state-run schools in Buenos Aires City covered by the PSBA. The information on Digital Pedagogy Facilitators resulted from a self-administered survey distributed among the entire population of facilitators (556) working in ordinary state-run primary and state-subsidized private schools. This survey is conducted twice a year in August and December.

2. Theoretical Framework

This section will present a theoretical framework related to the core themes of the PSBA mentioned in the introduction, which are associated with fundamental aspects of education and communication and take on particular importance in the context of digital culture.

To begin with, it is worth clarifying that the mere incorporation of technology cannot possibly be thought to achieve the desired objectives, since such a belief would imply an adherence to technological determinism (Área Moreira, 2011;
OEI, 2010; CEPAL, 2011). Technology is produced by human beings based on their needs at a specific moment in history and must always be regarded as inseparable from culture and society, that is to say, the human and the material cannot be separated, since the latter is produced by mankind (Levy, 2007).

In this context, it is important to define Information and Communication Technologies (ICT) as cultural forms. Computers and the various digital media are much more than just devices for storing and circulating information. Most of children’s leisure time experiences involve the transmission of images and fantasies via computers, creating opportunities to free the imagination, encourage personal expression and promote play (Buckingham, 2007). ICT thus function as a medium through which interpersonal relations are established; in other words, they provide new forms of communicating, and of mediating and representing the world (Buckingham, 2007).

Digital media present new ways of constructing reality, from the multimedia universe (Castells, 2005) to hypertextual narrative or digital simulation, a form of knowledge construction typical of digital culture, which makes it possible to emulate complex processes in order to represent elements of reality (Levy, 2007; Barber, 2009).

In this context, the meaning of literacy, which is not static but rather historical and alters according to changes in requirements, social practices and writing technologies, cannot remain anchored to literate culture (Ferreiro, 2010). Literacy in the twenty-first century entails embracing multiliteracy, which seeks to provide a broader and more diverse conception than the traditional approach, by emphasizing the importance of contextualized learning within the socio-cultural reality (Cazden et al., 1996).

This perspective introduces the idea that there are various complex and interrelated ways of representing or producing meaning. It proposes incorporating other dimensions into literacy, including the visual – fixed and moving image –, audio, and audiovisual, in addition to the written language, and ceasing to unjustly regard the image as being inferior to the written word (Kress and van Leeuwen, 1996; Kress, 2003, 2010; Castells, 2005).

With respect to socialization, ICT have taken over part in the role traditionally assigned to the family and school, since the various activities performed by children and adolescents in cyberspace using different computerized devices – communicating via social networks, watching videos, playing video games, etc. – are those that currently provide them with models and patterns of behaviour that are attuned to a new sensibility (Martín-Barbero, 2006; Livingstone, 2009; Buckingham, 2007). However, despite the incorporation of computers into the classroom, schools have been much slower in changing their teaching methods (Livingstone, 2012) and in some cases the educational uses of ICT have been constrained by the nature of the schools (Selwyn, Potter & Cranmer, 2009).

Cyberspace – understood as a new medium of communication arising from the global interconnection of computers, and composed of the universe of content that passes through it, and the people who surf it and construct it – is the main meeting place for digital culture (Levy, 2007). It offers reading and writing devices that foster collaboration between different people, transcending geographical and temporal barriers, and presents itself as the material setting where knowledge is constructed and circulated (Levy, 2007).
The advent of cyberspace is related to the emergence of participatory cultures (Jenkins, 2009), in which there is an emphasis on collaborative production, including the reappropriation or reworking of material created by others. Collective experience with people who are both like and unlike us validates our perceptions of reality and, therefore, young people need to participate in the public arena, make their own mistakes and learn from them (Boyd, 2007). Within this context a migration is taking place in the materialization of knowledge, from traditional encyclopaedias to cyberspace, a fundamental aspect of which is that it can be accessed by children and young people, not just as readers-spectators, but as producers and constructors of knowledge, both alone and in collaboration with others (García Canclini, 2007; Levy, 2007; Buckingham, 2007). In this regard, it is necessary to think about the teacher and pupil as authors and to emphatically promote production in a framework of diversity that understands the modes of representation characteristic of digital culture, in order to transform schools into spaces of creation rather than reproduction (Jenkins, 2009; Pretto, 2012; Himanen, 2002).

It is essential that production takes place in a context that fosters creativity, imagination and learning through play because of its relevance to both education based on motivation and enjoyment, and the possibility of transforming the world (Freire 2009 & 2010; Bachelard, 1971; Rodari, 1993; Paley, 1990; Ripani, 2014). Creativity and play are the basis of human development and innovation, and promote the construction of symbolic models that facilitate social change (Robinson, 2011; García Canclini, 2007, Freud, 1994; Winnicott, 1982; Martín-Barbero, 2001; Freire, 1995).

This change is emerging in a society that is increasingly organized around networks and that – consequently – is dynamic, open and capable of innovating (Castells, 2005). The role of education is thus crucial in order for pupils to learn and acquire the relevant cultural practices that ensure social inclusion (Castells, 2008; Jenkins, 2009).

The ideas developed in this section enable us to establish a theoretical framework, based on certain practices and significant features of digital culture, to present pertinent aspects of the pedagogical proposal the PSBA and guide the search for relevant observations relating to its design and implementation.

3. Pedagogical proposal of the PSBA

The fundamental principles of this PSBA are aimed at creating cross-cutting mechanisms, based on comprehensive approaches to the changes in education demanded by emerging forms of culture and communication in the twenty-first century.

Among the resources designed to meet this objective there are various documents that set out the framework for implementing the PSBA in the context of digital culture. These focus not on the instrumental aspects of digital media but rather on the teaching practices and competencies associated with the needs of the twenty-first century (Miguel & Ripani, 2011a; Miguel & Ripani, 2011b; Ripani, 2014 b). The pedagogical guidelines of the PIED define the program objectives, which include promoting quality education with equal opportunities and chances and socio-educational inclusion (see Figure 1). They also propose integrating new educational practices into the education community, through a process of
The document promotes participatory learning, collaborative production, a student-centred and network-based pedagogy, learning through play, familiarization with emerging narratives and encouragement of digital environments as spaces of trust and creativity. It also promotes a central role for the pupil as a constructor of knowledge, while it suggests the teacher should become a change leader and a mediator.

**Fig. 1. - Summary of the Pedagogical Guidelines of the PIED**

**Objectives:**
- To promote quality education with equality of opportunities and chances.
- To foster socio-educational inclusion by prioritizing the most disadvantaged sectors of society.
- To ensure access to literacy in the context of digital society.
- To develop pedagogical innovation mechanisms in the context of the culture of digital society.
- To encourage the learning of skills necessary for integration into digital society.
- To promote the construction of spaces of encounter between schools and the community, mediated by emerging practices in communication and culture.
- To strengthen the role of schools as a driving force for new ways of constructing knowledge.
- To promote knowledge and critical appropriation of Information and Communication Technologies (ICTs) in the educational community and society in general.

**Guidelines:**
- Integrating digital culture through innovations in teaching.
- Adopting new roles in the educational community.
- Opening the door to continuous social learning.
- Exploring new ways of understanding and constructing reality.
- Speaking the language of the new media.
- Learning and playing in digital environments.
- Constructing a critical, responsible and caring perspective.
- Guaranteeing access to equal opportunities and chances.
- Taking advantage of the present while looking to the future.
- Learning together.

4. Educational content and resources

The PSBA promotes project-based learning, as set out in the pedagogical framework of the PIED (Miguel & Ripani, 2011b) and in the document entitled Curricular Design of Digital Education for Primary Education (Anexo Curricular de Educación Digital Nivel Primario) (Ripani, 2014b), which is based on competencies and was especially created for the PSBA. Contents, in this context, are regarded as resources to be constructed jointly by teachers and pupils according to the educational projects of each school, which make up the curricula for Digital Education and other areas of knowledge.

To facilitate participation and collaboration through the publication and exchange of resources and experiences in cyberspace, the Integrar portal was cre-

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2 The Integrar portal can be accessed at www.integrar.bue.edu.ar
ated, which invites the whole community to participate in the construction of educational resources\(^3\) (Integrar, n.d.).

The aim is to incorporate diversity, through a plurality of materials and participatory knowledge (Pretto, 2012). The PSBA thus promotes the collaborative and decentralized production of content and leaves behind the centralized form of publication and distribution associated with the old paradigm of mass culture (Ripani, 2013).

The laptops distributed to pupils and teachers include more than 120 free applications, mostly free software, accompanied by educational tutorials, around 3,000 multimedia resources and about 60 books published in digital format with open licenses. Also included are over 600 links organized by curriculum areas.

5. Training and accompaniment

The PSBA is supported by a broad structure of training and accompaniment provided by staff specialized in ICT, with the permanent presence of a Digital Pedagogy Facilitator in all the recipient schools (GOInTec – Ministerio de Educación GCBA, 2014). The personnel assigned to the schools help teachers to integrate ICT into their lesson planning, within a framework of creativity and freedom, while taking into consideration the diverse socio-cultural conditions of each educational community. In addition, workshops on digital education are provided for pupils’ families. Optional specialized out-of-hours training courses are also offered to teachers, in virtual or classroom-based formats (Ministerio de Educación – CABA, 2013b).

As stated in the Pedagogical Implementation Report Plan S@rmiento BA 2010-2014 other complementary activities are carried out to promote the construction of play-based experiences with digital resources, which serve to promote the creative use of netbooks and to give pupils a central role. These include digital festivals and congresses where pupils present their learning and production experiences. Additionally, an annual contest\(^4\) is organized to acknowledge those educational projects that creatively incorporate ICT into the teaching and learning process.

6. Observations

Since the pilot test for the PSBA in 2010, and the full-scale launch of the PSBA beginning in the 2012 academic year, several follow-up reports have been pro-

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3 The Plan seeks to promote the use of free applications and the production of Open Educational Resources (OER). These are teaching, learning or research materials that are in the public domain or that have been published with flexible intellectual property licenses which, in various forms, allow them to be used, adapted and distributed free of charge.

4 The “Menciones Plan Integral de Educación Digital” [Comprehensive Plan for Digital Education Awards] Contest, which is held annually to acknowledge the efforts and dedication of students, teachers, managers and supervisors.
duced based on the abovementioned records of the experiences and testimo-

nials of the various actors in the educational community. This material serves as a
source of quantitative and qualitative data, and helps to guide the observations
included below, in accordance with the hypothesis presented in the theoretical
framework. A selection of testimonials and quantitative data are included further
in this section (see Figures 2, 3 and 4).

An increase has been observed in pupils’ level of motivation since the intro-
duction of netbooks, which are the main resource associated with the PSBA.
Within this framework, both the qualitative analysis from testimonials as well as
the quantitative data suggest that learning with netbooks is more enjoyable for
pupils and that having this resource available makes them more eager to go to
school and to do homework (see Figure 2 and Figure 3). Greater interest is ex-
pressed in using computers both in the classroom and at home. In addition,
pupils’ intellectual curiosity is shown to have been stimulated (see Figure
4), along with the desire to explore the devices, which has resulted in greater
autonomy. Pupils familiarize themselves with their netbooks, install programs,
create their own activities, save files of the output they have produced – often
the result of collaborative work –, download videos and put together their own
image and sound banks (DGECE, 2012).

There has been a significant increase in the number of activities in which
pupils produce content with still or moving images, which promotes creativity
and the development of new modes of representation, including animations,
simulations, multimedia productions and hyperlink narratives (see examples in
the section entitled “Experiences”). This is evidence of the creation and use of
multimodal texts.

Another trend identified is the increase in learning through play and fun ac-
tivities, which are encouraged by the use of digital resources. For example, in
School N° 18 D. E. 5, the teacher Graciela Blasco created a project based on a
story about witches. The pupils made comics, recorded videos of tricks that they
themselves performed at home and read QR codes to decipher secret messages
from the sorceress (Escuela N° 18 D. E. 5, 2011).

5 D. E.: School District, which represents a geographical division of the educational system within
the City of Buenos Aires
The institution’s learning dynamic has changed in the sense that there has been an increase in collaborative work. The children self-manage and serve as a support for other classmates. More importantly, it should be emphasized that these children, who perhaps have never had or never would have access to a netbook or a computer or to new technologies, now have that access since the Plan Sarmiento was implemented.

Every time we propose an activity involving the netbook, the children are much more interested in working, and they approach the work in a different way and with more enthusiasm.

Since she brought the netbook home, my daughter seems much more eager to do her homework. It is an added attraction for her. She no longer makes excuses not to do it. And well, my oldest children also use it and it fulfills the function it is meant to fulfill.

It is a bit difficult to teach my mum, but... first I taught her how to turn it on, then I showed her how to access the Internet. Now she can log on and see what friends or relatives send her.

I like bringing the netbook to play and learn every day.

I put clothes, rings and dresses on my character. My avatar was cute and he was funny. When I moved the mouse, he moved his eyes like this.

You can make videos using photos, you can create characters, animals, whatever you want.

Figure 2: Selection of Testimonials, Adapted from Ministerio de Educación CABA. [InsercarCABAArg], (2013, April 9). Implementación pedagógica del Plan Sarmiento BA (versión extendida) [Video file]. Retrieved from: http://www.youtube.com/watch?v=mGXoAaNzWwBQ

Figure 3: According to Statements about the PSBA - Pupils

Source: (DGCEC, 2013)

Author’s note: the percentages were obtained as an average of the respondents from ordinary, special and adult primary modalities who agreed with the statement to some degree.
It should be emphasized that the use of video games as an educational resource proved extremely popular with pupils. For example, in 2013 and 2014 a videogame was used to guide pupils on how to surf the internet safely, responsibly and in a collaborative manner (Integrar, 2014). In the focus group study conducted at School Nº 5 D.E. 10 pupils reported having more fun and learning more with this resource than with the normal class dynamic.

Pupils tend to become more engaged in activities that encourage the development of fantasy, imagination and personal expression. In an educational project carried out at School Nº 5 D.E. 2, the teacher suggested that pupils use an application to create avatars that would speak for them about their favourite game. The testimonial of one of the pupils (see Zoe Rabovich in Figure 2) illustrates the degree of involvement generated by this activity (Ministerio de Educación - CABA, 2013b).

In addition, an exponential growth has been recorded in access to cyberspace for information access, collaborative work, publishing productions and communicating with others. Reports on the use of the PSBA internet connection network show high traffic both during school hours as well as after school and during the weekends, when pupils are at home (see Figure 5). It should be noted that peaks can be observed between 8 pm and 10 pm, which are related to the incorporation of pupils’ family members as users of the devices. This is a significant piece of data considering that almost 40 percent of pupils’ homes did not have computers or internet access prior to the implementation of the PSBA (DGECE,

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6 CABA stands for Ciudad Autónoma de Buenos Aires, which means autonomous city of Buenos Aires.
The testimonials provided by the school children and their parents indicate that the netbooks are not just used by pupils but by the entire family circle (see Figure 2) (Ministerio de Educación- CABA, 2013b).

The positive assessments of the PSBA made by the pupils’ parents include the acquisition of new knowledge associated with digital society, to which they did not have access previously (GOInTec, 2012). In this context, virtual learning spaces emerged as a new means of communication that facilitates exchange within and outside of school. These are used, for example, to share information and to ask teachers questions about classroom activities or homework. This fosters a more horizontal and collaborative way of working, in addition to network learning.

The testimonials also mention the increase in peer learning, which occurs informally as well as in an organized way. For example, in School Nº 10 D. E. 6, in 2012, the fifth year pupils taught the first years pupils how to look after their net-
books and how to take photos. The activity proved highly rewarding for both year groups.

The observations recorded point to significant changes in class dynamics and the physical spaces used. Classroom furniture was rearranged to allow pupils to work in groups. Occasional use was also made of spaces other than the classroom for teaching classes, such as school playgrounds or nearby parks, where the pupils usually sit in a circle on the ground.

In respect to the teachers, evidence was observed of increased communication with pupils and a willingness to learn from them. A fluid exchange of experiences is taking place, even with teachers from other schools, which facilitates cross-cutting work.

7. Educational Projects

With regard to the type of activities carried out to integrate ICT into the development of curricular content, projects were found to clearly apply the Curriculum Design for Digital Education and the PIED pedagogical guidelines, which is oriented towards creative strategies of appropriation. That is to say, no particular software is used as the basis for a project or a didactic sequence; instead a motivating idea is proposed to invite participation from pupils in the collaborative construction of resources for learning in play-based contexts, which make use of various applications and digital resources.

In the context of this paper, two projects will be mentioned among a large number of possible examples. One is the proposal put together by School N° 2 D. E. 1 to celebrate the bicentenary of the birth of the Argentine patriot and former president Domingo Faustino Sarmiento. On that occasion, pupils and teachers, along with the Digital Pedagogy Facilitator created a wide variety of activities based on internet research, ranging from the production of digital comics to timelines, and even a 3D animated video, in which Sarmiento answered pupils’ questions (School N°2 D. E. 1, 2011).

Another example is the “Laugh out loud” project carried out by the teacher Ana López Terrones from School N° 5 D. E. 3. Using a poem as inspiration, pupils were invited to describe and share daily situations that make them laugh. Based on their ideas, they composed their own poem, which they performed and recorded in a stop motion video produced with the help of their netbooks (Ministerio de Educación - CABA, 2013a).

Conclusion

Based on observations made within the schools covered by the PSBA, it was possible to identify the emergence of changes in attitude and practices that encourage pupils’ motivation and the integration of the various actors in the school community into digital culture, thereby fostering quality education and promoting equal opportunities.

Pupils find it more enjoyable to learn using netbooks and feel that this re-
source increases their desire to go to school and to do homework. The PSBA was seen to encourage the development of their creativity and intellectual curiosity, in addition to collaboration and communication. The use of play as a teaching and learning strategy proved to be highly motivating, as did the use of video games as an educational resource. Pupils tend to become involved in activities that encourage the development of fantasy, imagination and personal expression.

Within this framework, signs can be seen of the emergence of a new learning context that integrates practices of digital culture. This includes an increase in activities with ICT and the production of digital content by pupils, which is often multimodal and emphasizes visual and audio-visual aspects as well as emerging formats of representation. There has also been an exponential increase in internet access – from both schools and homes –, information searches and publication of work produced in this area, and the use of virtual learning spaces.

A major impact was generated on the socio-educational inclusion of the most disadvantaged sectors of society, given that 40% of the families of the 160,000 pupils benefitting from the PSBA did not have a computer or internet connection prior to the implementation of the PSBA. In addition, pupils teach their parents how to use their netbooks, thus generating informal spaces of digital literacy.

It could be suggested that the design and implementation of the PSBA have fostered the above-mentioned changes. It was essential, for example, not to offer digital content designed in a centralized manner to be used by all schools but rather, on the contrary, to encourage each educational community to create content collaboratively, thereby promoting the central role of pupils in the construction of knowledge and respect for diversity.

Another fundamental aspect identified was the cooperative and consensual design of the PSBA, which later facilitated the emergence of collaborative practices between the different actors in the educational community.

Although the observations presented in this paper express a positive assessment of the PSBA, given its recent full-scale implementation, it is not yet possible to make a conclusive evaluation. The development of high-impact plans of this type demands continuous observation of what is happening in schools, as part of a two-way process – top down and bottom-up – that enables the direction of work to be ratified or rectified. These processes are not linear and require gradual transitions that take previous knowledge and transform it into new strategies and ways of working, which creates a demand for further research.

By way of conclusion, it should also be mentioned that there are ongoing challenges that arise during projects, such as ensuring the proper functioning of the technological infrastructure, and other matters related to the educational culture, which are perhaps less tangible but no less important. These include the vertical and stratified paradigm that cuts across the organization of the education system, in contrast to the network-based and horizontal relations proposed by digital culture.
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This text discusses aspects of education-research in schools in the context of a study that analyzed a public policy for the insertion of mobile technologies in Brazilian schools, the One Laptop per Child program. The shift of knowledge presented by the digital culture in the school and the role of the student-monitor/instructor in different situations investigated is highlighted, and visibility is given to the statements of teachers and students from two primary schools that participated in the study. Finally, the text sought to establish points of connection between different places and authorships in the education process with the use of mobile technologies in schools.

**KEYWORDS**: Research-education of teachers, student monitors, School, digital culture, mobile technologies.
Introduction

Over the past 20 years we have accompanied various discussions and studies about the possibilities for new educational approaches based on the incorporation of technologies that are available in various social environments. Within this context, we are interested in investigating how teachers who work in primary schools (re)create educational situations in environments that are increasingly permeated by digital technologies. In this article we present reflections from a study conducted in Brazilian elementary schools that received laptops distributed to all the students and teachers, under a public federal policy known as A Laptop for Every Child Program.

In this article, the interest focused on the teacher education process and on the learnings that are established when students act as instructors: what and how do the teachers and other students learn? How can the authorship of the students be strengthened in their activities as monitors/instructors in the use of mobile technologies in schools and in the dialogs with teachers?

1. Education-research in schools

The idea of encouraging school teachers to become involved in research projects is increasingly common, with the supposition that their participation in investigative processes can improve their pedagogical practices (Longarezi; Silva, 2008, p. 4056). These research experiences announce another opportunity to conduct education science, because the researcher, more than discovering problems in the school and among teachers, seeks to work with the education process to discuss certain practices and act in conjunction with teachers and students to resolve the problems identified.

From this perspective, the teachers are subjects and coauthors of the study and education. In this process, the dialog between researcher and teacher is constantly encouraged and the partial devolution of research data takes place during the investigative process, and can assume a systematized form of continuing education.

During the investigative-educational process, the teacher-researchers sought not only to understand the reality and complexity of the educational process but also to share activities in the school environment and intervene in this reality. In the French context studied by Durand, Saury and Veyrunes (2005, p.39) these authors sought to articulate the results of education with the practices of teacher education. The authors highlight that the difficulties in this process are related to an opposition between an “epistemology of knowledge” and an “epistemology of action.” The existing contrasts between these epistemologies illustrate important questions about professional conduct and the education of teachers and their relations with research and its results. For the authors, the symmetry of

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1 Research project conducted from 2011-2013, in 21 elementary schools in Santa Catarina and Bahia states, in Brazil.
the difficulties observed in these two epistemologies can be reduced through analysis and involvement in the activities and work situations during the study, given that in most cases these difficulties are “invisible” in these approaches. This article analyzes the results of the involvement of students in educational processes together with teachers and researchers.

2. Methodology and research scenarios

In a theoretical-methodological line based on the presumptions of media-education research (Rivotella, 2005), this investigation involved a multiple case study in four of the 21 schools participating in the broader study in two Brazilian states, Bahia (BA) and Santa Catarina (SC). The study was conducted in the 2012 school year and revealed various actions for the insertion of mobile technologies in schools in Brazil’s northeast and Southern regions. The methodology involved various research instruments and subjects: the application of questionnaires to the federal, state and municipal school administrators; participant observation in the schools based on a previously established plan; semi-structured interviews with teachers; focus groups with students; as well as didactic interventions and research-education with teachers and students.

To investigate the pedagogical practices a matrix was constructed for observation and analysis of the competencies and abilities that we expected to find, according to indications found in the literature in the field (Jenkins, 2006, Warschauer, 2006, Lankshear; Knobel, 2007, Unesco, 2008). The competencies defined were: digital culture, digital literacy, multiple languages, logical ability, creativity, sharing and authorship, analyzed from a triple dimension: the activity undertaken, the action of the teacher and the participation of the students. The analyses of the relationship and interaction of the students with their learning were initially conducted using four transversal indicators: attention (interest/motivation); involvement and participation; multiple languages; multi-tasking (distraction or competence).

The focus groups conducted with the students highlighted their perceptions about the laptop and their daily use with it in school and at home. The interviews conducted with the teachers about the possibilities for pedagogical innovation based on the uses of the mobile technologies support the proposals for education developed during the study.

The combination of these instruments and strategies allows expanding the analysis to different realities and assuring the dialog between the research subjects, seeking other types of interaction between “researchers and those researched” and constructing other ties in the investigation process. The crossing of the data obtained with the different tools and their analyses is supported both by the pre-categories listed above as well as on others that emerge during the process.

Among the various situations investigated in the study, the focus chosen to discuss the proposals of this article concern research-education in two schools in Santa Catarina: authorships and the places of teachers and students in the relationships established, based on intentional education about the use of mobile technologies.
The literature about the issue indicated the need for greater involvement in the field and with the subjects in the investigations that focused on the changes generated in pedagogical practices by the use of the current technologies. In this context, as part of the survey and data collection, proposals were developed for continuing education for teachers and students in the schools that participated in the study.

The table below allows visualizing two of the situations investigated based on the data usually used to define a school. Both schools are municipal public schools.

<table>
<thead>
<tr>
<th>Description</th>
<th>Situation 1: School A</th>
<th>Situation 2: School B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geographic data</td>
<td>Location</td>
<td>No. residents</td>
</tr>
<tr>
<td>Urban</td>
<td>430,000</td>
<td>Services</td>
</tr>
<tr>
<td>Structure</td>
<td>No. of students</td>
<td>No. of teachers</td>
</tr>
<tr>
<td>300</td>
<td>30</td>
<td>10</td>
</tr>
<tr>
<td>Socio-economic data</td>
<td>Parents education</td>
<td>Family income</td>
</tr>
<tr>
<td>Elementary school</td>
<td>US$ 849</td>
<td>Day-workers, general-service assistants, small merchants mechanics, taxi drivers, odd-jobs</td>
</tr>
</tbody>
</table>

**Table 1: Data about the two schools in the study**

Divided into two teams the researchers accompanied the activities conducted with the laptops in the two schools once a week and realized various educational programs with teachers and students during the school year (including courses, workshops, and meetings for study, planning and accompaniment). The table below allows visualizing the participants in the education research – both students and teachers – in the two schools.

<table>
<thead>
<tr>
<th>Schools</th>
<th>Focus groups (no.)</th>
<th>Participating students</th>
<th>Classes</th>
<th>Total no. of students in the classes</th>
<th>Participating teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>School A</td>
<td>05</td>
<td>35</td>
<td>3rd, 4th, 5th and 8th</td>
<td>75</td>
<td>10</td>
</tr>
<tr>
<td>School B</td>
<td>04</td>
<td>26</td>
<td>4th, 5th, 8th and 9th</td>
<td>85</td>
<td>08</td>
</tr>
<tr>
<td>Total</td>
<td>09</td>
<td>61</td>
<td>08</td>
<td>160</td>
<td>18</td>
</tr>
</tbody>
</table>

**Table II – Participants in the education research in the two schools**
The differences between the two situations stood out in terms of cultural capital, costs and practices with the use of laptops – in school and out – in the control of Internet content in the school and equipment maintenance, and the involvement of families in the school. These differences created quite distinct situations and solutions that in one school favored greater involvement with curricular uses of laptops and in another a growing sense of non-belonging to the One Laptop Per Child program.

3. Student instructors in discussion

The idea of participation of students as assistants to the teacher in the teaching process is not new, as revealed by Manacorda (1992) and Giles (1987) in their reports and compilations about education history. There are registers ranging from ancient Greece until proposals from the period of the constitution of public education. One that achieved greater promotion and adoption was known as mutual teaching or the Lancaster method, which had its peak between the late 17th and early 19th centuries. Within this proposal, a teacher taught a lesson to a “group of more mature and intelligent boys.” The students were then divided into small groups and received the “lesson from those to whom the master had taught it” (Eby, 1978, p. 325).

The possibility to reconsider the participation of students in schools and in their learning processes was also emphasized in the 1920s by Dewey and later by Freinet, who proposed socially motivating work in schools, based especially on the use of “free text,” printing, a school newspaper, and a conference of students (Eynard, 2006). In the conference, the student would prepare a text to present to a group of colleagues, with documents to illustrate and or demonstrate the knowledge constructed, a practice that is similar to certain proposals of the student-monitor/instructor, found in the schools in this study.

With the insertion of computers in the public schools, the idea of students who could be “monitors,” of other students in the use of the equipment was reinforced. Nevertheless, there was not a big distinction: the monitors are no longer students who receive the instruction directly from the teacher, who are repassing what they learned to those who know less. Their knowledge does not originate in the school curriculum or in the teacher’s knowledge. In turn, the teacher also needs to learn about the uses of mobile technologies to make viable significant mediations in the pedagogical practice. By considering this paradox in relation to the traditional organization of the work of the teacher this study discusses the experiences of education in the use of mobile technologies in the schools studied.

It is important to highlight that the professional knowledge of teachers, are “knowledges mobilized and employed in daily practice, knowledge that originates from this, in one way or another” (Tardiff; Raymond, 2000, p. 211). These authors indicated that this knowledge “serves to resolve the working problems of the teachers and to give meaning to the work situations that are particular to them.” To the degree to which they organize this knowledge, the teachers enter a cycle of “routinization” (Giddens, 1987), which can impede them from constructing new knowledge, because the routines “are means for generating the
complexity of the situation of interaction and decreasing the cognitive investment of the teacher in the control of the events” (Tardiff; Raymond, 2000, p. 212). They would be “simplified models for action: they serve to organize the acts through a stable, uniform, repetitive form of acting” (idem).

These “routines” impede the incorporation of changes in practices that can unleash new knowledge. For many scholars of the relationship between technologies and education (Fantin; Rivoltella, 2012) the resistance found among many teachers to the use of more contemporary technologies are permeated by the understanding and organization that they have of their work as teachers. Nevertheless, this study found that the actions triggered by the students/monitors/instructors influence the knowledge of the teachers and can provoke spaces of learning and of construction of new knowledge. These spaces relate to the concept of “shift in knowledge,” suggested by Martín-Barbero (2009, p.27) and that Moles (1971) called: mosaic-knowledge” in one of the first references to the possibilities of hypertext.

There is a practice that does not consider this knowledge(s) and which is responsible for a series of constraints among teachers when they are confronted with questions about this knowledge that is “marginal” to the school. Given the silence and the lack of dialog in this situation, the author confronts the school system with the new communicative system of society and highlights the importance of construction of other schemes for interaction among these subjects, in which the technological mediations reveal their alternative potential and other situations.

Certain practices in the digital culture shift the places of the pedagogical relationship and that of the role of the teacher and the student, placing the knowledge of each one in question. In the educational proposals undertaken in the schools researched, the knowledge required for students to serve as monitors/instructors had little relationship with knowledge constructed in the school space. It was their experience outside the school that was requested in the school context. This knowledge is important and valued, but it is not established as part of the curriculum to be taught, and a shift of place and authorship is required so that it is included among the activities undertaken by the school: the teacher learns and the student teaches. Nevertheless, since it happens to be knowledge derived from extra-school experience, it remains in a transitory relation of power, because it is the curricular knowledge that is important in the school space. Thus, the permanence of the place, authorship and power of the teacher is guaranteed.

These experiences concern other forms of participation and learning of students in schools and most of them involve the use of digital technologies in school projects. Upon discussing the concepts of learning and participation, Rogoff expands the understanding about the cooperative nature of learning that occurs inside and outside the explicit situations of instruction, and highlights the sense of “guided participation.” For her, when children learn and participate, they are also guided by values and practices of their cultural communities (2005, p. 232).

The guided participation highlights the role of the adult as protagonist alongside the notion of the agency of children. This practice can also be related to the understanding of authority proposed by Arendt (1997). Upon distinguishing the authority and the qualification of the teacher, Arendt understands that “although a certain qualification is indispensible for authority, the qualification, as large as
it may be, would never engender authority on its own” (1997, p.239). For Arendt “the qualification of the teacher consists in knowing the world and being capable of instructing others about it, although her authority is based on the responsibility that she assumes towards this world.”(idem).

3.1 Experiences with authorship and participation

In this way, to consider the participation of the student-monitor in the educational workshops as we saw in this study can signify a possibility for dialog between tradition and modernity, that is, an acceptance of the new along with the inheritance of tradition. In this contradiction and in this awkward relationship, perhaps knowledge is constructed that overcomes certain generational gaps, given that “it is impossible to determine, through a general rule, where the border between childhood and adulthood lies in each case. It changes frequently, with respect to age, from country to country, from one civilization to another and also from one individual to another individual.” (Arendt, p. 246).

In this respect, it is important to problematize representations about “the student that knows and the teacher who does not know,” as Buckingham warns: “we must be cautious with the easy rhetoric of the so-called ‘digital generation,’ that is, the idea that youth are actively communicating and creating online, given that they have a spontaneous affinity with the technology that older people do not have (2008, p. 9). After all, as Fantin; Rivoltella (2012) question, what do students and teachers know and not know in relation to digital culture? How can they learn from one another? And how can this be worked with in the school curriculum, beyond the proposals for education with technologies?

Upon considering the distance between the school curriculum and knowledge from the daily use of digital media, Tufte and Christensen find that different generations develop different abilities and competencies: “the cultural and media competencies of children and youth are obtained during their free time, and the absence of a critical approach to the use of media, as well as the lack of critical competencies are obvious” (2009, p.101). Thus, to shift the places of knowledge in the school only makes sense with practices that can transform the school culture by assuring both practical knowledge as well as perspectives for analysis, which are fundamental for a cultural understanding of the possibilities of media-education.

In this framework, it is one thing to identify experiences and practices of student-monitors, which are recurrent in various situations investigated, and it is another to involve student-monitors in the proposals for school education realized in this study. To consider that the students have media and digital knowledge and competencies that are different from many teachers means recognizing their previous knowledge and giving value to learning as dialog and mediation. That is, it recognizes and minimizes both the gaps of participation, of language, of knowledge and of culture that Rivoltella highlights (2013 p. 17), as well as the distance between students and teachers.

As much as it is common sense to emphasize the capacity and speed of the students in the learning and use of technologies, considering them to be “self-literate,” the reflexive mediation perspective questions this assumption. The in-
version of roles that reveals a command of the machine on one hand (among students) and the need for reflection (teachers) on the other, challenges the places and possibilities for learning in schools, and this needs to be problematized from the point of view of education (Fantin, 2013).

Despite the reservations demonstrated about differences in knowledge in relation to the use of technologies, the teachers recognize the gaps in their knowledge: “in the beginning there was that fear, right? The student will be able to know more than you!” But the teacher seeks to identify knowledge in other places and neutralize the need for new strategies: “The route that the student uses is quite different than the route that the teacher uses.” There is the recognition that students more easily or quickly appropriate the technologies because they are more contemporary to them: “we adults have more difficulties in learning than the children. In a workshop you pick up a bit. Then you don’t recall details and practice and try to do it alone and don’t get anywhere.” In parallel, there is a constant attempt to use different technologies and keep more in touch with current times: “the teacher constructs the knowledge with the student, the student seeks the knowledge, constructs his knowledge with this additional tool, considerably facilitates the work...but does not substitute the book, the written manual, reading.”

The need to preserve the professional knowledge constructed with the exercise of the profession makes it very important to create a tie between past and present action: “you did not have command of many things, then you had to learn together. What is cool is that you learn together with the student. You do not know, the student does not know, it was easier to exchange ideas.” It was found that the idea of exchange is very strong and appears in all the statements. In some of them the hierarchy of the school – “the teacher knows, the student learns” – is still a problem and has repercussions for the possibility of taking advantage of the moments of education organized around the knowledge of the students: “it is difficult to accept and say: ‘I don’t know, I need help.’ There is still that thing that the teacher has the knowledge and the student does not know, must learn. The issue of exchange is difficult to assume”. One teacher described her experience of trying to control the knowledge: “I prepared the class, studied, studied, to get to class and explain how to work the slides on the laptop. When I got there, when I was speaking, the students [would say]: go ‘to the next, go, you can go. They already knew, so they were helping’.”

The statements also reveal the surprises and contentment of the teachers at finding that the students do not know everything about the technologies: “the student does not know how to use technology, he simply knows how to enter MSN, and see things. Now if you ask him to do research, he does not know.” Thus, the teacher’s knowledge appears to be guaranteed: “there is not much of this problem of ‘ah, the students know more.’ No. Because the student knows how to work that, but the content part, this is for the teacher.”

This issue requires greater discussion and research: on one hand there is a consensus that children and youth are totally fascinated by technologies and dominate them with capacity and creativity, on the other, there are those who believe that the children and youth are left increasingly stupefied by the time spent on and uses made of the technologies. For Selwyn (2008) the use of digital technology in schools led to an over emphasis on the digital competencies of the
students and these generalizations led to the creation of a myth that youth are more competent than they really are because of the fact that they are active online citizens. These considerations corroborate the analyses of Buckingham (2008) about the need to conduct studies with other questions and perspectives about the relationship between adults/teachers and children/students.

The comments and suggestions of the students in the broader context of the study underwrite the potential of the proposals for shared education. These practices can reduce certain gaps that separate the educational system from the experiences of children and youth in the construction of another model of school communication, one that is more in tune with the communicative dynamics of society and approximates the educational and cultural practices without requiring that “the students leave their body and soul outside the school, or their sensibility, their experiences and their cultures, whether they are audio, visual, musical, narrative or written” (Martín-Barbero, 2009, p. 23).

Upon reaffirming the agency of the students, their suggestions about the uses of technology in school are highlighted: “they [the teachers] should work more with the laptop in the classroom.” Some statements reveal a desire for greater use of the devices in the didactics proposed and also suggested activities: “for her [the teacher] to work more with stories;” “one week with games and another with research.” Or even, “one day of study and one day of play.” These statements indicate an approximation between space outside of the school with the needs and school knowledge. The statements suggest activities that reproduce the gratification systems found in games in the context of school activities. They also emphasize the need for a more significant school curriculum along with a perception of the place of the teacher: “who presents more interesting things.”

The students also find that their teachers have difficulty using the technologies in a ludic manner and suggest: “for them to play more, enter more in social networks, Facebook, Twitter, (...) do something”. And reinforce this need: “the teacher can increase the knowledge with the computer, use the chat site, promote online conversations, use some games, something like this.” They also perceive gaps in the repertoire and digital competencies of the teachers: “the teacher said that she doesn’t like to use it, but how is she going to know if she likes it or not if she never uses it?” This suggestion reveals a perspective that seeks to approximate their experiences with school activities, that is, to approximate the communicative dynamics of society and the school.

Upon criticizing the technologies a bit, the students emphasize the need for the school to perceive that it needs to be more in touch with the current cultural contexts: “I suggested the teacher use Face and also bring other things, stay in touch with what is happening and bring it as a classroom activity, because it has other things that we learn.” In this way, they reveal the need to interpret the world outside of school bringing their fortuitous knowledge, which comes from the media and youth culture, to the school space, minimizing the sense of loss of control when this culture enters the school, given that “the new digital divisor (...) reflects a broader historic disjunction between the common leisure culture of youth and the school culture”. (Buckingham, 2008, p. 10).

In the specificity of the participation of students/monitors in the educational workshops mentioned, the recognition is highlighted of this approximation in the evaluation of the teachers about these educational activities. The adminis-
trator of one of the schools in the study said that intense use was made with the presence of the students/instructors: “in these workshops, in two hours, a universe was constructed.” Although there was a lack of initial confidence about the potential of knowledge of the students, this idea was resignified in the statement of the teacher: “Not only by the experiences that they have with the school radio but for us to learn to value (...) the technical issue plus the pedagogical content of each teacher and student”.

Upon analyzing the statements of these students it is understood that their work goes far beyond technical help as revealed by the statement of a monitor/instructor who reported what she did in the classroom: “we do a lot of work with slides. For example, for one project about contraceptive methods we are using slides. The teacher asks us to do research, and put it on slides. And we do this in group or individually. And we do this in class, for them to be close and see our process”. And she concludes: “It is technical help but also of content.” It is interesting to highlight the reason for the student’s involvement in the training of colleagues and teachers. The arguments are similar and are echoed in the discussions raised here about the shift of place and of authorship of knowledge in the school space with the use of digital technologies: “we teach and learn! With the friendships, with the small [students] and with the big [ones]!”. Perceptions like these indicate the potential for small changes in the educational processes in the school.

Some considerations

This article highlighted an investigative route about mobile technologies in schools from the perspective of education-research conducted in different situations. Based on the identification of projects with student-monitors, proposals for education were constructed that gave visibility to the knowledge of these students and allowed other forms of dialog between formal and informal knowledge that would allow revealing the construction of digital competencies of a more instrumental character on one hand and the need for reflection on the other.

The experience of education with student/instructors revealed the importance of valorizing the cultures that the students bring, as an opportunity to understand what they do and know and discuss how the teachers can also learn with them. As Serres (2013, p.11) affirms: “before teaching whatever it may be to someone, it is necessary, at least, to know this someone. Who is it today who goes to school, to elementary school, to the university?”

Although there is still a long way to go to assure other forms of participation in digital culture, some strategies for the construction of media and digital competencies in the school can be strengthened with pedagogical and investigative practices. The proposal for shared education reveals the importance of mediation in the ethical and aesthetic use of technologies in school and outside it, and of reflection about the places and authorships of knowledge in school. In this process, we reiterate the challenge made by Serres: what, to whom and how to transmit knowledge...
References

The paper begins discussing the deep and significant change and transformation undergoing young people’s social and learning experiences in contexts thoroughly mediated by digital technologies and social media. Today secondary students are very different from how their parents and teachers were. Their experiences, expectations, values, ways of learning and behaviours seem sometimes far away from those of teachers and schools who could have difficulties in connecting with their interest and engaging them in meaningful learning processes. This has led us carry out a collaborative research with and about young people. In this study five groups of students in the last year of the Compulsory Secondary Education (CSE), from five different schools, have developed five ethnographic studies about how they communicate, express and learn inside and outside school, with the support and collaboration of some of their teachers and members of our research group. The results focus on the opportunities or otherwise schools and students promote for connecting inside and learning experiences and knowledge. It also raises a set of challenges for secondary education.

**KEYWORDS:** Digital technology, Social media, Secondary school students, Collaborative research, School experience.
1. The expanding educational experiences

Today, to the traditional (real and imaginary) dimensions of our surrounding world and the educational (or mis-educational) experiences of children and young people, we should add the virtual ones (Ito, Baumer, Bittanti et al., 2010; Leander, Phillips, & Taylor, 2010; Sharpe, Beetham, & De Freitas, 2010; Potter, 2012; Morrell, Dueñas, García, & López, 2013; Boyd, 2014). Children and young people are living in contexts literally overrun by aural, visual and sensorial stimuli, providing them with very distinctive and varied life and learning experiences (Fisherkeller, 2011; Flanagin, Metzger, Hartsell, Markoc, et al. 2010). These experiences tend to be consistently neglected or rejected by the unchanging structures and orientations of most educational institutions (Sancho, & Alonso, 2012).

Against this background, children and young people who now inhabit the classrooms are very different from the kind of kids their parents and teachers were. Their experiences, expectations, values, ways of learning and behaviours seem sometimes far away from those of teachers and schools who could have difficulties connecting with their interests and engaging them in meaningful learning experiences (Jukes, 2008).

Howe and Strauss (2000) called generations born from the 1980s onwards, and who have been raised in a context where digital technologies are a consubstantial part of daily life, Millennial. These are the first generations to grow up immersed in digital media. Most of their activities dealing with peer-to-peer communication and knowledge management are mediated by these digital technologies. Millennials are thought to be skilful with computers and multiple digital devices, creative with this kind of technology and, above all, highly skilful at multitasking in a world where ubiquitous connections are taken for granted. These generations are also often referred to as the Instant-Message Generation (Lenhart, Rainie, & Lewis, 2001), homo zappiens (Veen, & Vrakking, 2006), the Net Generation (Oblinger and Oblinger, 2005), the Gamer Generation (Carstens, & Beck, 2005) or the Google generation, by the profound changes search engines are introducing in the way we relate to the information (Gunter, Rowlands, & Nicholas, 2009).

Millenials usually take the surrounding digital sphere and multitasking as a consubstantial part of their daily activity and experience. So, being online while watching TV, speaking on the phone, texting, networking and doing homework, for example, is seen by them as the natural way of living. Their recurrent activity with these technologies fundamentally shapes their notions of communication, information management, learning, knowledge and even personal and social values and relationships.

In a more or less explicit way over the last years these young generations have been characterized as smarter, more awake and even better prepared -at least to deal to digital technologies, than their parents and teachers (Prensky, 2004). A prominent example of this discourse can be found in Boschma, & Groe (2006) work significantly entitled: Generation Einstein: smarter, quicker and more social. Communicate with 21st century youth.

However, lately this kind of discourse has started to be challenged. In 2008 Nicholas Carr launched the provocative question if Google was making us stu-
He felt the uncomfortable feeling of somebody playing with his brain. Somebody seemed to be reassigning his neuronal circuits and reprogramming his memory. This reflection led him to ask: What is internet doing with our mind? (Carr, 2010). Other authors have also raised the same kind of questions in relation to digital books and documents (Jabr, 2013), and new studies are emerging, as the one published in Urban Times claiming that in 2011 the attention average of internet users was five minutes. Seven less minutes than in 2001 that was 12. The argument being that the enormous internet potential to capture young people’s attention -in decreasing lapses of time- is reconfiguring our mind-frames – particularly that of the younger ones; and even is deeply transforming our civilisation structure. We have more and more access to information, but this information is not always rigorously validated and tends to be more fragmented and decontextualize.

In this vein, more information or more possibility of participating in social networks is not necessarily better and abundance can create the same or even greater problems than scarcity (Ehrenberg, Juckes, White, & Walsh, 2008). Having access to all kind of information and even to the right instruments to produce it does not automatically means capacity to make it meaningful for oneself and for others.

The previous arguments raise a set of questions that as educational researchers we could not possible miss.

- What, how, where and with what and whom contemporary children and youth learn?
- To which extent learning and experiences gained in the virtual spaces outside formal education help or interfere in what it should be learnt to pass formal education exams?
- Are learning, knowledges, skills and experiences gained inside and outside educational institutions complementary, supplementary, contradictory, restrictive... for learning process?
- Are children and young people learning outside what it should be consider inside?

To be able to explore some of these questions we have implemented the research and development project: (Name of the project). The main aim of the project was to explore if there is a gap or otherwise between what schools believe that learning is (in general, listening to the teacher, making exercises and accounting for a reproductive test or exam) and how young people learn outside school.

2. The research

Our research project takes into account the apparent “alienation, apathy, disaffection, boredom and apprehension” reported by a good number of secondary students.

1 http://www.theatlantic.com/magazine/archive/2008/07/is-google-making-us-stupid/306868/
2 feeds.theurbn.com/~r/theurbn/~3/ltLB8Fv3ubo/
school students (Birbili, 2005: 313); along with the limited impact of digital technologies in schools (Hernández, & Sancho, 2011; Sancho, & Alonso, 2012) that seems to increase the difference between young people’s the experiences inside and outside the institution, shaping two cultures with distinct expectations and values (King & O’Brien, 2002). Thus our initial hypothesis was that there is a disconnection between what the secondary school considers learning and how young people learn outside the school in social communities using different literacies. To explore this hypothesis and provide alternatives, we considered studying how young people learn inside and outside school. And we decided to do this with them, not on them (Holt & Walker, 2009; Hernández, 2011; Nind, 2014).

The epistemological and methodological positioning of this research, that involved secondary schools and students aged fifteen and sixteen for several months of continuous and demanding work, led us to select an intentional sample (Patton, 2002) both of schools and students. Our collaborators represented different existing socioeconomic groups in Catalonia (table 1). We also put an especial emphasis in making sure that the participating groups were as heterogeneous as the school population. So they were made up of different types of students: those that largely met teachers’ and schools’ expectations, those that generally respond to them and those that do not meet the academic expectations (at least two in each group).

<table>
<thead>
<tr>
<th>Institution</th>
<th>Researchers /teachers</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Barcelona</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Virolai School (Barcelona)</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Institute Els Alfacs (Sant Carles de la Ràpita)</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>Institute La Mallola (Esplugues de Llobregat)</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Institute El Palau (Sant Andreu de la Barca)</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Institute Ribera Baixa (Prat de Llobregat)</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>TOTAL</td>
<td>14</td>
<td>39</td>
</tr>
</tbody>
</table>

Table 1: Participants

We planned to develop this research with the students and the schools within the official curriculum for fourth-year Compulsory Secondary Education (CSE) framework in Catalonia, which included the production of a group research project. The project, to which students should devote one hour per week, was understood as “a series of activities of discovery by the pupils regarding a subject chosen and marked out, partly by themselves, with the guidance of the teaching staff” (Departament d’Educació, 2010, p. 251). This decision would contribute to giving meaning to the process and to the results of the studies. However, the sudden change in the curriculum guidelines converted this project into an optional activity that, up to schools choice, could be implemented in two single weeks at the end of the scholastic year.

The act of working with and about young people and doing it in an institutional context turned the negotiation with them, their families and the schools into an essential part of the research in order to satisfy the ethical requisites.
The most important part of the negotiation was the way of organising the research time with students. Finally, three groups developed the whole process within the school timetable along several months. One carried the research out as an extra-curriculum activity organised by the participating teacher. And one decided to meet once per week after school. All groups work together between four and six months. The result of the research conducted by the students with our advice was publicly presented and qualified in each school, and in a collective event at the University of Barcelona. More than one hundred people (families, teachers and academics) attended this event.

In relation to the methods of collecting information, each school team (made up of secondary school students, school teachers and university teachers) decided on and learnt the techniques that would enable them to progress in the ethnographic study. In brief, these consisted of: observations and self-observations, field logbooks, audiovisual documentation (photography, video, music, etc.), interviews and group discussion. On the other hand, the whole process and the collected data were shared among participants of each group through variety of digital resources: virtual learning environment; e-mail; services of social networks; shared and collaborative online; documents; intranet or web and internet service.

As stated earlier, our research was not intended to be about young students, but with young students (Hernández, 2011). This process is being done from a reflexive perspective (Macbeth, 2001). Here, we assumed a bricoleur position (Kincheloe, & Berry, 2004) that implies that relationships are built using fragments – by creating an assemblage, weaving threads, enjoining parts – in an artisan fashion. This allowed us to develop ethnography of the work carried out by students (authors). From this foundation, we understand the methodology as a relationship that places special attention on how to contact and work with the young people involved in the research; and how to make this process compatible with the needs of a collaborative project.

3. Results and discussion

Evidences for this paper derive from the analysis of part of the data gathered in five ethnographic case studies carried out in five secondary schools. This entails most of the information gathered by the 39 students to develop the five ethnographies, plus the one collected by university researchers through multimedia field-logs. The innovative character of our approach lies in the decision to train students as ethnographers so that they could collect and analyse the required data together (Coad, & Evans, 2008). In line with the objectives of the project and the young people’s interest, we developed five collaborative ethnographic studies which, although each group could produce its objectives and questions, were focused on the exploration of these questions:

– How and with what do we communicate, express ourselves and learn inside and outside the school?
– What connections, disconnections, complementarities or distances are there between learning inside and outside the school?
The analysis data collected through a collaborative codification process Saldaña (2013), allowed us to generate a complex picture of the continuities and discontinuities students find in their learning experiences, values and understandings when transiting between, in and outside school environments. In the following section we give brief account of the most significant topics using students’ voice.

### 3.1 Connecting formal and informal learning experiences

One of the issues on which all students seemed to agree and emerged in all the ethnographic case studies was the fact that in school everything is more pre-arranged, is more circumscribed. Every question always has a predetermined right answer. Instead, everything is more unpredictable in the life outside. As described by one of the students:

[...] at school all is very scheduled and moreover everything is already discovered, so we do not have the possibility to learn and discover on our own initiative. In contrast, out of school we have more initiative because everything is to be discovered, and once we learn something, we have more motivation to achieve new knowledge. (Excerpt from the Els Alfacs school students’ research report).

This situation has a twofold effect. On the one hand, students feel safer at school where somebody has always the “right answers”, where no risk needs to be taken, where as Cuban (1993, p. 27) argues, “teaching is telling, learning is listening, and knowledge is what is in books”. But, on the other hand curiosity, agency, motivation and perseverance are poorly developed, preventing students from engaging in more authentic learning processes (Laur, 2013).

This situation brings some students, not all of them, to think they only learn at school, devaluing and being unable to recognize the learning experiences in their daily lives.

Núria says “inside school appear the gaze and the listening, but you also look and listen outside school”. Jaume replied “yes, but you do not learn”, with what Núria disagrees. “Of course we learn even more.” Núria introduces the concept of “experience”, and how she associated it with the way she learns outside. For her, there are things you learn inside school that are of any help for the future, while you learn fundamental things outside. (Excerpt from Rachel and Xavi research report from La Mallola).

An emerging related question is the degree of decision making, autonomy and agency young people have in their learning process inside and outside school. Out of the school, they learn in an informal and autonomous way by producing and editing digital videos, programming webpages, composing, recording and sharing music through the Internet, travelling, watching TV, and talking to friends, family and older people. Instead, they associate what they learn inside school with the notion of traditional learning consisting of memorizing and repeating definitions related to the different curriculum’ subjects.
Out of the school we learn daily things (with parents when you’re at home, with friends in the street, using mobile to talk with colleagues, using social networks like Facebook or Twitter...). I have learned things in my father’s bar; it is a source of information. (Excerpt from the Sergio’s report).

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“I started making videos four years ago, and the truth is that I am good with it. Little by little, I am searching information about videos, how to make and edit videos, something more professional, every time more professional, to acquire more practice in this area (...) I also make pictures. I have done an online course to learn more (Excerpt from the Yassine’s report).

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In school we learn about subjects that are imposed, not about the matters that we chose. (Excerpt from the El Palau school students’ research report).

***

I attend class, I study for the exams, I answer questions and I approve, but after two weeks I cannot remember what I studied (Sergio’s statement in a working session).

Young people in our study consider that sometimes what they learn at school somehow help them to better understand the outside world, but what they learn outside in general is not incorporated into the ways of promoting learning inside. They can use what they learn at school to make sense of their surrounding world. What they study in different subjects allows them to name and recognize what previously could not be named or understood; and the cultural references sometimes make them aware of the meaning of the information received and the lived experiences in the outside space.

What you study, the words help you to understand the news. Little by little you understand better thinks you could not understand before to study. I was told about news I could not understand before. [...] When you are told, you do understand the context better, because you connect what is impacting you with definitions you have been studying at school. (Excerpts from a working session in Ribera Baixa).

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We better remember what we learn outside school because for us this learning is more meaningful and more related to our experiences (Excerpt from the Ribera Baixa school students’ research report).

In contrast, what they learn outside in general is not incorporated into the ways of how learning promoted inside. They do not feel their backgrounds and experiences acknowledged. In 1973, Basil Berstein argued:

We should start knowing that the social experience the child already possesses is valid and significant, and that this social experience should be reflected back to him as being valid and significant. It can be only be reflected back to him if it is part of learning experience we create. (p. 83).
In 2014 D. C. Phillips asserts:

Learning is a phenomenon that involves real people who live in real, complex social contexts from which they cannot be abstracted in any meaningful way. [...] learners are contextualized. They do have a gender, a sexual orientation, a socioeconomic status, an ethnicity, a home culture; they have interests—and things that bore them; they have or have not consumed breakfast; and they live in neighborhoods with or without frequent gun violence or earthquakes, they are attracted by (or clash with) the personality of their teacher, and so on. (p. 10).

Nevertheless, schools very seldom have students’ experiences, knowledge and skills – including digital competence -, into account.

Our research also reinforces the fact that schools seem to have difficulty in helping students to develop the digital competence that, according to the European Commission, “involves the confident and critical use of Information Society Technology (IST) for work, leisure and communication” (EC, 2007, p. 7). And according Catalan Ministry or Education,

developing working methodologies that help the students to become autonomous, efficient, responsible, critical and reflexive people in the selection, treatment and use of the information and its sources, in different supports and technologies. Critical and reflexive attitudes must also be strengthened in the evaluation of the information available, checking it when necessary, and respecting the rules of behaviour socially agreed in order to regulate the use of the information (Department of Education, 2010, p. 26).

In this sense, although if schools are increasing using of digital technologies in the teaching and learning process, students are still more considered as information receiver than as producers of their own learning.

The first class is biology. We started taking notes from an interactive website often the teacher uses. From the smart board, the teacher summarizes the most important concepts that need to be written down because they are the foundation of the unit, in this case: The History of Earth and Life. (Excerpt from Ribera Baixa students’ research report).

On the other hand, young people make extensive use of social media outside the school.

I meet new people in Internet forums, where people from other places upload their drawings and comment how they did them and where they did find the inspiration... I read their opinions and apply them in my daily life as a drawer, improving my technique and style (Excerpt from Judith’s story).

However, schools tend to limit (or sometimes prohibit) its use.
Well, at school we have many more restrictions than outside school. The school rules do not allow us to communicate as widely as we would like, because in school we cannot access social websites or use most electronics devices. However, outside of school we have fewer restrictions and more freedom, we can communicate through technologies like mobile, computer [...] for us in and out school are two completely different worlds. (Excerpt from the Virolai school students’ research report).

The final considerations made by a group of young people in their ethnographic report in hopes of developing solutions for the problems they believe schools should address, give us clues about the directions of the changes required to change the rules of in the of secondary schooling grammar (Tyack, & Tobin, 1994):

Many times, teacher and students do not cooperate, because the teacher works alone and doesn’t want to solve the students’ doubts, or because the student does not listen to the teacher and does not allow other students to be attentive in class. We arrived to the conclusion that teacher and student should work together to achieve the same goal: improving teaching and classroom experiences, helping students to overcome educational barriers and making teaching a more comfortable profession for teachers (Excerpt from the Els Alfacs school students’ research report).

Conclusions

Our research shows that learning is not anymore circumscribed to the school setting; that students learn anywhere and by different means. And are students the one who tend to make the effort to connect their inside and outside school experiences.

The school little by little is incorporating digital technology but seems to have difficulties in changing its conceptions about what teaching and learning means, what do they recognise as legitimate knowledge, and where people learn.

Students seem better prepared than schools and teachers to recognise and put into practice the four principles for a life-long, life-wide, and life-deep learning (Banks, Au, Ball, Bell et al., 2007, p. 15). That is, that “learning is situated in broad socio-economic and historical contexts and is mediated by local cultural practices and perspectives”. [...] “takes place not only in school but also in the multiple contexts and valued practices of everyday lives across the life span”. “All learners need multiple sources of support from a variety of institutions to promote their personal and intellectual development”. And “learning is facilitated when learners are encouraged to use their home and community language resources as a basis for expanding their linguistic repertoires.”

On the other hand, authors such as Lankshear, & Knobel (2001) and Lanham (2006) claim that in a information-saturated world, the most precious commodity is attention. Nobody can pay unlimited attention, but all we claim attention and everybody is asking for it. Everybody is struggling for attention and educational institutions seem not to be in the best position against social media. In this war for attention, schools seem to be the losers. In the media-saturated environment
no sense is left free; there is no more attention span remaining. Saturation produces the lack of concentration and attention and hyperactivity disorders multiply in school, where children increasingly lack the required amount of concentration and attention to accomplish school work. A key issue today is how to educate people who are over-stimulated and feel bored. The crux of the matter is not anymore the pedagogy of the oppressed (Freire, 1970), but the pedagogy of the bored student (Corea, & Lewkowicz, 2004).

The task is massive and the solution is not to be found in more digital technology and more information. The answer has many facets to contemplate and must help schools to become learning environments that foster meaningful learning of both students and teachers. For that both the emerging digital technologies and students’ and teachers’ cultural and social context should be taken into account.

References


Flexible learning is nowadays widely used to describe a variety of aspects (time, content, approach, delivery, etc.) which are considerably affected by the different teaching/learning scenarios. The paper presents a case study framed in an online specializing course to train online tutors. The aim of the investigation is to highlight the potential of designing a flexible learning path using different online spaces and tools. The design of the course implied the use of aspects of flexibility that showed to have affected both the learning process and students’ attitudes towards e-learning.

Besides flexibility is also meant here as a necessary characteristic of the professional profile of the online professional (tutor and teacher) and was a main learning outcome of the course. The diverse support offered to students by the teaching team during the course and the structure itself of the course acted as a model of flexibility.

**KEYWORDS**: E-learning, Tutor, Flexibility.
Introduction

The contribution presents a qualitative investigation run on a sample of 14 participants who enrolled in a distance specialized course to train online tutors run by the Department of Education, Cultural Heritage and Tourism of the University of Macerata (Italy) in collaboration with University of Camerino (Italy). The research’s aim is to highlight the potential of designing a flexible learning path using different online spaces and tools.

Since 2005 the online tutor course offered a modeling for e-learning instructional design at University of Macerata proposing a plurality of strategies (individual tasks, small group negotiations and collective activities) and plurality of tools (e.g. forum, wiki, e-portfolio) and languages (textual, multimedia).

Such a modeling highlighted the connection among individual and relational modalities of completion of the learning path that was fostered by the use of different spaces (Rossi et al., 2007).

The above mentioned post-lauream course has been experiencing some changes in its design in the last decade (the first edition was activated in the academic year 2005-2006) due to:

- the evolution of the online platforms/spaces and tools suitable for the educational field;
- the continuous reflection of the research group in the several studies made on the outcomes of the course and on the students’ inputs about their learning experience (Rossi et al. 2007; Fedeli, 2013; Fedeli et al. 2014).

The changes made along the editions of the course consisted in the introduction of different online spaces/tools to develop the activities. Each activity needed, in fact, the proper tools and, consequently, different work and management strategies. The plurality of strategies let learners experiment various aspects of the tutor profile and, at the same time, satisfied the objective to organize learning paths that could meet students’ needs. Some learners, for example, showed to prefer more traditional learning modalities based on the study of selected text and/or audio/video materials available in the platform, while others were attracted by experiential or collaborative learning. The presence of different activities helps meeting the various students’ attitudes and preferences.

1. Theoretical framework

Recent research stated that under the umbrella term ‘flexible education’, are grouped different activities incorporating flexible learning, flexible teaching and other related issues. The call for “flexibility”, in fact, has emerged in higher education as a response to diverse needs from a range of stakeholders, at different times and in many contexts. The literature suggests a diverse array of drivers for flexibility, but there is no universally agreed definition of what is meant by flexible education (Casey & Wilson, 2005; Ling, et al., 2001; Morrison & Pitfield, 2006; Normand, Littlejohn, & Falconer, 2008; Sappey, 2005).

The literature on flexible education tends to identify aspects of flexibility
Flexible learning is characterized by different features regarding aspects of time, aspects of content (program topics, sequence of topics, learning materials, assessment, etc), aspects of access/entry requirements, aspects of instructional design, aspects of delivery.

The last two aspects (instructional design and delivery) are the most important from the teacher’s point of view, because in his/her design is possible to choose different strategies regarding social organization of learning (group, individual/independent, face to face), learning styles, language of instruction, modality of learning resources (lecture notes, printed study guides, recorded lectures), methods of assessment. The delivery of the course is also a theme addressed by the teacher as a designer, when he/she provides different study opportunity (on campus, off campus, online, blended), various way for stimulating contact with instructors and/or students, methods of support, forms of help, content delivery channels, access to administrative information and processes, etc.

Historically, some studies have equated distance learning with flexibility (Morrison & Pitfield, 2006; Peters, 2003), but it is not always true that “online” will automatically mean flexible (Holzl, 1999; Normand, et al., 2008).

Aspects of flexibility in a program may affect, in same regard, any teaching and learning, but flexibility actually represents a hard objective to achieve by teachers who mainly adapt their instructional design to the learners’ needs and background using also the delivery parameter to reach their goal.

2. Research design

The investigation is framed in a qualitative approach under a social constructivist paradigm (Creswell, 1998) and is run through a case-study strategy. The 2013-2014 edition of the “online tutor” course is the case/unit of analysis chosen to define how the use of multi-layered approaches in the same online program can affect the learning path.

The decision to apply a case study strategy of inquiry is due to a criterion of homogeneity (Sorzio, 2005) with the previous studies run by the same group of research in the previous editions of the tutor online course (Rossi et al., 2007; Fedeli, 2013; Fedeli et al., 2014).

The case study represented by the above mentioned specialized online course can be defined an “explanatory” case study, since the researchers “seeks to identify themes or categories of behavior and events rather than prove relationships or test hypotheses” (Hancock and Algozzine, 2006, p. 16); in the exploratory case studies there are no definite outcomes (Yin, 2003).

The 2013-2014 course was followed by 14 students with a different background and professional contexts, this group was the sample used for the research.

As happened for the previous seven editions, the course has been run entirely online during a time span of about 5 months and required the physical presence
of the students at the conclusion of the course to accomplish the final certification through an oral examination. During the same period researchers gathered the data from the students’ productions and soon after the course completion an open ended questionnaire was submitted to go deeper in the investigation.

In order to clarify the context in which the students’ production (part of the research data source) were created it’s useful to specify that the structure of the course is organized around three main modules from an introductory theoretical overview of the subject matter to a more active engagement of the students in collaborative activities and simulations. Such organization lets students familiarize with the online environment starting from simple individual tasks (compile their own profile; introduce themselves in a welcoming forum) to a deeper exploration through collaborative activities (discussing case-studies; role-playing the tutor profile; co-designing online activities and resources) in which the peer support shows to be a relevant resource.

Since the academic year 2008-2009 the course design implied the involvement of the students in the approach of different learning spaces to take advantage of freeware networking services to enrich their learning experience (e.g. bookmarking services, mapping tools and a multi-author blog). Those environments were part of the students’ commitments, but they were not integrated in the Learning Management System used to manage the whole course. In the current edition, instead, it was decided to maintain the use of several different environments, as it revealed to be a successful strategy (Fedeli, 2013; Fedeli et al. 2014), but to integrate all tools and spaces in the LMS Moodle (https://moodle.org).

Specifically the course provided a set of tools for individual and collaborative activities (forum, wiki, assignment) and an e-portfolio environment (Mahara) integrated in the platform so that students didn’t need to log out the LMS to access their portfolio (a built in single sign on facility called Mahoodle).

Specifically the proposed activities aimed at adapting the objectives to the different students’ backgrounds and pre-requisites. Activities satisfied a multi-layered approach embracing the concept of flexibility at the level of time, content, instructional design and delivery.

The following different approaches aimed at supporting the creation of a flexible teaching/learning path:

1. Self-directed learning (reflection papers and e-portfolio to activate self-monitoring);
2. Teacher-lead learning (documents uploaded by the teachers and guided discussions in fora);
3. Collaborative learning (analysis of existing case-studies in wikis and co-creation of documents);
4. Experiential learning (role-plays, simulations).

The research question is connected to the modalities in which the use of a flexible structure in an online course can affect students’ learning. Do activities that span from a simple individual tasks to assignments which require a hands-on approach help students “walking in others’ shoes” acquiring the professional perspective of the online tutor?

In training online tutors need to understand that flexibility is a relevant characteristic of this profile. The professional habitus of the online tutor is strictly
connected with this competence since the changing landscape of e-learning is very quick and complex. Online learning scenarios become more and more multifaceted, not only thanks to technical developments, but mostly thanks to sociological/educational and research approaches technology itself fosters.

3. Data gathering techniques

Data were collected along the course duration from various sources: forum posts, reflection papers created after each module and at the conclusion through the final students’ perceptions on the whole path in their e-portfolio.

The online portfolio manager used was Mahara that offers a personal reflection space to each student, the chance to be part of a group and the advantage to select what pages (“view”) and resources to share with colleagues.

The e-portfolio gathers students inputs along the course modules and both key documents/resources collected and the artefacts created along the learning path.

The first perceptions collected thanks to the course’s activities (discussions in forum, reflections in the e-portfolio) were, thus, the background to build an online questionnaire that was intentionally structured around open questions that could offer students the chance to freely express themselves on issues considered topical by the researchers.

The questionnaire was submitted after the oral examination, two months after the end of the course, and it was used an online service which let the researchers collect the responses, share and download them keeping the anonymity of the respondents.

As underlined by Baxter and Jack (2008) “A hallmark of case study research is the use of multiple data sources, a strategy which also enhances data credibility” (p. 554).

4. Data analysis

The content analysis of the different documents (forum posts, narrative reflections and open answers in the questionnaire) consisted in a process of progressive coding and triangulation of data.

Triangulation is to be meant in two different values: the triangulation among the different sources and the triangulation among the researchers.

The qualitative data analysis software WebQDA (https://www.webqda.com/) was used to perform the coding process, the triangulation and interpretation of data. Using a software improves the needed balance between the two opposite attitudes of the researcher: “go native” (embracing the perspective of the participants) and “feel strange” (keeping a detached point of view) (Giannandrea et al., 2012).

In fact, the software not only enables the researcher to store, organize and code different data sources, but also to share each researcher’s activity and reflective commentary with the colleagues.

The data were coded with both a descriptive classification and interpretative
The categorization of each document (forum post, narrative reflection, questionnaire).

The descriptive coding embraced the whole “source” document connected with a single student and had three levels of classification: previous experience as online student (Yes/No attribute); previous experience as teacher/tutor in an online course (Yes/No attribute); professional context (selected options: primary school; middle school; higher education; public administration; company).

The interpretative coding was applied to single portions of documents such as single open answers in the questionnaire or single paragraphs in the reflection papers. Those portions of text were the unit of analysis (Bardin, 1977, tr. port., 2000) with a global approach which is not related to the quantitative content analysis (Losito, 2002). The units were coded into the following categories: e-tutor profile; learning strategies; learning path.

While the category (called “Node” in the software) “e-tutor profile” appears to be relevant to understand how students modified, along their path, their conception of what being a professional online tutor means, the two categories “learning strategies” and “learning path” help the researchers connect the development of a professional identity with the use of different strategies and tools adopted during the course.

As highlighted in the image below (Fig. 2) the software lets easily identify the unit of analysis selected in each node and their context (source).

The interpretation of available coded data was supported by two “questioning tools”, the “text search” option which lets you search a variety of strings, from a single word to a phrase running the search using different properties (e.g. Boolean operators) and restrictions (inclusion, exclusion). A second inter-
Testing tool is the “matrix” which lets the researcher cross different variables (e.g. the nodes and the classification attributes) to identify the value of specific aspects.

As described in the previous paragraph “flexible learning” is here meant as a multi-layered approach. The strategy to use different inputs (in terms of content, spaces and activities) didn’t have the goal to adapt the course to the students’ different backgrounds or specific learning preferences, that is, the course didn’t offer students the chance to choose among a variety of tasks and perform the ones they felt more comfortable with (a sort of personalized teaching/learning path), but the course’s aim was to bring students familiarize with different online spaces and fulfill all activities in a gradual process supported by the constant presence of two tutors.

Flexibility is here intended as both a specificity of a course designed using different approaches and an objective to achieve for students who will need to acquire a flexible attitude in their future professional settings as online tutors.

As reported anonymously by one of the student in the final questionnaire:

At the beginning I used to think that e-learning was a modality of delivery of courses. I connected “e-learning” with “online”. My concept was the result of previous experience I had as student in online courses: the activities were focused on reading available resources and on discussions run in forums. Now I have an improved idea of e-learning both on a theoretical and practical level. Approaching the profile of the online tutor I could learn competences in different aspects such as the organizational one, the design and creation of a course. My concept of what e-learning is has changed since the experience made in this course made me reflect on different kind of languages and on learning strategies. I could, thus, catch the huge potentialities that e-learning offers.

The analysis of students’ feedback about the different approaches used shows that “Teacher-lead learning” approach was felt, by the most of the students, as the simplest section of the course activities, while approaches based on “collaborative and experiential learning” were embraced as the most useful to get higher competences in the field:

Dis1: “I appreciate the way the course was structured. Most of all I believe that simulation is a very useful strategy. Since I wish to potentiate my competencies as online tutor I hope that also the following activities in the course will be practical since they revealed to be quite effective”.

The experiential learning approach run in the course thanks to simulations activities was recognized by almost all the students as the most professionalizing tasks, the means through which they “put themselves in the tutor’s shoes role-playing teaching/learning situations” and they could, thus learn “how to change

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1 Students are coded in the software using an acronym to ensure the privacy of the sample. It’s also necessary to specify that the participants’ words reported in the article have been translated into English by the authors from their original version in Italian.
point of view” reporting students’ words. For some students the course was a sort of revolution where previous conceptions were put into discussion:

Alb: “when I started following this course I had to face a personal Copernican revolution; since the very beginning I was exposed with a different methodology from the one I was used to in e-learning in my professional context. My encyclopedia enriched with new concepts tied to cooperative learning and I understood that e-learning could be used to generate and share knowledge in a community of learners”.

Being motivated to be part of an online discussion group, starting looking for strategies to negotiate solutions among group members and find a successful solution shared by the whole group were recognized added values of the learning path:

Mel: “I felt a little hero when I succeeded helping colleagues during the activities (taking into account that at the beginning I had several problems from a technical point of view). Maybe, just when I realized to be able to interact and support a peer I had the demonstration I had learnt something”

It’s interesting to notice that the same simulation activities, that were organized through a set of tools (forum, wikis, chat) were recognized by students (80%) also as the most compelling.

Moreover, from a detailed analysis, run with the search option, there appears to be a strong co-occurrence of the presence of references to “learning” with the presence of different “tools” used in the course. Among the tools some show to be more relevant: the wiki and the e-portfolio which are respectively associated with collaborative learning and self-directed learning.

Specifically among the competences acquired through the use of wiki and the team work in small groups the following opinions appear to be shared by a number of students: “I learnt how to listen to/work with others”; “I got flexibility”; “I improved decision making”.

The expressions used to describe those activities and the result they had on learning such as “responsibility”, “enthusiasm”, “useful”, “professional”, “motivating”, “satisfying”, “complex” demonstrate the deep involvement students experienced during the tasks.

The variety of online spaces and tools could be a tricky issue since students could feel overwhelmed by too many inputs, but the open question in the final questionnaire “How did you feel using many different tools during the course?” highlighted that all students replied positively and the ones who stated to have experienced initial difficulties also clarified that they successfully overcame the problem along their learning path thanks to a practical and situated use of the tools themselves.

Those data were triangulated through a matrix crossing the node “e-tutor profile” and the attributes related to a previous experience in e-learning, but not significant results were identified. The perceptions of students about the efficacy of using different tools and approaches is not related to their experience in the field of e-learning neither as student nor as teachers/tutors.

An interesting aspect related to the previous experience of the students in
the e-learning field is the change of perspective the same students acquired after the course. The idea of e-learning as a complex system rather than just a modality of delivery was enriched by the acquired concept of online tutoring. As one of the students reported “my idea of e-learning has changed because the experience in the course made me reflect on different kind of languages and learning strategies”.

Reflections were narrated by students along the course duration and the e-portfolio was identified as the tool to gather and testify the learning process and the preferred one to show teachers such a process:

Mel: “the e-portfolio final page which shows my whole learning path was not created just to reply to a course’s task, but it was born from the need to reflect on myself and narrate my story. For this reason I chose to give the page a narrative form. What I have been experiencing inside (and outside) the Internet from January 2014 till today is, actually, a story.”

**Conclusion**

The design of the course implied the use of aspects of flexibility that showed to have affected the learning process:

1) flexibility of materials and strategies adopted along the course let students acquire a new perspective of what e-learning is and, in some cases, this vision results to be very different from the one they had before starting the course;
2) flexibility of the course design to be find in the different activities and modality of work let each learner (with his/her specific background and prerequisites) find an answer consistent with their learning needs;
3) flexibility is also a necessary characteristic of the professional profile of the online tutor and teacher. The structure of the course and the continuous support of the teachers and tutors acted as modeling to show processes of flexibility to be adopted.

The present article presents a case study whose results cannot be generalized, but should be interpreted within the frame of the specific contextual experience. As highlighted in literature this single experiences can contribute in building a vision of the concept of flexibility. Researches in this field show two broad lines of investigation: meta-analyses aimed at identifying core aspects of flexibility and case studies which can describe how aspects of flexibility are meant in different contexts and experiences.

**References**


Social Network Analysis of a Blended Learning experience in higher education

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This paper is about a blended learning experience which combines face to face classes with virtual sessions in higher education. As far as we know, interactive relationships in e-learning can influence the process and quality of knowledge building. The aim of this study is to investigate empirically the relationships between network structures and social knowledge building in an asynchronous writing environment through discussion forums into a learning management system (LMS). Taking into account all the messages produced and shared in this experience by both teachers and students, we are going to organize all of them and analyze how they interact in the learning process.

KEYWORDS: Blended Learning, Social Network Analysis, Higher Education.
Introduction

Current educational practices are adopting the use of technologies as an essential support for learning. Since last century, we are witnessing how the information and communication technologies are increasingly affecting the learning process and providing students and teachers with learning experiences, which they could not otherwise experience (Kamil, 1999).

There are many resources that reinforce teaching. One of them is Moodle which has lots of possibilities and a great potential. It is a tool that complements on-site teaching at all levels of the education system so that its benefits for learning need to be studied further because students see the platform in a very positive light (Mena, Olmo, Torrecillas & Iglesias, 2013).

Moreover, Herrero (2014) found that Moodle is the most used and distinguished resource for students. They believe it helps in acquiring them skills without requiring students to be present in the classroom. For these reasons, Moodle is a resource of interest in teaching.

This learning management system allows us to build and manage courses through an online learning community, in which, in addition to sharing resources, we have multiple asynchronous communication forums for collaborative work.

The network structures can be analyzed using a social network analysis of the response relations among participants during online discussions. On this way, there are two main active agents acting during the learning processes, but it is the teacher who has to get a facilitator roll being wailing to mix different methods (virtual and face-to-face lessons, for example). According to previous researches headed by Cabero, Llorente & Puentes (2010), an active attitude of the teacher is one of the most important thing, and totally necessary, to implement successfully mixed learning strategies (Blended Learning), also supported by the suitable infrastructure provided by the institution, trying to make the teaching easier. Moreover, active online participation is a key factor in the success of student learning (Hiltz & Turoff, 2000).

This research analyzes the interactions that occur in a blended learning experience in higher education. Thus, we analyzed how 6 groups developed collaborative learning social networks when participants worked together on 4 activities.

1. Theoretical framework

New information technologies have opened up a huge range of possibilities in the education field, which have provided students and teachers several instruments and tools facilitating the development of new working methods, and therefore, new skills. Thus, the ability to combine face-to-face teaching with the virtual one has been a substantial contribution in order to design and conduct different training sessions by teachers.

We must consider that “Information and Communication Technologies (ICT) have an important influence on the evolution of every company on the planet and affect significantly all (economic, social or cultural) dimensions of functioning
of societies. With ICT, everything changes: the way of teaching, living, learning, working and even living” (Karsenti y Lira, 2011: 112-121).

It is important to remember the list of elements for Blended Learning proposed by Clark (2003).

<table>
<thead>
<tr>
<th>Offline Component</th>
<th>On-line Component</th>
</tr>
</thead>
</table>
| **Physical place for learning** | - Learning in the workplace  
- Visits to physical places |
| **On-line tutor** | - On-line tutoring  
- On-line following up |
| **Class work** | - Readings  
- Seminaries  
- Role-plays  
- Conferences |
| **Printed media** | - Books  
- Journals  
- Newspapers |
| **Electronic media** | - Audio CDs  
- CD-ROMs  
- DVDs |
| **Mass media** | - TV  
- Radio  
- Interactive television |
| **Mobile devices** | - Notebooks  
- PDAs  
- Smartphones |

Table 1. List of elements for Blended Learning (Clark, 2003)

Several years after the birth of learning management systems supported by new technologies, the implementation of LMS in higher education has caused the need for studying interactions among participants, constituting a new dimension of analysis by itself. One of the factors indicative of the success of Blended Learning systems is the quantity and quality of the interactions that are produced in synchronous and asynchronous communication forums, in which questions are posted and solved, and information is shared in various formats (photo, video, audio, podcast), both on educational issues (at a given time) as on social and daily life themes (schedules, news, release notes).

It has no sense to ignore the socializing effect of different educational proposals supported by Blended Learning systems in general, and more specifically, communication forums, spaces for free exchange of information between students and teachers. As new technology products have appeared, teachers have been incorporating them into their working methods on a completely voluntary way, without any imposition by educational institutions. “There is not a factor of imposition or pressure to use them for heads or seniors, it must be understood that in the context of public universities there is sufficient freedom for teachers to incorporate or not certain teaching innovations. It seems clear that teachers are more sensitive to adopt them sooner or later, by the perception of the uni-
Social Network Analysis (SNA) provides a new paradigm and methods for assessing knowledge building in online learning environments. Thus, it has been used as a tool to understand online classes. It analyses the interactive relationships among participants by using algebraic matrix and graph theory tools to describe the patterns of interactions and characteristics of networks with network measures. The factors taken into account in this study are the following:

- **Group size**: it is one of the main structural determinants of the level of possible participation in a network.
- **Density**: it shows the value of high or low network connectivity. It is a measure expressed as a percentage between the number of existing relationships with potential. It is calculated by dividing the number of possible relationships multiplied by 100.
- **Centrality**: the number of actors to which an actor is directly linked. It is divided into input degree (that is the sum of the interactions referred to an actor on the other) and output degree (sum of relations that actors have with the rest).
- **Centralization**: is a special condition in which one participant acts as the center being highly connected to the network.

2. **Aim of the study**

The aim of this study is to discover the structural characteristics as a whole in each of the social networks created so we perform a social network analysis (SNA). In a blended learning educational context, we tried to investigate empirically the relationships between network structures and social knowledge building in an asynchronous writing environment through discussion forums into a LMS (Moodle). All questions and responses exposed in these forums during the sessions were collected to show which sort of activities had more and less participation, and the most active members on the top of the groups list.

3. **Methodology**

**Participants**

The study participants were 21 students aged between 21-25 years from different degrees of the University of Huelva (Spain). Specifically, students who participated in this experience were studying History, Teaching, Humanities, Business Management, Law, Social Work and Psychology.

**Procedure**

All students participated in a blended learning course. They were offered a tech-
nology orientation session the first day of class. After that, they were randomly assigned to small groups of three-four components so they were organized into 6 online working groups. This research main’s tool is the LMS (Moodle) where we carried out the online part of the course. They participated in a four weeks online course. Finally, one last class was held face to face. In this study, we used methods of Social Network Analysis (SNA) to analyze four activities of the course developed in Moodle. There were many available tools: shared resources, chats, private and public forums...The four activities had instructions and one week of time to be solved.

In this study, we want to show how students worked through descriptive data. We are also interested in analyzing factors as size, density, centralization and cohesion, of the groups.

**Instruments**

We used UCINET 6 for Windows which is a software package for the analysis of social network data. It was developed by Borgatti, Freeman and Everett (2002). It comes with the NetDraw network visualization tool. On the one hand, we used UCINET to analyze the interactive relationships among participants by using algebra matrix (Appendix 1) and on the other hand, we used NETDRAW graph theory tools to describe the patterns of interactions and characteristics of networks with network measures.

**4. Results**

In Appendix 1 we present the number of interactions produced in every discussion group. Each group member could direct his/her participations to the discussion forum, to other member individually or to the tutor, as we can see in table 2.

<table>
<thead>
<tr>
<th>GROUP</th>
<th>STUDENT-TUTOR</th>
<th>STUDENT-TUTOR</th>
<th>TUTOR-TUTOR</th>
<th>TUTOR-TUTOR</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>54</td>
<td>33</td>
<td>0</td>
<td>7</td>
<td>94</td>
</tr>
<tr>
<td>B</td>
<td>37</td>
<td>40</td>
<td>4</td>
<td>1</td>
<td>84</td>
</tr>
<tr>
<td>C</td>
<td>20</td>
<td>6</td>
<td>0</td>
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<td>30</td>
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<td>D</td>
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<td>9</td>
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<td>2</td>
<td>34</td>
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<tr>
<td>E</td>
<td>12</td>
<td>10</td>
<td>0</td>
<td>3</td>
<td>26</td>
</tr>
<tr>
<td>F</td>
<td>35</td>
<td>5</td>
<td>1</td>
<td>3</td>
<td>44</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>181</strong></td>
<td><strong>101</strong></td>
<td><strong>5</strong></td>
<td><strong>19</strong></td>
<td><strong>310</strong></td>
</tr>
</tbody>
</table>

| %     | 58.4% | 32.6% | 1.6% | 6.1% | 1.3% | 100% |

Table 2: Descriptive results

As we can see, all participants, tutor included, sent 310 messages in total between them through Moodle Forum tool. Most of the messages (92,6%) were sent by students, in order to complete every task requested by the tutor whose participation was the 7,4% of messages; it shows that they have been supporting each other during the course. Although groups A and B have the highest number of interactions (94 and 84 respectively), the other groups C, D, E and F got enough
ones. It is important to notice the teaching presence in this experience: the more messages produced by the tutor, the more number of interactions between students.

Social Network Analysis was used to discover the structural characteristics as a whole in each of the social networks created. For this analysis we used NETDRAW that revealed the interactive relationships produced in the different groups as we can see in figure 1.

According to the variables studied, groups A and B have higher indices of cohesion. As we can see in Figure 1, they have more links among members presenting a stable polygon. The more closed networks are those with higher levels of cohesion and density.
Table 3: Centralization and density of groups

<table>
<thead>
<tr>
<th>Group</th>
<th>Size</th>
<th>Density / average matrix value</th>
<th>Network Centralization (Indegree)</th>
<th>Network Centralization (Outdegree)</th>
<th>Cohesion</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4</td>
<td>13.3333</td>
<td>1.705%</td>
<td>93.770%</td>
<td>0.850</td>
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<tr>
<td>B</td>
<td>4</td>
<td>9.0000</td>
<td>3.158%</td>
<td>91.579%</td>
<td>0.950</td>
</tr>
<tr>
<td>C</td>
<td>3</td>
<td>6.0500</td>
<td>5.163%</td>
<td>92.120%</td>
<td>0.800</td>
</tr>
<tr>
<td>D</td>
<td>3</td>
<td>6.7000</td>
<td>4.000%</td>
<td>91.500%</td>
<td>0.800</td>
</tr>
<tr>
<td>E</td>
<td>3</td>
<td>5.8500</td>
<td>11.685%</td>
<td>93.207%</td>
<td>0.800</td>
</tr>
<tr>
<td>F</td>
<td>3</td>
<td>9.8000</td>
<td>0.658%</td>
<td>92.763%</td>
<td>0.800</td>
</tr>
</tbody>
</table>

There are many differences among groups. In this sense, groups A, B and F have higher levels of density and centralization. Larger values in cohesion indicate greater cohesiveness (Cohesion range 0 to 1). On the other hand, related to participants’ centralization that is a special condition in which one participant acts as the center being highly connected to the network, we can see several students with this role in groups A and B, meanwhile there is only one central actor in the rest of the groups.

**Conclusion**

New mentalities established in hyper-connected populations are changing the way in which we access to information and also the configuration of the learning strategies on education field. According to the results shown before, we found that most messages are produced by students showing that collaborative learning could be considered a powerful instrument for socializing among student community giving the students an active role in their learning process. Group size was relevant because groups A and B had four students and the rest of the groups only three. We believe this factor affected to the other variables studied as we found higher levels of density, centralization and cohesion in group A and B. In general, centralization indices (out-degree) are very high indicating that most of the messages that come to the forum refer to all members of the group (Example: “we have to discuss together the information given”). In this sense, high levels reaching centralization must be understood in the context of social networks, in which messages sent to all members of the group are the most frequent. On the other hand, in-degree centralization indices are low, indicating that team members have received a similar number of messages. We found similar results in the research conducted by Tirado, Hernando & Aguaded (2012) where they found an inverse relationship between the in-degree centralization index and the out-degree centralization index. Just in this point, we extract the essence of blended learning formative sessions, having to distinguish, firstly, all tools and instruments coming from a LMS (Moodle in our case), and secondly, an active attitude of the participants, both of them are able to create a more permeable and suitable environment where students learn more easily.

In this study, we just present some evidence on the need to analyze virtual learning. Results show the potential of analyzing networks for a better under-
standing of online knowledge construction. According to Schalk & Marcelo (2010) we conclude that there exists the need to analyzing that goes beyond the written discourse in asynchronous communication to establish relations with both cognitive and social learning of students.

As far as we know, online learning interactions must be analyzed in order to understand the messages produced in synchronous and asynchronous forums available in each virtual environment. There is no doubt that Moodle is a tool that complements classroom instruction promoting interactive learning. Therefore, it facilitates the construction of knowledge through interactive learning (Mena et al., 2013).

Finally, students’ opinions about their satisfaction level by using both virtual and face-to-face learning strategies go on the same line. The experience has been valued as excellent and recommended by all the students. One of the most generalized comments was the desire to repeat learning activities like this, combining face to face lessons with online activities. It has welcomed the last classroom session in which has been conducted a final activity and have discussed some aspects of the organization and the course format. Based on this successful educational experience we encourage all teachers to use, promote and implement this kind of Blended Learning possibilities which are offered by mixing face to face classes and new technologies.

The involvement of all participants has been high and quality. They have developed interesting proposals and resources as a result of social interaction produced through this blended learning experience. This issue could be directly related to the extra motivation when new technologies are used by teachers in higher education, encouraging participation among students while they are socializing. It seems that the situation is changing, contrasting with the results found by Dahawy and Kamil (2009) in their research where students preferred passive like techniques as they expected teachers and instructors to provide all the learning points in class as well as delivering all required discussions.

We consider that analyzing the interactions that occur in the virtual environment has special meaning today because of the importance of being able to improve communication in these contexts. The core of the matter consists on giving students the tools necessary to create themselves an efficient working network for sharing and producing knowledge using technologies that they are used to engage in their daily routines.

This study is being extended in order to improve the analysis of networks in knowledge building through collaborative work in discussion forums.

References


the Case of The American University in Cairo”, *Electronic Journal of Information Systems in Developing Countries*, 37 (4), 1-12.


Appendix 1

In this appendix we present the number of interactions produced in every discussion group. Each group member directs his participations to the discussion forum or to other member individually.

<table>
<thead>
<tr>
<th>Group A</th>
<th>A1</th>
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<th>A3</th>
<th>A4</th>
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<th>Forum</th>
</tr>
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</tr>
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The article aims to present EAS methodology. EAS in Italian means: “Episodi di Apprendimento Situato” (Episodes of Situated Learning) and refers to a teaching strategy based on active learning. Starting from the actual learning context, EAS methodology is introduced in this article paying attention to its conceptual background and operative structure. The conclusion is about the ongoing experimentations of this methodology, in schools and at the University.

**KEYWORDS:** Mobile learning, Situated learning, Education technology, Teachers training.
1. Complexity and learning challenges

Many teachers we meet in our teacher training activities, usually say that their students are no more able to do some things that traditionally, in the past, students were able to do. For instance, they have problems with speaking and writing, they seem not so smart when they are asked to conceptualize or critically think, their argumentation is not so strict and logically made. Apart this, they seem unable to pay attention to what teacher says, their cultural motivation seems low, their attitude to study and research is rarely good. What teachers feel is a real gap between them and their students. A cultural gap, because School Culture is nowadays really far from youngsters’ cultures. Maybe also a generational gap, if we accept the idea that digital natives are used to behaviors that the adults, supposed to be digital immigrants, are not yet used to. The hypothesis of some scholars is that we could be in presence of a new digital generation able to do a lot of new things (multitasking, transmedia storytelling, etc.) and unfortunately unable to develop traditional skills. According this way of thinking, digital media should be able to set our mindframe (de Kerkhove, 1991): as oral and literate cultures was born from the diffusion of word and writing, so digital media could impact on our way of thinking producing different attitudes in our students. The result will be a new literacy, but also the lose of the old one.

I don’t think so. I think that today’s youngsters are smart and can develop both the traditional and new skills, as Wolf (2008) suggests talking about what she names “bilingual brain”. The problem is that they seem don’t do this: they really have difficulties in facing world’s and knowledge’s complexity.

Otherwise this complexity is quickly increasing. If we put mind to information and knowledge development, it’s easy to recognize how it is difficult to find and manage them. Our feeling is the one Pierre Levy (1997) indicated in the early ‘90s when he wrote that we are living the Second Deluge: the Information Deluge. Our problem is the same of Noe’s one: what do we have to get on the ship? Leaving the metaphor: here we have a problem about information retrieval, its critical evaluation, its smart utilisation. It’s sure that a today student has to manage much more information than we had to do when we were young. This is not a case of pluralism: information overload makes difficult for us to have an opinion; it doesn’t mean more chances but only more chaos. How the school could foster students’ skills about this? How make possible for them moving through information being aware of this? And once we had answered these questions, the challenge should be to choose the information we need, better if it is correct. Digital information and the development of web communication changed the way into which we build and share knowledge. The idea of authorship itself is changed: today there is no editorial system able to evaluate that; may be that an unknown person could be more expert on some issues than a scholar. To understand this, our students need more critical thinking than in the recent past.

So it seems that we have a strange situation. We have a world and a culture every day more and more challenging, and students less and less able to deal with them. More challenging situations should require more skills; teachers’ experience is that in the case of today’s students their skills are less than in the past. What is it possible to do? My opinion is that teacher traditional vocation – that is mainly learning mediation – has to be rethaught. We have to find new
teaching styles and actions for making able our students to better understand. Our aim in the next pages is to present a methodology with which to make this. We’re going to do this in three steps: (1) highlight some educational ideas good for the context we described above; (2) present a conceptual framework of “EAS model” as an example of operative utilisation for these ideas; (3) talk about some already done experimentation and some research future trends.

2. Rethinking Education

Today is not possible to think to any innovation in education whithout considering neuroscience contribution. Research in this field showed that are almost three the ways into which humans learn, that are: repetition, experience and modeling.

The role of repetition has relations with neuroresearch on memory. As Kandel’s studies pointed out (Kandel, 2007), our brain’s work is quite different in the case of short term memory and long term one. Short term memory is the result of the job of modulator neurons: this is in relation with the serotonin produced by the effect of synaptic potential on them. On the contrary, long term memory needs the synthesis of new proteins: more precisely it needs the traslocation of PKA nucleous and the fosforillation of some other proteins such as CREB-1 and CREB-2. Brain change, in the case of short term memory, is functional; in the long term one, is anatomical. What explains the shift between them is the repetition of the stymulus. This is true both in the case of cognitive assignments and in the case of experience learning involving body. So it seems that whithout trying and trying, learning is impossible; at the same tim e it is difficult to think to any learning process into which should be not involved the effort of memorization and consolidation of what is learnt.

Experience affects learning through emotions. As Damasio (1994) says, emotion is a change in our body produced by a certain situation. When we are alone in a desert road, by night, hearing strange noises around of us, we feel that our heart is running quicker than usual. This change – heart’s acceleration – is what we name emotion. When we become aware of what is happening, we are able to name this emotion labelling it with the word “fear”. According to Damasio this switch from body change to the consciousness of this, is the switch from emotion to feeling. Our brain learns from experience, storing neural maps made with a stymulus, the corresponding emotion and what he names somatic marker. This is a change we perceive in our body when something is going to affect us. So, when a situation we lived in the past is coming back, its somatic marker alerts us. The effect of this is, for us, the chance to preview what is happening without making experience of it (Frith, 2007; Friston, 2010, 2012). The somatic marker theory is a good explication of how our brain learns from experience: searching for situations dealing with positive emotions and escaping from those dealing with negative ones.

We finally learn also from the others. This is true for all those cases into which we observe people making some things: mentoring is usually based on this kind of practice; arts and jobs training, since the more ancient ages, are done in this way; Giotto learnt from Cimabue living at his school, John Ford from Griffith on
the set while he was directing his troupe. Giacomo Rizzolatti (Gallese et alii, 1996) and his collaborators at the University of Parma explain the reason why of this way of learning. Working on monkeys, they discovered a special kind of bi-modal neurons activated both when the monkey did something and when it was looking at another monkey doing the same thing. These neurons in humans are situated in the parietal cortex, near the Broca area: Rizzolatti named them “mirror neurons”. Some years later, Vittorio Gallese (2005), one of Rizzolatti’s collaborators, discovered a third case into which mirror neurons light up: this is when we imagine to do something (theory of embodied simulation).

If we consider these three ways of learning, we can understand that they are motivated by the same aim: help our brain to face the complexity of the world. As Zeki (1999) wrote, our brain works like poetry: according to the famous Tennessee Williams definition, it searches for eternity in ephemeral things.

Knowing this, the problem for teachers is how to scaffold brain in its activity. Each one of the brain’s learning ways we talked about, could be fostered through specific didactical actions. Microlearning (Pachler et alii, 2010) is what it’s possible to do for facilitating repetition. Usually we learn better if contents we’ve to learn have a small granularity: this helps people in focusing their attention, makes sure them of what they are working to. Microlearning means to learn through microactivities, built on microcontents. It is a learning strategy developed in the field of Mobile Learning. Contents are learning objects readable via mobile devices; the same devices are the multimedia tools with which students can do their activities. Both reading and contents production are possible outside the classroom: mobile devices allow connection and contents portability. So really people can learn wherever they want.

Experience learning is traditionally related to active learning. This means to make possible that students could be actors of their own learning. As Activism demonstrated, there is no chance for learning if teacher speaks all the time, thinking that education is only information giving. Learning is fostered if it is experienced, that is related with emotions and real life situations. Classroom has to be re-designed as a lab: lessons become workshops into which problem-solving and collaborative learning are the main students’ activities. Digital technologies and mobile devices can empower these activities making possible that every student could be able to produce its contents and share them with his/her colleagues.

Learning one from each other needs to be situated. Situation is a landscape into which learning actions make sense. Gee argues this when he talks about what he names “situated meaning principle”. Each meaning doesn’t make sense if it is not situated: “The meanings of signs (words, actions, objects, artifacts, symbols, texts, etc.) are situated in embodied experience. Meanings are not general or decontextualized. Whatever generally meanings come to have is discovered bottom up via embodied experiments” (Gee, 2003, 224). This is what every teacher knows: if you want make easier learning for students, you have to contextualize it. More the meanings are disembodied, less they are learnable. Embodiment of knowledge and learning is possible only if we understand that we have to build meaningful contexts and acting into them with our body: words, occupation of the space, movements, gestures, etc.
3. EAS model: a conceptual framework

In the last years, was developed a methodology thanks to which try to accept the challenges we talked about in the first paragraph and rethink education according the indications of the last one. The name of this methodology is “EAS”. The italian meaning of the acronym is “Episodi di Apprendimento Situato”, that is “Episodes of Situated Learning”. The book about this methodology (Rivoltella, 2013) has become a handbook for a lot of teachers, generating in italian school a real “EAS Wave”. About this we’re going to discuss in this article’s conclusions.

Conceptual landscape

First of all let’s consider the conceptual landscape of EAS. Here we have two main ideas we’re going to better explain with their references in teaching theories:

1) teaching is a design activity;
2) if you want make your students’ learning more effective, flip your classroom.

To think about teaching as a design activity, means to consider that what teachers and their students do in the classroom is a cultural work. It is a not easy thing to think.

Usually we don’t think to teaching in a cultural way: traditional education hasn’t a great consideration for school productions; everybody thinks that teachers don’t really make culture, but that they only provide a mediation for cultural transmission; and students activities are not so valued. And it’s very curious that even teachers use the word “scholastic” in a negative way when they refer to a not so smart performance of their students.

The idea of teaching as design is totally different. It suggests that what teacher and students are doing in the classroom is quite similar to what Pierre Francastel (1951) names “montage des objets culturals”. Francastel studies theatre in the Modern Age. Particularly, he studies the organization of public performances in the Renaissance. Thinking to this, he argues that this kind of activity needs a three-step process: “decoupage”, that is to bring a cultural object and to separate it from its natural context (1); “montage”, that is build up a new cultural object bringing together all what we’ve previously cutted off from the original contexts (2); “performance”, that is to put this new cultural product in the mainstream of Culture (3).

The New London Group (NLG) thinks to teacher’s work in a quite similar way (Cope & Kalantzis, 2000): first of all teacher and his/her students study cultural objects in their natural contexts (designed); secondly, they bring those objects in the classroom and build something new starting from them (designing); finally, they re-place these new objects in the original context redefining it and so contributing to culture making (redesigned).

This implies that teaching has to be re-thought in its meaning. The most important thing is not to provide information to the classroom, but to plan, to imagine didactical architectures, to build up learning processes taking care of methodologies and tools: teaching is a design science (Laurillard, 2012).

The second idea we were talking about is Flipped Learning. As we know, with
this name we usually refer to a teaching technique whose aim is to flip the traditional organization of the classroom. In traditional education, teaching is in the classroom, learning is at home. In the classroom students take part to teacher’s lecture, take notes, try to understand; at home, doing their homeworks, they have to learn, that is doing exercise and going in depth with meanings. In this case, it’s clear that probably students could have the main problems with learning when they are at home: this means that when they more need the teacher, the teacher is not in. So, if we flip this situation, making possible that pupils find information at home, they could have the chance to learn together in the classroom: teacher is in for trouble shooting and problem solving.

What people think is that the origin of flipped lesson is in the Seventies of the past century; in that context, flipping was a way for encourage teachers in the university to use Learning Management Systems. So it seems that flipped lesson was born with e-Learning, is a fact of innovation. But if we put mind to the history of education, we could be able to know that the idea of flipping is more ancient. It belongs to the Activism tradition, particularly to Celestine Freinet. This marvellous primary teacher was used to say that he never did a lecture: according Freinet, if before teacher speaks, and then pupils act, they could lose a lot of what they could learn from their own discoveries if they were allowed to be experienced. So, Freinet’s lectures were always “a posteriori”: that is flipped. But flipping is even more ancient: for instance, in the Rabbinic Tradition, classroom is always flipped.

**Methodological Framework**

EAS methodology has to be considered both as a case of teaching as design and as a flipped lesson. To look at Fig. 1 could help to understand why EAS have to be considered an example of flipped lesson

<table>
<thead>
<tr>
<th>Steps</th>
<th>Teacher’s actions</th>
<th>Student’s actions</th>
<th>Learning strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation</td>
<td>Gives homeworks</td>
<td>Does homeworks</td>
<td>Problem solving</td>
</tr>
<tr>
<td></td>
<td>Makes a conceptual framework</td>
<td>Hears, reads and understands</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Shares it with the students</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gives inputs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gives an assignment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity</td>
<td>Sets activities’ times</td>
<td>Builds and shares products</td>
<td>Learning by doing</td>
</tr>
<tr>
<td></td>
<td>Manages students’ work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Debriefing</td>
<td>Assesses</td>
<td>Analyses schoolmates products</td>
<td>Reflective Learning</td>
</tr>
<tr>
<td></td>
<td>Discusses misconceptions</td>
<td>Discuss with them</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Defines concepts</td>
<td>Reflects on products and processes</td>
<td></td>
</tr>
</tbody>
</table>

*Fig. 1 – EAS methodological framework*

**Step 1** - The first step, before the lesson, is to prepare the activity that with our EAS we’re going to imagine the students could do. Teacher has to choose which kind of homework is going to give to the classroom: its aim is to make possible that students could manage information about what they’re going to learn through the activity planned by the teacher for Step 2. After this, teacher prepares the conceptual framework he’s going to present to the classroom. Stu-
students, at home, do their homework and so they start to think about what will be the object of their activity in the classroom.

**Step 2** – Teacher starts the lesson presenting, in a few minutes, the conceptual framework to the students: a principle, an idea, some highlights he/she considers could be useful for students better learn. After this he gives an input (a video, a problem, a text, etc.) to the classroom and, starting from this, asks students to make a challenging activity. Students are usually asked to build up a product: a movie, a storytelling, a text, a problem solution, etc. The teacher manages the activities and provides students with scaffolding.

**Step 3** - After students have finished their activity, teacher asks to some of them to present his/her work to the classroom. Everyone can make observations and each of them is discussing with each of the other ones about results and possible solutions. While students discuss all together, teacher is observing them, assessing their performances and products. Finally he/she makes his/her lesson: individualizing misconceptions and defining the concepts that thanks to the EAS was possible to meet.

So it’s clear that EAS is flipped: students are asked to do some activities before the lesson; these activities are useful for developing an activity in the classroom; after the activity is over and students discussed about it, teacher does his/her lecture. A few minutes as enclosure of the EAS.

If we consider Fig. 2, it’s possible to understand why EAS methodology is a good example of what we named teaching as design. In the table is possibile to match the steps of NLG Framework, learning actions students are requested to do, and the planning steps a teacher has to respect while is preparing to work with EAS in the classroom.

<table>
<thead>
<tr>
<th>NLG Framework</th>
<th>Learning actions</th>
<th>Planning steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designed</td>
<td>Experiencing</td>
<td>1. To prepare homework</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. To prepare the conceptual framework</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. To choose the input for promoting activity</td>
</tr>
<tr>
<td></td>
<td>Conceptualizing</td>
<td>4. To prepare homework support materials</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. To prepare conceptual framework presentation</td>
</tr>
<tr>
<td></td>
<td>Analysis</td>
<td>6. To give indications into support materials</td>
</tr>
<tr>
<td>Designing</td>
<td>Analysis</td>
<td>7. To prepare the assignment for the classroom</td>
</tr>
<tr>
<td></td>
<td>Application</td>
<td></td>
</tr>
<tr>
<td>Redesigned</td>
<td>Discussion</td>
<td>8. To prepare the storyboard for debriefing activity</td>
</tr>
<tr>
<td></td>
<td>Publication</td>
<td>9. To imagine output and storyboard</td>
</tr>
</tbody>
</table>

Fig. 2 – EAS and NLG Framework: learning and planning actions

As it is possible to see, planning is really important when you use EAS in your teaching activity, and planning in Education is moreover a design activity. Two more quick indications. The first one is about the relationship between planning and reflective teaching. To think teaching as a design activity means to make that every didactical choice or action in the classroom is explicit: this makes teacher...
more aware of he/she is doing or going to do. And as Schön (1984) well showed, a reflective practitioner has to be aware of his/her actions.

The second indication is about the chance that technology provides to teachers for fostering their planning activity. At CREM IT we developed a comparative research among 16 online tools with which doing this. Most of these tools are aggregators (like Blendspace, or Frog): thanks to them teachers can plan their activities, make them in the classroom, provide a documentation of what they and their pupils did in the classroom itself.

4. Experimentionations and future trends

In this last paragraph my aim is to briefly present some of the actions that CREM IT (the Research Centre on Education, Media, Information and Technology of the Catholic Universiy of Milan) did in order to test and promote EAS methodology. They worked (and are working) in two main directions.

The first one is about teachers’ training and school innovation. CREM IT, usually works with teachers. Doing this in the last years they had the chance to meet some very smart teachers, able to manage the classroom using active techniques and new technologies. Since 2012 they invited these teachers (they are about 40) to take part to a practice community. Using Google applications (Groups and Drive) for working together and we planned almost two in presence meeting per year.

The first result of the community activity was the organization of a “EAS Day”, in Milan, Catholic University, October 17, 2014. The aim of the meeting was that teachers could know EAS methodology, learning one each other, particularly from the experiences of the community members. They had more than 200 participants from the Middle and Northern Part of Italy; they took part to the main session in the morning, and to the workshops in the afternoon. Was also introduced a “EAS Award” that is going to be celebrated every year in the future.

Meanwhile, CREM IT tried to test the usefulness of EAS methodology in vocational education. In this case we’ve a teaching and learning situation quite different from school one: learning has to be more active; the relationship between teaching and job has to be stronger; students’ motivation has to be fostered with challenging and envolving activities; usually disciplines are technique, require to be held in the form of workshops. CREM IT hypothesis was that working with EAS could be useful. So they started a collaboration with Istituto Zanardelli, a Special Agency of Brescia Province (North-Eastern part of Lombardie, about 100 Km. from Milan) that is owner of 9 vocational training centres in all the Province. The aim was to train teachers about EAS helping them to use technology in the classroom through this methodology. CREM IT finished the first year of experimentation with great results and they’ve already planned this new year activity.

The second direction of the experimentation activity is the internationalization of EAS. This is the case of a research project shared with the Universidade Federal de Santa Catarina (UFSC) in Florianopolis, south part of Brazil. The project is about teachers’ training, aiming to provide brazilian teachers with an opportunity for innovating their practices, and at the same time trying to understand what happens when we transfer methodologies across different cultures.
On the first hand, we can consider EAS methodology like a professional organizer. Working with EAS asks teachers to re-consider their usual habitus: so they put mind to their communication, assessment practices, planning activities, and may be that they could accept to change something.

About cultures, school cultures, it is clear that every country has its own tradition. So it is also clear that it is not so easy to bring a methodology, born in a certain culture, and exporting it in a different one. So, this is what is really interesting in the project: try to understand what changes in brazilian teachers reception of EAS; working together to a customization of the methodology itself.

References


Any interest in aesthetic experience, sensible knowledge, bodily knowledge, in how it changes and expresses itself, should today preliminarily come to terms with all the esthesiological variations (i.e. in sensibility and cognition) provoked by new technologies, notably by the virtualization processes. A thorough analysis of the meaning of aesthetic experience and the philosophical assessment of new technologies figure therefore among the specific tasks of current aesthetics, as to oppose some resistance to the aestheticization of politics, according to the line of enquiry called by Benjamin ‘politicization of art’.

KEYWORDS: Aesthetics, Experiences, Arts, Educations.
Keats’ verses express the sense of experience that Western philosophy has called “aesthetic experience”. This is made according to an essentially Neoplatonic perspective, which is today maybe not viable as a widespread social experience any more, or, in other words, not possible as shared aesthetic common sense any more. I shall therefore ask myself what is today the main meaning of aesthetic experience, and what may still be today a possible sense of the aesthetic-artistic experience itself. The very aesthetic experience resonating in Keats’ lines has been described in an exemplary way in the Twentieth century by Walter Benjamin in his famous essay of 1936, The Work of Art in the Age of Mechanical Reproduction, by means of the word □aura’. What did Benjamin mean by that?

We know that the term □aura’ has several meanings in Benjamin’s work, but it is here important to recall that □aura’ designates an experience of the world, and not primarily an experience of art. However, such an experience may be triggered by art as well in its own way. Let’s recall Benjamin’s famous □illustration’: «The concept of aura which was proposed above with reference to historical objects may usefully be illustrated with reference to the aura of natural ones. We define the aura of the latter as the unique phenomenon of a distance, however close it may be. If, while resting on a summer afternoon, you follow with your eyes a mountain range on the horizon or a branch which casts its shadow over you, you experience the aura of those mountains, of that branch» (Benjamin 1936, p. 479).

Not only the aura is potentially proper to anything – although not of any thing without distinction – but it also may be qualified as a breathing within which space is interiorized as time, and then space and time may fall into some cracking of the body and become memory, thus creating a sort of vibration in life’s fragility, in our being on the verge of getting lost. The aura, Benjamin writes in the □first draft’ of his essay, is «a strange weave of space and time: the unique appearance ...» (p. 440). The topic of □uniqueness’ is again to be found in reference to the aura qualities of an artwork as «inseparable from its being imbedded in the fabric of tradition» (p. 480). Tradition is taken as a “living” thing, as a form of life marked by variation and, at the same time, by the rising of uniqueness. As an experience and not primarily as a thing or a being, the rising of uniqueness is an experience of contingency yet snatched just for a moment from its transition into nothingness. So to speak, it is an experience of eternal contingency, of a moment of rest in the act of being. Such an experience is certainly taken away from the precognition of will, from desire or meaning, however such a deprivation does not translate into a loss, but rather into [special] intensity as calmly paced as breathing. Benjamin’s □illustration’ envisages a state of experience that I would call rest of the act, that in which life □first and foremost’ is resting.

Now we know that the technical reproducibility of artworks entails, according to Benjamin, the loss of the aura, as it transforms the attentive and expert fruition of the artwork into that □absent-minded’ fruition typical of masses. This is not, according to Benjamin, per se a negative phenomenon, however, it may well
become one, if what Benjamin calls ‘aestheticization of politics’ occurs, instead of what he presents as its opposite, i.e. the ‘politicization of the aesthetic’. It is not fully clear what Benjamin means by ‘politicization of the aesthetic’, but it is absolutely clear that in the course of the Twentieth century, under several disguisements, the aestheticization of politics occurred, in the form of an aestheticization of social life connected to technological development, besides the common paths of the social and productive life.

First of all, technology today, compared to Benjamin’s time, is something else, and in several respects. Media are clearly devices (see Foucault 1977); they are not tools through which man represents reality, but rather devices of impersonal government, control, manipulation, surveillance. We can say ‘impersonal’, as they are reticular, pervasive, widespread, producing processes of both objectivation and objectification, and, after all they are a whole environment, a technological eco-system, air, global electronic atmosphere, the condition of possibility not only for communication but also for life. This kind of power is never interiorized within the system of collective beliefs and feelings, which possibly became individual and may be genealogically understood, as to allow forms of resistance in critical situations. No objectification is possible of the aesthetic sphere, of the media-mediated taste. That taste which is properly mine, embodied in desire and choice, is not possible. Media are a place of experience, as indicated by the term *medius*: middle place, where exchange and relations take place, from which *medium, media*. From the place to the tool, and back to the place.

Today, such a place is almost completely technological, however the new era of digital technologies has established an unprecedented relation between man and technique, since in relation to them «man is absolutely marginal (...). the new technologies are not extensions or prostheses any more (...), they are rather separate extroversions of basic human functions which are progressively more autonomous and self-operational» (Costa 2005, pp. 44-45). The new essentially digital technologies determine the end of that double paradigm that has until now oriented the investigation concerning the technique: 1) technique as a tool compensating for the typically human lack of adaptational skills (see Gehlen 1957) or 2) technique as ‘natural’ prosthesis, that is originally linked to ‘human nature’, essentially hybridized with the artificial (see Leroi-Gourhan 1964-65). New technologies are taken instead as beyond man, while man is the one who reconfigures himself through them and mainly in them, as he would do around a changing and plural centre of gravity. On this matter, Baudrillard (see Baudrillard 1988) has formulated the concept of ‘videosphere’ as the overall sense of digital, hypermedia and telematic technologies. However, after closer inspection, such a concept may be reductive and possibly misleading, as new information technologies are not only and essentially tele-visual processes, so to speak, of analysis and synthesis of appearance. Nevertheless, terminology aside, the message is clear: new technologies, instead of being instruments or explanations of the so-called ‘human nature’, appear as autonomous fluxes, which are maybe the expression of some previously hidden feature of the *physis*. They entail the human, in other words, they structure and de-structure the human (its perceptual modes, emotions and desires, social exchanges, and in general the connection body-mind) within their processes, the increasing autonomy of which makes the human eccentric in relation to them. Hence, technological processes are not
under the control and grasp of individual will and projectuality, as ‘being-thrown’ as these may be. Probably, this forces us to reconsider the synthesis *physis-technē* as the proper place of the ethos, or of the human inhabiting. Until now the *polis* has been the most articulated expression of this synthesis, however today the realm of politics seems insufficient. A new horizon is thus delineated where biopolitics and bioaesthetics (see Montani 2007) have crossed destinies, as they are actually almost completely overlapping in a fatal synthesis as far as some – only apparently economically superstructural – aspects are concerned.

That very aestheticization of politics that, according to Benjamin, legitimizes property relations through the production of cultural values, and results in war as the essential aesthetic-economical phenomenon, now has also other features. By politics, of course, Benjamin means the life of the *polis*, that is public affairs. It is rather easy to critically describe the main features of media imagery and of the corresponding system of desires, in relation to the our time of emotional marketing, through some already well established concepts of the present time, such as the society of the spectacle (or the show business society), the simulacra society – ‘simulacra’ being the deprivation of connection with any reality whatsoever, even with that reality covering up for the absence of reality (see Baudrillard 1981) –, widespread aestheticity (fashion, design, advertising, videoclips, *packaging*, landscape design, etc.). Within such frameworks, individual feelings are just a repetition of the ‘already heard’ (see Perniola 1990), of a realm of impersonal tastes, feelings, emotions and preferences, which do not support any critical distance, but are rather immediately given – although thanks to complex processes of mediation configured as mediacracy –, and externally felt, regardless of any process of interiorization, as well as regardless of any ‘false consciousness’. This is so because, one may recall, «the spectacle in its generality is a concrete inversion of life, and, as such, the autonomous movement of non-life» (Debord 1967, §2). As a valid description of the general field of enquiry, Benjamin’s metaphor of the sex appeal of the inorganic is again powerfully employed. Furthermore, one may still endorse the claim that «The spectacle is not a collection of images; rather, it is a social relationship between people that is mediated by images. (…) [and] cannot be understood either as a deliberate distortion of the visual world or as a product of the technology of the mass dissemination of images. It is far better viewed as a *Weltanschauung* that has been actualized, translated into the material realm, a world view transformed into an objective force. (…) It is not something added to the real world not a decorative element, so to speak. On the contrary, it is the very heart of society’s real unreality. (…) the spectacle epitomizes the prevailing model of social life» (Debord 1967, §§ 4-6). We understand then why it is so difficult to think artistic production today according to the traditional orientation of the Twentieth century, that is, as the making of both real novelty and resistance, which should not be residual and non influential for the social practices of sense-constitution. Moreover, it is sometimes also difficult, regardless of institutional legitimation processes (among which the market-related ones), to distinguish some current artistic products from refined industrial products. Such an issue originates from hardly listed factors, as it has its roots – besides theoretical discussions – also in the contemporary complexity and hence in those complicated process of blending, incorporation, synthesis of the so-called “high” and “low” culture. This amounts to new but trivial revival, in line with the main trends of a trivial time, of
the issue of the death of art: «the “end of art” is conceivable only if men are no longer capable of distinguishing between true and false, good and evil, beautiful and ugly, present and future. This would be the state of perfect barbarism at the height of civilization – and such a state is indeed a historical possibility» (Marcuse 1972, p. 121).

Art, taken as the ultimate resource, as the ultimate form of resistance against the aestheticized experience that displaces and superficializes beauty through media and market processing, art that has abandoned every tranquillity and escapes the control of the cultural industry, – avoiding to represent the symbolic system that subsumes the form under the mechanism of the economy of fiction, and instead precisely advocating form as ethical and anesthetic tension and opening towards alterity against the pervasivity of aesthetizing processes, – that art today has no social legitimation outside market mechanisms. A further step has been taken not only in relation to Benjamin’s time, but also in relation to Adorno’s: «Adopting Benjamin’s designation of the traditional work of art by the concept of aura, the presence of that which is not present, the culture industry is defined by the fact that it does not strictly counterpose another principle to that of aura, but rather by the fact that it conserves the decaying aura as a foggy mist» (Adorno 1967, p. 62). Today, the decaying aura produced by some other and newly-technological cultural industry is the only possible aura. It is then without connotation and the smell of putrescence is already undetectable. It is aura and nothing more, featuring a single and repeatable oeuvre, authorial and for the masses. Today the auratic form par excellence is gossip, which is the multiple perception of proximity, although from very far away. What we discover is a model of augmented survival: no death of the aura, but the aura of death.

How should we reconfigure then the investigation of the aesthesis, i.e. that complex perception, within which the powers of body and mind act in inextricable conjunction, and which is widely scrutinised for its cognitive-constitutive value in relation to man and the world? How should we strategically re-formulate Benjamin’s ‘politicization of art’? In this regard, two point should be emphasized: 1) the aesthetic experience is structurally relational; 2) the aesthetic experience is eminently bodily. It is true, in fact that aesthetics as philosophical subject was born in the Modern age precisely as claim of the body dimension and of its peculiar cognitive and productive strength. Perception, imagination, creativity, feelings, intuition, taste, genius, after all every mode of cognition and production of the world, nature, the others, are all linked to the body and cannot be conceived without the body. These powers are shadow zones, misty places far from the light of reason, hardly grasped by the consistency of argument, and yet so relevant, that the whole human complexity seems to be described by them, even though they resist every abstract evaluation. From such a sacrifice of abstraction – which does not entail a sacrifice of rigorous reasoning – derives, in my opinion, the current formative value of the aesthetic experience. This is a rather strange value, an ‘untimely’ one, a deeply untimely one.

Experience generally amounts to complex processes of relation, exchange, attempted adaptation of an organism to the environment, which implies actions, habits, active functions ranging from doing to suffering. Therefore, the proper of experience are not first and foremost the objects presumably experienced by the subject, but rather a synthesis of material substance and action, and as such
it involves interaction. However, the term interaction implies action “among” polarities, and in this regard it should be clear that any experience fully takes place, not as a relation among previously established poles, but as the result of the organization of processes favouring the development of differentiated polarities. A great example of this is the aesthetic-artistic experience, when conceived of as the perfection or completion of the wide spread aesthetic experience, which takes place every now and then in our daily lives, provided that our relation with the environment, and accordingly with ourselves, achieves a dynamic point of balance. In fact, the aesthetic-artistic experience is neither emotional, nor practical, nor intellectual, but actually it jointly accounts for these factors. As John Dewey already claimed in *Experience and Nature* (1925) «Art (...) represents the culminating event of nature as well as the climax of experience» (p. 8). Dewey had a distinctive idea of art as experience (see Dewey 1934). The work of art is, then, a fully accomplished aesthetic experience, and a fully accomplished aesthetic experience is a work of art. This entails an idea of artworks not only and not primarily as objects, but rather as events, or even better as object-events. While incessantly fighting against any form of dualism, Dewey pointed to art as experience as to the exemplary place where polarities, such as passivity and activity, constitution and fruition, are distinctively intertwined, thus producing the existential concreteness of the work of art, which takes place beyond the differences between mind and body, senses and intellect, spiritual and material. Hence, the artistic action, in virtue of its complex deployment, comes to the fore as solid dynamic structure, which can be interpreted as something real, only by accounting for its genetic layers of experience, both concerning its constitution and its enjoyment, as an object-event conceivable only in its proper anthropo-on-to-logical structure. It is thus understood the notion of complete consummatory experience, which defines according to Dewey the aesthetic-artistic experience. It is not simply pleasure or enjoyment felt by the subject of the experience as a sign of the completeness of the experience itself, but it is rather a perfection and thus a live understanding, both sensuous and intellectual, of the significance of the experience in general. The merely naturalistic relation between object and subject, interior and exterior, is then dissolved. The aesthetic-artistic experience is structurally relational, and it conveys the idea that the category of relation is prior to the category of substance. Every relation reveals even more thoroughly what the world is and what we are, therefore is most meaningful, as the ground-breaking of significance and possibility. However, every relation is made of time and space. As human beings we are first of all forms of time, but in our normal dealings with the world we are mostly jagged forms of time, partly looking at the past, with nostalgia for what has been lost, and partly looking at the future, with the anxiety of an uncertain destiny. The aesthetic experience, as it reformulates, organizes, assembles physical and psychical materials, from the ghosts floating in the ocean of memories, to the marvellous stones, sounds and colours of nature, it brings together past and future in the project-oriented and collectively sharable unity of a meaningful present. Furthermore, it implies a knowledge-related joy, where mind and body are intertwined, a kind of joy that has nothing to do with superficial satisfaction, but rather with the pathos of an intense experience, which may also be uncanny. An enigmatic and risky temporality thus opens up, which has the form of a research and the power of imagination. The main reference here is to a form of wandering, to the experience as a jour-
ney, hence to the temporal dimension of any place, primarily of that place that we ourselves are, but also of that space-time, or memory engraved nature, where we are, a journey from which we may come back as experts at least of some dimensions of existence that would be otherwise undetectable by an all-absorbing and sedative look, which pretends to translate experience into concise formulas. Several traditional metaphors depict the aesthetic experience as a form of shipwreck or pilgrimage: let’s think about Shakespeare’s Tempest or Góngora’s Soledad, where the shipwrecked or the “peregrino” (word that in XVII century Spanish meant both he who travels in order to reach the place of his meaning, and also “something rare and precious”) not only “sees” and gets to know other worlds, but also modifies his perceptual experience, hence his ideal perception, of the world.

By educating to the form of time, by educating perception, the aesthetic-artistic experience amounts to a constitution of location: it opens up places, it makes a place being. Every place in fact is not without a body (or better: not without a mind-body) that inhabits it, to the point that this very inhabiting makes the place existent. In this regard the place is not a measurable space, but rather an ensemble of tensions, envelopments, expressivity. My looking makes a place, my gesture makes a place, so that what is spatially far may be made significantly near or the other way round. The place is neither a content-holder, nor a perceptual a-priori. It is rather an always reversible event, or, quoting Merleau-Ponty’s language, it is a chiasma of visible and invisible, a tangible crossover of visible and invisible. The invisible is what transforms a place into a dwelling, in other words what makes it a world-for-us; the invisible, clearly, cannot be made visible, and yet it cannot be grasped as such, that is as invisible, without body, gesture, gaze... Arguably, it is the sense of the event, which actually takes place and it has its own peculiar concreteness, always escaping any form of grab and translation into an established meaning. The invisible is always, so to speak, just slightly shifted from the line of my gaze, and yet it is able to direct my gaze and guide my desire. In The Visible and the Invisible Merleau-Ponty establishes in theory that body and world co-belong to the same communication makings, to the same «raw» sensible being, that he calls chair du monde (flesh of the world). Such a dimension is somehow prior to the very distinction of body and idea, besides being also their condition of possibility, as the place where perceiving and being perceived are possibly reversible. It is an opening elementary basis, that is able to produce meaningfulness as it is originally communicative. The flesh (chair) expresses itself as language and idea, notably bodily idea, which is as such that it cannot be conceived of without the body, a perceptive idea, although properly [just] an idea. One may here pin point the precise convergence of aesthetics and ontology, as the chair du monde is nothing but the expressive language of being, which acquires form in some operations thus making our experience shareable and jointly participated. The beautiful example chosen by Merleau-Ponty as to illustrate this essential point, comes from Proust’s Recherche: the petite phrase of Vinteuil’s sonatina, which is the place where the meaningfulness of music gets enclosed in the language of poetry. Just five notes may nevertheless represent «the essence of love which “the little phrase” not only makes present to Swann, but communicable to all who hear it, even though it is unbeknown to themselves, and even though later they do not know how to recognize it in the loves they only witness» (Merleau-Ponty 1964, p. 196). Moreover, «the ideas we are speak-
ing of would not be better known to us if we had not body and no sensibility; it is then that they would be inaccessible to us [...] Thus it is essential in this sort of ideas that they be “veiled with shadows”, appear “under a disguise”. They give us the assurance that the “great unpenetrated and discouraging night of our soul” is not empty, is not “nothingness”» (pp. 196-197).

Now, provided that the invisible dimension of any place is disclosed by the work of art and this kind of experience is aesthetic, then today precisely the new technologies, so often employed in the direction of the aesthetization of politics, may turn out to be a useful resource of resistance and rebound as to activate artistic operations, which could be able to free the widespread mass-influenced common feeling. The actions of virtual simulation may concern, and often do concern, the merchandizing of the recreational. However, also artistic actions may imply the same possibilities of imagery creation, always connected to a form of irreality and cracking in the existent, that are provided by digital technologies. In this regard, we are now at a turning point: is a form-of-artwork possible in which the artwork is the place of its dehiscence? Such a making-into-one of some thing and some event, in the form of a place for aesthetic, relational and interactive experience is allowed by those technologies, which make (art)works out of virtualization processes. The virtual artwork amounts indeed to a complex set of issues, at the intersection of several tendencies, which develop into some unpredictable process of actualization. Since the artwork, being interactive, is able to embody in a new way the actions of the users, it becomes the form of an irreproducible experience taking place as an event in the environment it creates. All this, forces use to think the structure body-environment as essentially relational, or as a place existing in encounter only. And, if we can agree on defining an artwork in the era of virtual devices as the mis-en-forme of a contingent and once-off experience, then today more than ever it is possible to say strictly speaking that art is experience, and that museums as the place where art takes place are also an experience. Such an experience is also certainly collective, since the artwork-place, by embodying sensible, emotional and cognitive traces of its users-actors, may be metaphorically reformulated as a grassroots project. The artwork, or more precisely the artistic procedure, thus became a media space, reviving the original meaning of “medium” as “public space”: middle place as a place of encounter. Such a digitally produced space is not like the ones we are already accustomed to, where the media presence coincides with the absence of physical contact, as in television, but it is rather a place-artwork which is a sensible environment, both highly bodily and inextricably mental.

This path is followed by some recent installation of the Italian group Studio Azzurro (see www.studioazzurro.com). They, for instance, reinvent the ideas of artwork and museum, by examining the interactivity potential of virtual environment. They also move towards an aesthetics of relationships, by emphasizing the collective and socializing features of the constitution of an artwork, as the building up of a grassroots public space, which is absolutely creative as far as it is relying upon structural contingency. The project of topic-oriented museums of some geographical areas revolves around the idea of an interactive space of identity and memory, where the museum is the encounter of past and future in the form of a meaningful present. All this goes in the direction defined by Benjamin’s ‘politicization of art’ and accomplishes the task, that Dewey gave to artists and philosophers of aesthetics, «to restore continuity between the refined
and intensified forms of experience that are works of art and the everyday events, doings, and sufferings that are universally recognized to constitute experience» (Dewey 2007, p. 3). Or, in other words, to insert in the most advanced technologies the soul of our places, the memory of people and the culture expressed by inhabited spaces, as to let them speak “again”, in an unprecedented and productive way, to connect the memory and stories of the tradition with form of interactivity, which through the contamination may become rich in experience. The more the artistic experimentation shall be able to interact with a culture that takes art as the occasion for collective experience, envisaging the future as well as non standard forms and languages, destroying perceptual and cognitive clichés, possibly in open dialogue with those open-minded trends in urban and landscape design (see Decandia 2000 and 2004), who are trying today to reevaluate the dimensions of temporality and of the invisible, the more it shall be possible to work in the direction of an aesthetic ethos of some usefulness.

References


