

## INVITED PAPER

### The Hundred Languages of Digital in the Reggio Emilia Approach

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#### Abstract

Digital environments in the Reggio Emilia Approach construct relational and communicative conditions that tend towards shaping modes of ecological research, where adults and children can create “platforms of community thinking” considered as processes of elaboration, in which the intelligences of children and those of the digital become proximal.

Digital technologies create geographies of place and representation close to children's visions of possible and dream worlds, with awareness that the imaginary worlds they bring to life always border on the world they inhabit, and the emotions they generate are always and only real.

Infant-toddler centres and preschools therefore have a responsibility for generating contexts of reflexive critical reasoning, on contents, on sources, and on the modes of communicating and relating that digital environments propose and offer, and for making visible the learning processes these contexts favour digital constructs connective threads between things, between situations, between experiences, so creating mental representations, subjective and group, between the real and the possible.

**KEYWORDS:** Fluid Cultures, Everyday Digital Environments, Ecological Thinking, Mind-Body, Platforms of Community Thinking.

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### 1. Children in digital environments

Reggio Emilia's municipal infant-toddler centres and preschools have always been characterised by their desire to maintain a vitality, tension, and vibration of research that pulls towards creating proximity between

children, parents, educators and contexts of play, life and learning. The hope is that of generating a dimension of proximity between the fluid and dynamic cultures of protagonists who inhabit schools and centres every day, children and adults, and their places of life.

Schools for children of all ages cannot avoid consideration of the digital today, both in terms of using its tools and instruments, and the predisposition in thinking that it activates. We need to choose how to welcome the intense and pervasive cultural contributions digital technologies are configuring. Historically, the choice in Reggio Emilia's municipal infant-toddler centres and preschools has been to progressively interpret digital's nature, in terms of innovations it offers to children's potentials and

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intelligences, and to our vision of learning as a dynamic process. Our intent has always been the tension of not betraying children or technology.

In 1984 Loris Malaguzzi had this to say in relation to the strategic choice of experimenting with computers in preschools:

*“The meeting of children and computers is, in effect, the meeting of two ‘intelligences’ that need to get to know each other. The children’s intelligence is fluid, intuitive, curious, and yet able to ‘decentralize’ itself and assimilate new interactive rules, to adjust its performance, to find and alternate communicative and constructive proposals and solutions. The intelligence of the machine is more linear, rigid, programmed, in many ways an imposition, and in other ways receptive and willing to execute commands, able to listen to children and to encourage them (without humiliating them) to rethink their actions, to indicate the way out of a problem, to suggest the means for arriving at a ‘joining of forces’.” (Malaguzzi 1996, p. 103).*

In the 1980s digital technology, in the form of computers, printers, and floor turtles [a small robot shaped like a turtle created in the 1960s which can move on a flat surface controlled by commands in Logo language from a keyboard], became inscribed in the daily design of our educational experience, situated in a dialogue with other “languages”, taking its place in classrooms, and offering children experimentation in small groups.

For the times this choice was visionary, and determined a framework of meaning-making in which digital instruments were conceptualised as part of an interactive dynamic, always maintaining children’s active relationship with them. This initial vision evolved in later years, and shifted from an idea of digital instruments to the idea of digital environment. To our mind the definition “digital environment” is more coherent with the idea of an interconnected mind and socio-constructivist dimensions of learning.

Digital environments strongly interrogate our modes of teaching, and favour learning as a process of active research. Contexts that hybridise technologies and languages overturn hierarchies between adult-teacher and children-learner. This U-turn in vision has its epistemological framework in ecological thinking, and therefore conceives of any, and every, thing as part of a larger context, inviting us to comprehend the innumerable forms of inter-relatedness between apparently separate occurrences. This conception requires us to review our inter-subjective positions from viewpoints that are dynamic, inter-dependent, and reciprocal, with a tension towards research in which both children and adults are prime researchers of phenomena,

subjects, and experiences they choose as objects of study.



**Figure 1** - *Digital Landscapes* Exhibition-Atelier at the Loris Malaguzzi International Centre, Reggio Emilia (© Preschools and Infant-toddler Centres – Istituzione of the Municipality of Reggio Emilia and Reggio Children)

In Reggio Emilia’s municipal infant-toddler centres and preschools digital technology enters daily life, hybridising with other languages, and constructing environments that are not narrowly tool-based and functional. In these environments learning contexts become inventive for one and all, manifesting as situations of busy thinking and action, contexts of research demonstrating solidarity and empathy between children and adults.

Children are born tilted towards others and the world around them, with a posture of curiosity that weaves oneiric dream-like thinking with contextualised and contingent visions. They inhabit a dimension capable of making the concrete and imaginary live together, using arguments that for adults are poetic and unexpected, and giving shape to new and original mental representations. Here we follow a short conversation on the theme of dreams between three 8-year-old children at the Preschool and Primary School at the Loris Malaguzzi International Centre:

*“Dreams... it’s a world your mind creates for itself... there’s another world inside our head that we don’t know. When I dream it seems like I’m the person I’m dreaming about, it seems like I’m in the world around us, I think I’m in reality but I’m in a fiction. And in this place it’s my avatar who feels the sensations.” Kevin*

*“It’s your clone. Because one lives in the world really, and one lives in dreams.” Hansel*

*“There [in dreams] my character feels the sensations and I feel them too because they’re created in the air. Even if another person had the same dream as me they wouldn’t be able to feel those sensations. I created my avatar myself while I was dreaming... it’s female, because I’d like to*

*feel the sensation of being female. I could become one too, but that's not original, I mean in my dream I don't feel like I am the same as me.*" Kevin

*"At the most I could imagine getting older or becoming an adult, but I couldn't manage to imagine becoming female, I really can't manage that."* Samuele

Children want to give shape to dreams, identifying plurilingual narrative forms, and seeking forms that:

*"inaugurate new environments of socialisation and sharing where each child's 'mental' world – which includes external stimuli and interior representations, at once cognitive and emotional – can be expressed and communicated"* (Bonilauri & Tedeschi, 2019, p. 14).

They invent theatre sets, video games, and simulations using different kinds of software and applications that they can use on smart phones and tablets. So digital environments are particularly close to children's imaginaries. The intrinsic condition of a digital environment – devices inter-connected and in dialogue – offers a vision of environment as plurality, an environment given by several contexts connected with each other: a sort of pluri-environment with powerful connections between its parts. In school we can take this concept and construct hypotheses for designing and planning with it, so that the nomadic nature of devices dialogues with environmental contexts, connoting them as dynamic places, in which objects, materials, and matter all inhabit a plurality of spaces in the school: preschool and primary classrooms, ateliers, piazzas, gardens, and kitchens, creating a multi-system of opportunity in learning groups for communication, interpretation, and knowledge.

*"We maintain children are born with all the languages of life [...] The more languages we recognize in children, the more we can help them act and identify the methodological models they need for confronting events and experiences [...] Imagination and logic, as well as feelings, creativity, and aesthetics, have a hundred roots and a hundred geneses"* (Malaguzzi, 1996, p. 30).

This approach, open to research with digital tools, leads children to interact freely, designing original and personalised devices, and searching for functional and coherent form and meaning. Their research is always proximal to concrete situations they experience. They do not separate their own imaginaries from their juxtaposed physical world, but border-cross between them. Digital environments contribute to connoting learning contexts

as interface, where aesthetics, function, and meaning-making co-habit together.

In 2013 Bressy and Gennaro were both aged 8, and with Francesca, an *atelierista*, they were imagining the possibility of designing a transparent tablet they call "Infinity". We proposed they work on a prototype with materials available to them at school:

*"What features does Infinity have?"*

Francesca (*atelierista*)

*"Infinity is a transparent tablet. The first thing is you can fold it away so that if you have a pochette you can fold it up and take it away with you."* Bressy

*"Two people can use it to play battleships or draughts."* Gennaro

*"You can take a photo with it, and then look for information with the photo. It will give you the photo in 3D too."* Bressy

The children's creative intuition and reasoning dating from 2013 has only recently been realised: the creation of transparent, flexible, fold-away smartphones anticipated by Bressy; devices for two people to share games together by touching the same screen, as proposed by Gennaro; and apps that feed our desire to search for information on given subjects, as Bressy again proposed.

Knowledge becomes structured into process through a recursive and evolutionary dynamic, on the condition it is made of experience and reflexivity together. A necessary condition is to pause with our experience, formulate arguments and inhabit places where exchange and comparison of viewpoints is possible, so that our knowledge can be nourished. It is especially important to have experience of dynamic learning situations in which our thought structures can modify, expand, and take risks "naturally".

Children are researchers into meaning, biologically predisposed to understanding the world they live in. The newest generations of digital technology have developed touch increasingly, in forms of technology that newly interrogate the themes of body and direct contact. Frequently we see even very young children using informal objects and materials as if they were devices. The gestures they use, and the functions they ascribe to them, suggest a sort of fusion between different "bodies", those of the children and those of tools. Children are bearers of their body's knowledge, creating mental representations that include the functions and potentials of digital technology.

## 2. The body-mind in artisan technology

In these processes the body is the fulcrum, resonating with the world, without ever separating the cognitive from the emotional. Our bodies have meaning and give meaning, elaborating metaphor to communicate beyond

our perceptions. Our integrity, the sense of being present to ourselves and in the world, resides in our bodies, and is fundamental to constructing an identity both subjective and social. The body is voice, gaze, a finger pointing, building questions made of gesture, movement, rhythm, and energy. These questions speak of how children are constructing their dialogue with the world.

The body has its own memory – sensory, visual, symbolic, narrative, evocative – in a constant osmosis with the world around it. Leaving signs, re-watching themselves, annotating with their bodies, are just some strategies children use to give shape to their own identity. An investigation of faces in profile, for example, entails bringing into play spatial experience, viewpoints, two and three-dimensional relations, and tapping everyday experience where they observe and imitate each other, lend each other gestures, questions, and theories, and amplify the communicative sensibility that exists between them; a mixing of language and experience which, on condensing, sometimes become sign.

In this sense space is also always a social and relational dimension. Recent research on mirror neurons testifies to the way relations between body, space, movement, and time are decisive for social competency and construction of identity, for being synchronised with all that is in the world. Moreover, this research tells us that our brain encodes space in motor terms. How do digital technologies, and interfaces in particular, expand, problematise, and vary these processes, that are so fundamental for the construction of self? What contexts can we design to strengthen an integrated vision of the body learning, and the construction of gestures, signs, and traces in digital environments?

In the daily lives of children and human beings digital interfaces, interactive or not, alter our perceptions of space-time. It is now accepted there is no dichotomy between real and virtual in these perceptive, psychological and philosophical categories, for the emotions we feel are always real. De Kerckhove inaugurated a new paradigm for the digital, constructing the concept of connective technology, a concept that gives greater potential to two fundamental elements: connectivity and contact.

In an experience called “Encounters with your Double”, with 9 to 18-month-old children (in September) at the Gianni Rodari Municipal Infant-toddler Centre, a context was designed by teachers, *atelierista*, and *pedagogista* with a projector connected to a video camera positioned to live-film children playing in the space, and project the image onto a large sheet screen on a wall. The children were immediately attentive to what was going on, and surprised to see the projection. Flavio, aged 24 months, observed the projection for some time before standing in front of his own image on the wall, saying, “*It’s me... all of me*”. He went on to look for himself, behind the sheet, before again looking at his image, and exclaiming, “*It really is me*”. Then, climbing

onto a small wooden platform, intentionally placed in front of the projection like a stage, he began a sort of dance, moving his whole body. After attentively studying his different movements he stated, “*Oh it’s me... but am I real or pretend?... I’m alive!*” These reflections Flavio has given us, are extremely interesting, in that they suggest he is not tied down to searching for one univocal answer, that on the contrary his thoughts launch towards a new definition of self in the context. Flavio recognises he is in a connected environment where his identity has become double, in a continuum that has no real or pretend, only the vital dynamics of a context welcoming his experience. In this way contexts become more nomadic. If I see myself, as well as friends and the actual space, as double, I create a connected space, a fantastical world that evokes oneiric atmospheres of dream.

Recently, in the municipal preschools and infant-toddler centres, we worked on a deeper exploration in the area of “Resonances: listenings, productions, compositions”, in which we researched which conditions allow the languages of music and dance to become part of everyday life, in an educational approach where transversal relations in and between languages are central to curriculum. As well as sharing the body as their generative matrix, dance and music are characterised by a similar performative and phenomenological nature. They share complex dimensions (emotional, symbolic, poetic, dialogical, anthropological etc.) with other languages, and have a common space-time dimension that inevitably constrains the designing of contexts and didactics.

A group of 4-year-old children at the Michelangelo Municipal Preschool was researching the archetypal figure of the bridge, and in their work bridges went from having a static posture to being dynamic, part of a choreography built up in a dialogue of gesture and movement, and with the possibility of making agreements with the body, without words.

We know technology and digital tools structure thought and perceptions, and that we create a relation with the processes of digitisation. Every day children encounter digital films, three-dimensional animations, digital sound compositions, digital advertising, digital illustrations on paper, and multi-functional phones. These are all products of the process of trans-codification into computer data, influencing the identity both of the medium and the approaches of those who use them. Children are immersed in these processes, and their interactions with them structure relations in their daily lives. They are familiar linguistic codes, whose nature the children intuit, but do not yet govern. The intent of our educational approach, with analogical and digital technology, is to try and make children more aware of the ways they formalise these languages, by entering into the cultural-symbolic systems of communicative structures, and understanding their semantics.

In music and dance it is particularly important to be able to go back and see and listen to ourselves, at different times and in different ways. One of documentation's defining features is the tension to record, so we can see again and listen again, creating echoes of the awareness being generated during learning processes, and meanings being shared, with a consideration for the times and rhythms of learning languages.

In the children's explorations of bridges we hypothesised video could be a main tool for documenting, given its capability for holding onto the temporal dimension of unfolding performance, for connecting gesture and sound. Video was a useful tool for documenting children in the act of performing, and also narrating children who participated in the performance by "listening", highlighting the whole body's tension for listening, how listening can be both movement and stillness.

Every representation is unique in itself and the language of video allowed us to keep track of both movement and sound. With these specific qualities in mind, the opportunity to use video processing software offered greater possibility for creating representations, compositions and reflections – between analogical to digital – for children and adults. Using the software, a non-linear editing system, children could enact a sort of trans-codification of their experience of movement into digital. A recording of the "Dance of Bridges" by Michelangelo Preschool children was watched by a small group of children: interesting frames were picked out, and led to discussion among the children:

*"Watching yourself is good for seeing how much vibration there was in my body, how strong I am!"* Alex

*"It makes you re-think the way you dance. It's good for learning new things, and dances for everyone."* Luca

*"It's good for doing your dances better and remembering what my friend did."* Giulia

*"It's good for imagining another dance too."* Kristel

By watching their dance in the language of video, and discussing what they had experienced, the children became more aware of what their bodies were learning, increasingly entering into a vocabulary of gesture and dance, in a sort of meta-analysis of their experience:

*"The more we dance the more we get tired and the more we learn."* Filippo

*"We learn energy, we learn it inside our body."* Incoronata

*"Energy creates a force."* Martina

*"The force creates the energy."* Incoronata

These reflections tell us how important it is to re-see ourselves after the event, of being able to dismantle

experience and open new imaginary scenarios. Softwares like these are ubiquitous now, and in children's hands they give potential to connections, and therefore learning. For example, being able to extrapolate a still from a film, duplicate it and mount it, together with other images, affects the concrete experience. In this sense digital is a sort of "other" material state, converting information of every kind, so that a gesture, or a muscular contraction, can translate into an image (or sound), and change its very nature.

Re-watching their video means watching a flow of movements and thinking about how they can be varied. Movements can be analysed, we can "freeze" the idea of a movement and its dynamic, making the kinetic and compositional process visible through shifts in the frames. Being able to freeze time with a software, being able to "still" a movement in an image, or make an original sequence of images, lets us work with children on the relation between improvisation and formalisation, through processes of conventionalising codes for movement, a prelude to designing choreographies. When the children watch a gesture that has been improvised, they can then formalise and encode it, generating new possibilities of movement in space and time.

The space-time dimension offers transversal areas for reflecting on learning; a crucial point if we think how this dimension becomes modified in its relation with digital interfaces. These complex processes can be channelled through offering daily educational contexts capable of supporting and advancing children's competencies. The more we know the techniques of a language the more we discover its potential for expression, and this is what happened with the children. The newly mounted video of their dance, put together by the children, was projected onto a large screen, generating different, and new, flows of movement in space, dense with their experience of reflection and re-composing in the post-production process. Being able to move and dance, close by and in a relation with a video they had made with themselves as protagonists, meant acting out multiple interactions – with friends moving with them, and with the film of the dance they had re-composed themselves – amplifying possibilities, imaginaries, and perceptions: an inter-corporality weaving analogical and digital together.

Digital technologies, in their relations with the body, amplify the multi-modal nature of the languages of performance, such as music and dance, more than ever today, especially when we think how children are immersed in environments defined by a continuum of communicative and interactive surfaces, with exchanges of information.

Digital technology has brought new possibilities to this augmented space for the relations between body, space, gesture, movement, and material. In the Michelangelo Preschool lengths of fabric and rope elongated the time between permanent and impermanent, between real and imaginary.



**Figure 2** - Dialogue between material, space, body and movement - Michelangelo Municipal Preschool, Reggio Emilia. From the research "Resonances: listenings, productions, compositions" (© Preschools and Infant-toddler Centres – Istituzione of the Municipality of Reggio Emilia).

Bodies become one with materials, whose identity influences the quality of movement. Rolls of cardboard suggest challenges of balance and strength, but what do large sheets of lightweight crinkled paper suggest? How do movements, thoughts, and imaginaries change?

*"Filippo is waving the velvet material. The movements seem like the wind sweeping things away, it looks like rain..."* Carlotta  
*"The way of dancing changes with the material."* Sarah  
*"When you move the velvet you move yourself..."* Matteo

Materials are capable of evoking movement. During the research unfolding each day in the preschool, digital photography also played an important role in re-laborating experience. It became an element of expression, vital and alive, important in these contexts for building memory, for re-interpreting and thinking about the forms materials take:

*"I was making a storm... high, high, high, strong, strong, strong!"* Giacomo  
*"A small sound, but when you turn it, it makes a wind."* David

Photographing the forms of the body is difficult, because everything is so fast, but the challenge is an interesting one that children welcome with enthusiasm and awareness:

*"I took lots of photos because Giacomo wasn't in some of them, he disappeared!"* Christian  
*"It looks like he's rolling!"* David  
*"Rolling, he disappeared."* Christian

*"The photos we take are still, they don't move, they never change, so the shape stays the way we made it."* Giacomo

Their photographs, re-observed, have evocative power. This possibility of choosing an image of a movement, making multiples of it, with image processing software, and re-interpreting it in a new movement, generates new possibilities between the ambivalence of the materials and the children's amplified senses.

The children seem to give particular attention to blurred images, where gestures seem to be lengthened, and seem to be moving. They try to create blurred images themselves, and when they look at them, the actions of their friends seem to have greater force, more energy. In this sense photographs (whether digital or not), and the possibility of modifying them, of creating multiples on the computer in post-production, amplifies the qualities of a movement, redefines aesthetic paradigms, both for the gestures and the images.

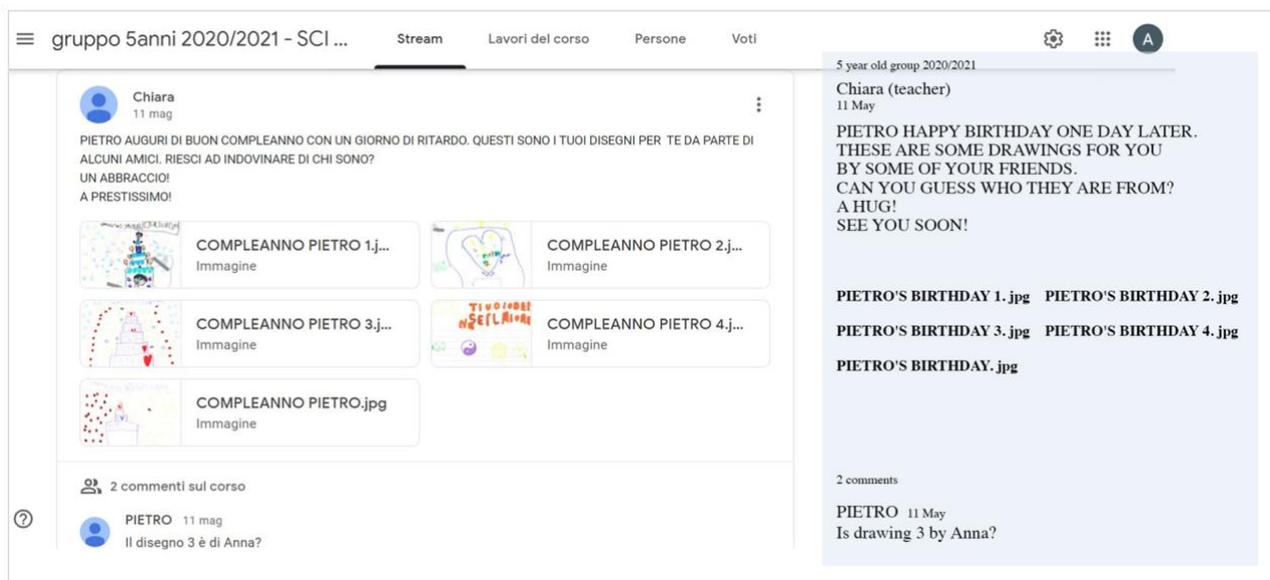
### 3. Platforms as a metaphor for the process of learning

Concerning digital platforms it is necessary to focus on a point of view that, far from the functional vision they are used for, interprets them as possible metaphors for human learning and knowledge processes. We can think of them as places where knowledge is not only deposited and found, but connects and border-crosses, creating links in new interactive codes, layering, structuring, and de-structuring: places where knowledge can take on multiple forms and has recourse to multiple codes of expression. We can interpret a platform, therefore, as being a possible knowledge interface, supporting the processes of structuring/de-structuring knowledge, and over time constructing and deconstructing knowledge maps, both in individual subjects and in groups.

We know that even very young children are highly proximal to digital interfaces that presuppose interactivity: faced with technology children expect to be able to act (and act on) in a sort of reciprocal exchange. With this awareness we believe the role of adults is to pause over questions, not to stop at already familiar actions, but inform a dimension of problematising that doesn't narrow down to function, but opens up to wealths of possibility.

Children in infant-toddler centres and preschools do not know conventionalised number and letter codes but are attracted to that world. Faced with the visual panorama they are immersed in, so rich with images, they wonder what certain symbols mean, they formulate hypotheses, exchange points of view, test things out, their thoughts chasing visual suggestions, resemblances and differences, things they already know from their experience, elaborating metaphors and new codes of communication, to share with others.

So the encounter with a communication platform first of all asks children to interpret the code it uses, its symbols,



**Figure 3** - Screenshot of Classroom 5-year-old class group  
(© Preschools and Infant-toddler Centres – Istituzione of the Municipality of Reggio Emilia).

its blank or filled in spaces. Interfaces are faces waiting to be discovered and known, receptive to children's questions, hypotheses, and first readings and significations. From birth children are immersed in the cultural symbolic systems of their times, and seek to interpret them, be part of them, correspond to them. This environmental setting is fundamental for their learning, and at the same time becomes a material that they interpret and manipulate in order to become protagonists of their relations with the world. Children today are confident with this kind of communication, are born with its uses, and look for its reasons. Living with these communicative contexts allows children to develop attitudes that are aware, reflective, and creative. The intent of conversations between children and adults in the way we design in our schools, is to go beyond contingency and research the unusual artisanal uses that these instruments offer.

Let's go into the five-year-old classroom in the Municipal Preschool at the Loris Malaguzzi International Centre, and investigate the Classroom platform. The Classroom interface, used as a tool for communicating between home and school, and in the classroom with children present, prompted children to formulate hypotheses on the meaning of its functions, and codes of communication. Further, in children's conversations we can hear vocabulary that reflects the specificity of the context, a pertinent and appropriate vocabulary, connected with digital technology. For example the headphone icon, about which Lorenzo says, "This symbol, if you click it, is for making sounds come". Or interpreting words they do not yet have the competence to decipher, but which they intuit to be "the names of people", because of their position, and/or because the synthetic symbol suggests a human figure:

*"All that writing is the names of all the people."* Tommaso

*"You can call them on the phone."* Chiara B.  
*"You can send messages and make video calls."* Tommaso

Or again, referring to the triangle pointing in the direction of an exit, the children show they know its meaning has to do with this movement, with a flow of content, drawings, writing, etc., exiting:

*"That's a paper aeroplane!"* Zlata  
*"It's for writing, then you press the sheet of paper and send it."* Chiara M.  
*"Perhaps it's for making drawings and sending those too."* Aurora

Framed in this way we can interpret and consider communication platforms as community environments, connected and in dialogue with children's experience of learning and discovery, places that act in the diverse dimensions of space-time, and not necessarily only with the aim of filling in (presumed) gaps owing to an absence of in-person relations and encounter.

We have tried to inhabit these new environments by designing them into our everyday contexts where children and adults are present, as one of many places for encounter.

In our approach, inhabiting places means creating dialogue with events we know are important and significant for children, for example birthdays. For Pietro's birthday we chose to launch a riddle on our Classroom platform, asking Pietro to guess the authors of a series of drawings specially made for him (Figure 3): drawings as gifts, giving value to relations and

friendships between children who have been together for 3 years.

This educational approach gives value to the multiplicity of communicative, relational and expressive languages, proposing an attitude that favours encounter with a rich language system, in which “codes” can be made of words, images, sounds, or video and audio production. So we would like to interpret communication platforms as environments with a plurality of access points, with a plurality of codes, which contemporaneously favour the participation of many.

We believe it is vital to take up a position of reciprocal listening with technology born to support communication, so that we can research, prepare, and offer learning contexts capable of favouring communication processes that are part of human beings by nature. These processes are founded on several competencies: *coding and decoding, formalisation, interpretation, the attribution of shared meanings, selecting information, re-organising content, connections between contents, multi-media*. They are processes that vary from child to child, partly in relation to children’s ages.

Recently we worked with small experiences of giving value to things children are familiar with, things they know and encounter in daily experience of school and home. Sounds and noises, the details of objects and materials, views of interior and outdoor spaces, voices, and more, all acquired identity as living, multi-sensory material, and in a new communication environment they created a common reference, fundamental for exchange and interaction between children. Children felt engaged,

felt this might be a place to have fun. At home, Anahi recorded the sound of his cat purring and shared it on Classroom. The invitation was for his friends to try and imagine to what, or to whom, the sound corresponded: listening, imagining, evoking were processes children enacted to be part of the game (Figure 4).

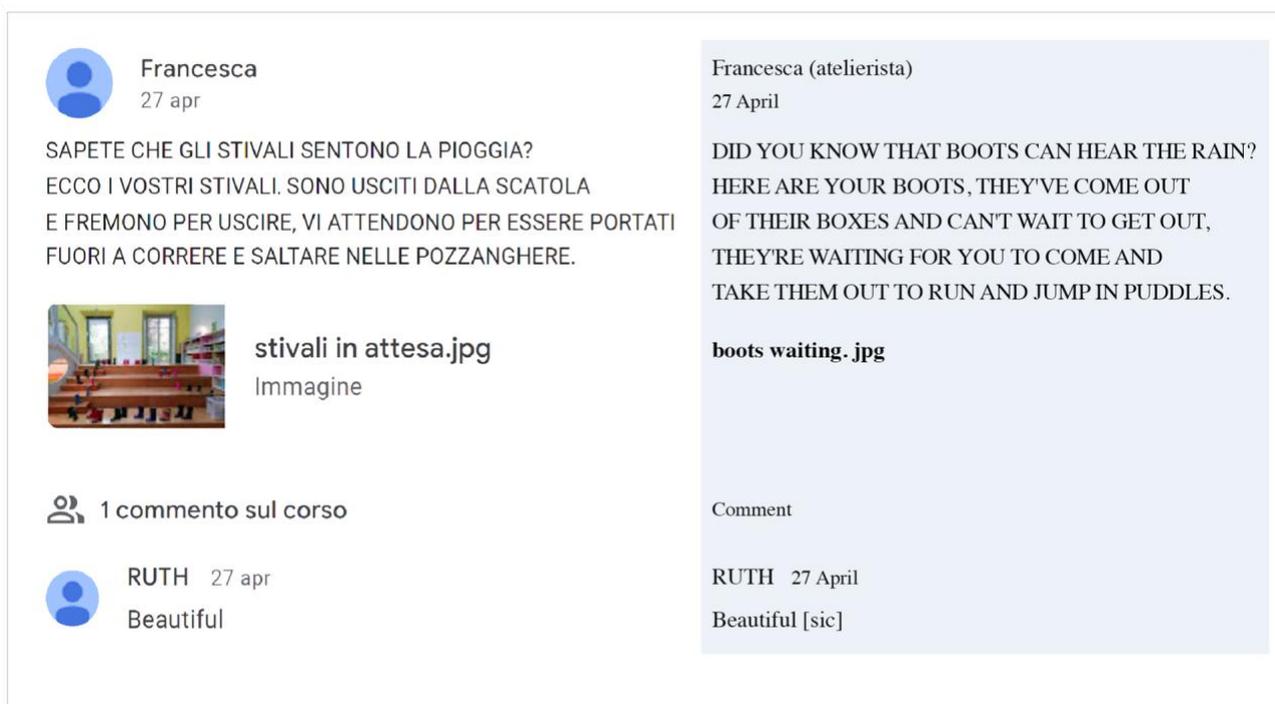
But perhaps there is more: during these occasions of exploring multi-media contexts, children also enacted what researchers have called “transliteracy”, the capacity to read, write, and interact through a range of platforms/channels, tools, and media. We could extend this concept metaphorically, if we think of the many ways children “read, write, and interact” their experiences, without specific literacy ability.

These short examples, small tastes of trying things out, tell of how these new environments potentially ask children and adults to think in a designerly way with a capacity for prediction, to implement knowledge processes like simulation, association, and memorisation, and to exercise a capacity for managing and organising information.

Digital has facilitated access to information, in the shape of different representational formats: images video, podcasts, and audio are now within everyone's reach, and it is increasingly easy for us to transform these formats when using them. However these possibilities also create a risk that we experience a dimension of information multiplied, an excess of communication transforming into information noise. Instead, school's way of designing needs to proceed through progressive synthesis, capable of elaborating a structure of argumentation and essence.



**Figure 4.** - Screenshot of Classroom 4-year-old class group  
(© Preschools and Infant-toddler Centres – Istituzione of the Municipality of Reggio Emilia)



**Figure 5** - Screenshot of Classroom 5-year-old class group  
(© Preschools and Infant-toddler Centres – Istituzione of the Municipality of Reggio Emilia)

The conditions we study in today allow for the creation of multi-media archives that can include constructions of subjective and group meaning, archives-in-progress, and information from several sources – photographs, drawings, audio and video files etc. – facilitating the creation of open and possible narratives. Connective frameworks that maintain the connections between sources, children’s work, and adult work can be of various kinds, depending on the meanings and objectives we want to arrive at. However these too should be open-ended research motors, with the condition that they help children to construct the competencies of choosing, selecting, and organising information, based on different intents.

It has been important for us to maintain a close dialogue between exploring context and reflecting on learning, avoiding the excessive abstraction that risks compromising the fertile exchange between our imagination and our perception of the real.

This humorous situation in which adults at school created an invitation to children, motivating them to return to school after the long closure of the Covid pandemic, underscores a use of digital technology that is close to children, close to their lived experience, and not imposed or distant (Figure 5).

This is a topic that leads to another deep and complex theme. We believe the simulated worlds that we have recounted here, in experiences with children, must be coherent with an ethical vision of the situation, coherent with our educational project.

The simulations and games we propose in digital environments require the same degree of responsibility and vision as our daily life environments, in the awareness that every gesture and thought produced has consequences that are real.

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