Digital technologies in the 0-6 years educational services: a Media Education experience in nursery school and preschool

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Abstract. Research on the use of interactive screens in early childhood is quite recent and often produces divergent results. The article presents the experience of the Municipality of Florence and the University of Florence aimed at designing and experimenting the perspective of Media Education in early childhood with the involvement of the municipal nursery schools and preschools.

Keywords. Media Education, nursery schools, preschools, touchscreen, childhood.

1. Digital media in childhood: amidst risks and opportunities

Since the middle of the last decade, the dissemination of smartphones and other devices based on touchscreens has become widespread. Although Nicholas Negroponte already spoke about a "digital revolution" in the mid-1990s, these new technological tools have meant that the ongoing transformations are rapidly accelerating and having an even more evident impact on contemporary culture and society. It is a revolution that no longer just concerns adults, but also has significant consequences for childhood, and even early infancy, given the ease via which girls and boys come into contact with these tools in the first few years (and even in the first few months) of life. While there is talk about television programmes, with texts specially created for early childhood, there is also talk about interactive tools such as smartphones and tablets which, although not intended for children, are used by them with a certain frequency.

Challenged with the use of media by children already at the end of last century, the Cultural Studies have based their research by moving along a dual track which leads to consider risks and opportunities of fruition in parallel. The choice of the word "risk" rather than "hazard" is the result of sociological definitions (think of the one suggested by Ulrich Beck) that force us to consider risk as an integral part of everyday life and a way of dealing with uncertainties. Risk is an undesirable effect of progress, but it should not produce apocalyptic-type analyses, rather, it should be recognised as systematic and therefore considered as a potential resource. In fact, the research of EU Kids Online is

aimed not only at recording the habits in the use of new technologies by youngsters in quantitative and qualitative terms, but also at establishing effective digital literacy strategies, considering media education as a fundamental component for building active, participatory and responsible citizenship.

Research on the use of interactive screens in early childhood is quite recent and often produces divergent results. However, it is possible to identify common traits which to date have allowed for formulating certain pedagogical guidelines aimed at promoting correct media education right from early childhood, precisely by moving between risks and opportunities.

Worth mentioning among the most significant studies is the report entitled *L'enfant et les écreans*, published in 2012 by the French Science Academy. This report emphasises how using tablets and smartphones can be positive and how they can promote cognitive development. While use before 12 months is not recommended, the researchers observe how this use can be stimulating for children if there is a choice of exploratory and interactive applications, if there is adult supervision, and if a maximum time not exceeding 15 minutes is established. The use of touchscreens during early childhood would be preferable to watching the television screen, which, due to not entailing interaction, promotes a more passive use. Moreover, starting from 4 years, the use of specific applications can help children learn how to associate letters and sounds and therefore, how to read and write.

The partially mentioned theses are contradicted by the studies of the Cohen Children's Medical Centre in New York, according to which there are no significant differences between children who have used digital applications in the first years of life compared to those who use them habitually. Rather, a correlation can be identified between the extensive use of mobile devices with non-educational apps and a certain delay in language development.

Forming part of the French research team that produced the report *L'enfant et les écrans,* was Serge Tisseron, who launched the "3-6-9-12" campaign in 2012. In some way, this campaign seems to contradict the results of the French research, inasmuch as it claims that before the age of three it is preferable to keep children away from the screens and that it is advisable to avoid using the videogame console until the age of six. In fact, Tisseron in his writings emphasises how it is now practically impossible to think of prohibiting the use of screens for children during the first three years of life. Instead, it would be desirable to discourage protectionist or prohibitionist defence campaigns or forms of "moral panic": the strategy of identifying technologies as "enemies" to combat, of blaming parents as inadequate, and of targeting the defence of traditional experiences has already proved that it does not produce significant results in the "apocalyptic battles" conducted against the traditional media of the twentieth century. Conversely, Tisseron hopes that parents and educators, therefore families and educational services, will know how to establish a fruitful dialogue for collaborating and promoting a more aware, critical and creative use of such tools.

2. Training in order to understand: starting out on the training path

Since 2016, due to observing how the media insinuates itself increasingly more frequently in the contexts of daily life in childhood despite the absence of a clear definition of rules or limits with respect to times, places, contents and use methods, the Municipality of Florence and the University of Florence have set up a training course coordinated by Alessandro Mariani and aimed at designing and experimenting the perspective of Media Education in early childhood with the involvement of the municipal nursery schools and preschools.

This experimentation was launched in February 2016 through a training course initially targeting the coordinators and pedagogical coordinators of the 0-6-year services. The lectures included a combination of theoretical meetings held by leading exponents on the subject in Italy with workshops designed to assess the risks and potentials of various technologies, but also to stimulate reflection on the methodologies similar to the Media Education that were already present in the services. For example, the tendency to read images in an open and problematic way, but also the use of analogical tools to explore reality, as well as the technologies used for the documentation.

These meetings were characterised by a strong interest in the subject, accompanied by a certain scepticism regarding the possibility of introducing new technologies into the nursery schools and preschools, highlighting a preference for traditional experiences, called on to preserve direct contact with reality compared to tools that "mediate" experience. While the theoretical meetings helped overcome certain prejudices, at the same time the workshops were fueled by the participants' reflections before proceeding with the sharing of themes, strategies, and work hypotheses that favoured the planning of activities and workshops to be carried out in the educational services, especially in preschools. The presence of an "implicit" Media Education also emerged, which – to paraphrase Roberto Farné's words –exists but is not talked about in Italian schools.

3. Media Education in nursery schools: digital technologies for playing and thinking

The reflections emerging from the first training course for coordinators and the university researchers themselves represented a "spark" for the designing of a series of Media Education workshops to be held in preschools with children aged five years. The activities were designed to be carried out in the co-presence of the staff of the Municipality of Florence and that of the *Consorzio Metropoli*, which was awarded the contract for the afternoon activities in the Florentine nursery schools, also by proposing to encourage dialogue among teachers coming from different situations. In view of a certain concern, initially linked to the scepticism of many teachers and pedagogical coordinators, the workshops have in fact received a great deal of appreciation with the establishing of a fruitful collaboration among all the actors involved.

Several laboratory activities designed by university researchers, connected to the EPPs (*Educational Policy Plans)* of each school and emerging from the comparison with the coordinators, were proposed to the teachers of all the schools who were able to choose the ones deemed most appropriate. In the awareness that these workshops would have had the criticality of being "occasional" – contrary to what should really be done

according to the Media Education perspective – and that the involvement of teachers should have been more active right from the design stage, despite the limited time, it was decided to proceed with the experimentation of certain workshops, to be understood as "samplings" aimed at verifying the possibility of practicing Media Education in nursery schools and evaluating the reactions of children and parents to such activities.

Four workshops were designed, from which the 28 schools involved were able to choose: each workshop lasted 40-50 minutes. In addition to two university researchers (Cosimo Di Bari and Farnaz Farahi), the running of the workshops involved the municipal and *Consorzio Metropoli* teachers, with a technical contact person who was responsible for all the connections. In Workshop no. 1, called "Emotions and tablets", starting from the stimuli that emerged in the dialogue with the teachers and the coordinators of a nursery school where the EPP was about emotions, an activity was proposed in which the tablet was used by pairs of children for representing emotions and freezing them in a digital photograph, which was then projected on the screen and commented on by each child.

Workshop no. 2, called the "Mobile Collage", encouraged the children to cut out images selected from magazines with scissors, then arrange them on a piece of cardboard like a collage, but without gluing the cut-outs and instead fixing the image with the camera of a tablet, before changing the arrangement and taking more pictures. All the photos taken were then "interpreted" collectively in a circle. In this workshop the activity started off with a painting or a work of art chosen by the teachers, projected onto the screen from the projector: based on the reference EPP, the original text was a painting by Arcimboldo or Picasso, or Escher's reflecting sphere.

Workshop no. 3, "Let's invent a story", envisaged the invention of a collective story: each child chose an image and created a segment of narration linked to the previous piece. Given the limited time, teachers and researchers selected and printed the images shown to the children, even though this type of activity, with more prolonged times and therefore with activities distributed over several days, could have also included the creation of the images by the children themselves. Sitting in a circle, the children started making up the story, each providing a segment of narration linked to the image selected. Although the creation of collective stories is a recurrent practice in nursery schools, in this case the novelty was represented by the fact that the activity was filmed and recorded by a child, with a tablet connected to a video projector, so that the children could experiment with new points of view and become even more the protagonists of the narration, as well as reviewing the collective story created once the "circle" was concluded.

Workshop 4, called "Intermediate Storytelling", made use of the IWB. The activity was launched several days before the workshop started, with the reading of a book chosen by the teachers (for example *The Little Flower King* by Květa Pacovská). Thanks to an application available on the net and used with the IWB (thus favouring active involvement and collective participation by the children), an installation was made by hand in which the various images created by the children (photographs, paper drawings, drawings made digitally on the IWB itself) were matched with the voices of the children who narrated the story. A workshop of this kind made it possible for the children to experiment with the role of producers of a multimedia content in which various languages were combined together.

The overall balance of the activities was very positive, even though, as already mentioned, the initial picture was characterised by concern and also scepticism. Firstly, the observations made by the teachers regarding the children highlighted their significant involvement during all activities. The children themselves were able to experiment with their creativity using new tools. In particular, some of the comments recorded by the teachers are very revealing: upon seeing the screen of a tablet projected onto a larger screen, they immediately asked: "Are we going to watch cartoons?" Or "Are we going to play games?", demonstrating how these tools are associated with entertainment functions that only partially exploit the interactive and educational potential they possess. The same annotations of the sentences pronounced by the children testify to how the use of digital technology was often an occasion for stimulating their imagination.

Precisely these observations provide evidence of how, despite the fact that these technologies are widely present in the domestic environment and children often have great confidence in using them, there is an urgent need to proceed with media-educational pathways right from early childhood, in order to promote greater criticality (among children, but above all, among adults) and encourage the exploration of functions and applications that are quite often poorly understood or used. Another aspect to be emphasised is the validity of the copresence of more adults in a workshop situation that involves the use of technology: although it may seem obvious, having a person present who is responsible for the preparation of the technologies makes it possible for the teachers to pay more attention to the children. At the same time, it is a good idea for an adult to oversee the documenting of the experience, recording the sentences of the children, and observing them. This demonstrates how Media Education is often difficult for teachers to apply when they are alone and struggling with significant numbers of children. An aspect that should not be underestimated.

4. The questionnaire Family 2.0: from data collection to awareness

One of the first objectives in conducting Media Education in early childhood should be that of involving families. While it is a complex and ambitious matter to propose the training of critical users of the media, when we are dealing with children who are not yet six years of age, it is urgent to provide paths that help the adults (and therefore primarily the parents) to become aware of what the structures and functions of the media are, as well as what the risks and potentials of their use entail.

For this purpose, within the context of the training programme mentioned above, direct involvement by the parents of the children of the educational services was foreseen. To achieve this goal, an action-research path called Se.Me. (Sensitisation to Media Education) was initiated, in which male and female educators, teachers, male and female coordinators, members of the Statistical Office of the Municipality of Florence, and university researchers drew up a questionnaire on the use of media in the family environment by children in their first six years of life, to be administered to the parents of the same educational services[1].

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[1] The results of the questionnaire have been collected in a Report, published in July 2017: A. Mariani, C. Di Bari, F. Farahi, *Famiglie 2.0. Presenza ed uso degli strumenti digitali nella prima infan-*

The collaboration of all the educational staff, coordinated by the university researchers, has given rise to the sharing of several items and subsequently, to the drawing up of twenty questions to be administered to families. Several thematic areas were identified that have been the starting point for drawing up the questions, aimed at investigating (and at the same time reflecting on) the presence of these tools in the child's life, the times when such fruition occurs (both in terms of number of minutes/hours of exposure, and in terms of frequency of use during the week), the contexts within which the child interacts with the instrument, the motivations underlying its use, the rules that are set (or not set) together with the adult, and the contents that are used. Before the questionnaire was administered, some of the parents were involved in order to obtain thoughts and suggestions on the questions asked. Already from these first meetings suggestions were advanced regarding the uses: for example during one of these meetings, the inclusion of the "book" among the possible answers to the item "communication tools" induced some parents to reflect on what a medium actually is, on the central role of the adult in accompanying the child during the use of a text, and also on the need for parents to entrust their children to technology in order to be able to autonomously carry out domestic activities.

After the administration of the questionnaire, which took place totally online in November 2016, the results were then presented the following month at a meeting that was an initial opportunity for a debate and reflections involving the families: among the most significant, for example, was the consideration that television is still strongly present in the life of the children: already from 0 to 12 months, about a third of the children usually watch it; this percentage involves almost all the children (about 96%). Another relevant datum regards the touchscreen, which appears very early in the lives of children: while from 3-4 years onwards, more than half the children use it habitually, about 13% already use it before the age of one year, and 26% before the age of two. In addition, as of two years of age the tablet is used on average for more than half an hour a day by each child.

Even though the objective of the Se.Me. research action was that of collecting data on a subject not frequently investigated in Italy (while there is no lack of investigations in this regard in the US: think for example of the reports published periodically by the Common Sense Census), it should be noted that the main purpose of the questionnaire was actually to trigger debates and reflections on the topic among the parents. Raising their awareness about the fact that practicing Media Education in 0-6 educational services does not simply mean the introducing of technologies into those contexts, but rather, it represents the start of a pedagogical reflection that involves all the players.

5. The involvement of nursery schools: from the perspective of continuity between 0-6 years

The first months of the research-action on the theme of Media Education produced the desire among most of the actors involved to continue the work that had been star-

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zia, September 2017, educazione.comune.fi/export/sites/educazione/materiali/0-3/pubblicazione_report_M.E_.pdf.

ted. Although the initial training targeted the male and female coordinators of nursery schools and preschools, the workshop activities indicated only concerned the preschools. A second phase of the project entailed the activation of workshops which also involved male and female nursery school educators. The path, started in the 2016-2017 educational year, was then extended to the year 2017-2018, with the involvement of other nursery schools and other preschools, thus foreseeing new theoretical reflections and new laboratory paths, aimed at preventing risks and enhancing the potentials of digital technology.

Although not often documented or institutionalised but instead entrusted to the initiative of individual teachers, the Media Education experimentations in preschools are not entirely absent in Italy: the same National Guidelines for the 2012 Curriculum explicitly refer to the need, already before the child is six, for paths to be started up for experimenting with the various languages that children come into contact with in their daily lives. As far as Media Education in the nursery school is concerned however, this has represented an almost unprecedented challenge with a great deal of scepticism demonstrated among the actors called into question.

During the initial training meetings, which were of a theoretical character, there was widespread scepticism among the male and female educators who were worried about the possibility of technologies invading the boundaries of the nursery school, in which the direct forms of socialisation, exploration and manipulation of reality should instead be preserved. Such scepticism is completely legitimate, given that studies on the subject agree with the suggestion to avoid excessive exposure to screens at least during the first two or three years of the child's life.

The task of the trainers, also in this case, was mainly to that of highlighting the implicit aspects of Media Education existing in the nursery schools, in order to perceive the proximity of the proposed approach to the methods already used daily by the educators. The proposed approach was the "ecological" one previously suggested by Neil Postman in 1979: in view of the diffusion of media tools in our society and confronted with their increasingly incisive role in characterising the ways in which we think, the answer should not be denial, but rather balance. A restoring of the balance that does not arise from the ban on using the technologies (Postman had television in mind), but rather from a pedagogical reflection on how the school and the educational services can work to prevent the risks associated with the use of the media in order to effectively become training resources.

After the three theoretical meetings, workshops were organised in which educators and teachers took part. The goal was also to interpret Media Education as a vehicle for thinking, planning and renewing educational continuity between the nursery schools and preschools. The workshops carried out in groups of about twenty participants made it possible to address the initial scepticism, deconstructing several prejudices about digital technologies and starting up a dialogue capable of creating as much sharing of the topic as possible, as happened in the previous months.

The workshops, organised from March to May 2017 and the following year, from March to May 2018, dealt with the following topics: 1) "Early childhood education", for exploring the motivations for which children are attracted to videogames from early infancy, taking into examination several applications for children, and assessing whether and how they can be useful tools in the nursery school and preschool. 2) "Photo-edu-

cating. Photographing in educational contexts ", in which the objective was to promote, through the use of the digital photographic tool, an educational action aimed at offering children, educational staff and parents material for reliving (and therefore reflecting on) their experiences; 3) "Digital storytelling in early childhood", in which new technological devices were interpreted as valid narrative tools for nursery schools and preschools, starting from the potential of multimedia and interaction that digital texts offer their users; 4) "Documenting for children through new technologies", for promoting new forms of educational documentation which, using the software available in the digital tools, could help produce more engaging and more thought-provoking contents for both adults and children; 5) "The representation of reality through digital tools", a laboratory in which the possibilities offered by new digital technologies were considered for integrating and enriching children's experiences, exploiting the potential of digital technology also for discovering nature or experimenting different points of view; 6) "Robotics in early childhood", in which, starting from an introduction on the topic of educational robotics, several tools were explored that allow direct approaches for children in the construction of knowledge; 7) "Digital resources for children's education", in which, by exploring the vast panorama of recreational-educational-publishing applications dedicated to childhood available on the net for computers, tablets and mobile devices, the possible uses with and by children were identified; 8) "3D printers and childhood", which took advantage of the possible uses of 3D printers in early childhood and in which experiences that concern girls and boys in preschool were presented, but also activities that could help educators to create potentially useful items in the nursery schools. 9) "Strategies for involving parents in Media Education", focusing on indications for organising workshops to raise awareness and involve parents in the task of educating on/with/in/beyond the media.

In general, the attempt to construct paths of continuity, capable of making nursery school educators interact with preschool teachers, was particularly effective. In some of these experiments, for example, with the use of the *Eli & Mo* children's book, a project was set up in which, in addition to the usual visits, the children of the nursery school interacted (using printed matter but also images and digital shots) with the preschool children, thus creating a sounding board with respect to the "traditional" continuity experiences, however foreseen by the project.

6. Opening up to Media Education: amidst criticism and utopia

Despite moving in a constant dialectic between scepticism and enthusiasm, the training course on Media Education has produced significant results. It is worth mentioning that the objective of this three-year journey has not been that of offering ready-made recipes, but rather, of establishing theoretical-practical reflections which offer education professionals a wide range of ingredients and stimulate their curiosity to become experimenters with new recipes, slotting them into specific (geographical and cultural) contexts.

Therefore, the experiences carried forward by many municipal nursery schools and several 1-6 centres are very significant (think for example of the Blue Koala 1-6 Centre, run by the *Cooperativa Arca* in Florence), where training opportunities have become sti-

muli to proceed with the development of original and thought-provoking models, which deserve to be narrated and documented.

Therefore, the training path is consequently characterised by certain specificities that could become paradigmatic in designing media education activities in early childhood: 1) Media Education can reach beyond the school borders and also concern early childhood; 2) the nursery schools and preschools possess the tools and methodologies for dealing with the media in an original and creative way; 3) 0-6-year educational services can be responsible for raising awareness, informing and training families on the topic, and perhaps they are the only ones who are capable of doing so; 4) Media Education can play a central role in building and promoting continuity between nursery schools and preschools, through a dialogue between educators and teachers, but also through experiences that connect children of various age groups; 5) digital tools can encourage forms of documentation that are more participated in by children; 6) the new technologies can be introduced into the nursery schools and preschools if they are considered tools that enrich (but do not replace) the traditional experience possibilities of children. Starting from these six points it is therefore appropriate for educators, teachers, pedagogical coordinators and experts in Media Education to develop valid practices for the specific contexts, which are useful for EPPs (or TEPPs – *Three-year Educational Policy Plans*), and also help achieve specific objectives. By continually pursuing the objective of stimulating the acquisition of those digital skills which, right from primary school, should then be declined in a more articulated manner, new technologies can represent useful tools for working on identity, autonomy, competence and citizenship already from early childhood.

As already stressed by Len Masterman since the 1980s, even when it is declined in early childhood, Media Education should be proposed with a constantly restless approach, oriented not only towards knowing the present, without either mythologizing or demonising it, but also towards understanding the transformations underway, in order to deliver tools to the subjects that allow them to move independently and consciously right from early childhood. For using the media technologies, rather than being used by them. For becoming active, involved and responsible citizens in social life. And if the media technologies are used in a conscious, critical and creative manner, and exploited through careful adult mediation, they can increase the experiences of the subjects (and specifically those of children) and thus represent significant training opportunities.

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