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Cycle XXXVI

The Role of the Reggio Emilia Educational Experience

in Children's Thinking about Learning

Ph.D. Fellow: Massimiliano Massimelli

Tutor: Prof. Samuel Ronfard, University of Toronto Mississauga

Co-Tutor: Prof. Paul Lansley Harris, Harvard Graduate School of Education

Ph.D. Coordinator: Prof.ssa Carla Bagnoli, University of Modena and Reggio Emilia

Vòlli, e vòlli sèmpre, e fortissimaménte vòlli

Vittorio Alfieri, 6 settembre 1783

I know no safe depository of the ultimate powers of the society

but the people themselves;

and if we think them not enlightened enough

to exercise their control

with a wholesome discretion,

the remedy is not to take it from them,

but to inform their discretion

by education.

Thomas Jefferson, 1820

Summary

The aim of this research project is to explore what children think about learning, with particular attention to the role of testimony as a reliable source for acquiring knowledge (Harris, 2012). Do 4- and 5-year-old children who experience different pedagogical and educational approaches develop different theories about learning? Do these differences persist when children attend primary school? What strategies do children believe should be used to learn information that is easy, difficult, or impossible to learn on their own? From the children's perspective, can the testimony of other people be a reliable source for acquiring new knowledge?

The project consists of two studies.

In the first study, interviews were conducted with four groups of preschool (4, 5, 6 years) and primary school children (6, 7, 8 years), for a total of 95 children: the first group consisted of children attending a Reggio Emilia Approach preschool; the second group included children attending a Reggio Emilia preschool but not inspired by the Reggio Emilia Approach; the third group comprised primary school children who had attended a Reggio Emilia Approach preschool; the last group consisted of primary school children who had not attended a Reggio Emilia Approach preschool. This sample was designed to provide a comparison across both pedagogical approaches and children's ages.

The responses were analyzed using statistical tests (chi-square tests, 2 X 2 ANOVA, multinomial logistic regression).

In the second study, interviews were conducted with teachers, pedagogistas and pedagogical coordinators from the three schools involved in the project to solicit their interpretations of the results from the first study.

The results of Study 1 seem to suggest a positive answer to the main research question: do different pedagogical approaches affect what children's thinking on learning?. There was a significant difference in the perceived role of others in the learning processes: children enrolled in a Reggio Emilia Approach school mentioned peers, both friends and classmates, as partners in their learning, while children in non-Reggio Emilia Approach schools were more inclined to mention themselves as the sole protagonists of their learning. This result was confirmed during interviews with the pedagogist from the Reggio Emilia Approach school, who emphasized the children's tendency to consider peers as fundamental resources in learning. Furthermore, this result aligns with the claimed influence of the socio-constructivist approach in Reggio schools, as explicitly mentioned by the pedagogist of the school. This philosophical inspiration could also explain another result from Study 1: when asked which strategy to apply to learn different types of information, children enrolled in a Reggio Emilia Approach school were significantly more inclined to mention testimony as a method of acquiring knowledge impossible to learn on one's own, compared to other children. A greater inclination to credit testimony could be explained, once again, by the role of the group in the daily life of Reggio schools, as well as the emphasis that pedagogists and teachers place on creating contexts where mutual listening among children and between children and adults forms the foundation for building a trustful learning space, where democracy is exercised by both adults and children from an early age.

Introduction

The Global Report from the International Commission on the Futures of Education "Reimagining Our Futures Together. A new social contract for education" (UNESCO, 2021) recognized that global disparities mean that education is not yet fulfilling its promise to help shape peaceful, just, and sustainable futures. The authors questioned the role education can play in shaping our common world and shared future. The starting point, for them, to answer this question is a shared vision of the public purposes of education: "A new social contract for education needs to allow us to think differently about learning and the relationships between students, teachers, knowledge, and the world" (UNESCO, 2021, p. 3). Among the many proposals the authors offered, they pointed out that curricula should emphasize ecological, intercultural, and interdisciplinary learning that supports students to access and produce knowledge while also developing their capacity to critique and apply it. This reminds us of what Deanna Kuhn wrote about the role of education: "A broad goal for education [is] to develop in students the conceptual skills that will prepare them to contribute to a democratic society" (Kuhn, 2004, p. 268).

What are these conceptual skills? The possibility to "think differently about learning" and the need for children to develop "their capacity to critique and apply [knowledge]" recalls the notions of critical thinking and metacognition. For critical thinking, we mean the knowledge of one's own thinking and reflection on one's own and others' thinking as an object of cognition (Kuhn, 1999). We can consider similar definitions of metacognition, as the awareness of and control over one's own thought, or

“thinking about thinking” (Flavell, 1979), or an awareness of knowing and of the learning process (Avargil et al., 2018).

At this point, we can wonder at which age children begin to develop metacognitive skills and if different pedagogical approaches could positively influence this development. With regards to the first question, a large literature is available; for the second one, in particular referring to the Reggio Emilia Approach, much less has been written.

Developing Metacognitive Skills

Recent research indicates that children as young as three years old show signs of emergent metacognition, which gradually becomes more sophisticated during adolescence (Chen & McDunn, 2022). Understanding knowledge as the outcome of human knowing, and a process that involves either strategies or sources, such as places (e.g. school) or persons (e.g. teacher) (Sobel & Letourneau, 2015), is an essential initial step in the development of epistemological reasoning, a fundamental part of metacognitive abilities (Kuhn, 2000a): children by the age of 3 begin referring to their own knowledge states by employing verbs like "think" and "know," which they use to differentiate between thinking about an object and really observing it (Flavell, 1979). By the age of 4, they comprehend that others' actions are motivated by their beliefs and desires, which may differ from their own and even be incorrect. This so-called false belief comprehension, which links statements to their generating source in human knowers, represents a developmental turning point: before they develop the concept of a false belief, children are reluctant to assign to another person a belief that they

themselves know to be wrong. In the classic scenario, a child puts some chocolate in one location and then leaves the room, during that time someone moves the chocolate, when the person comes back where will he look for his chocolate, where he left it or in the new location? 4- and 5-year-olds often pass such tasks, judging that the child will search in the original place. Many younger children, typically 3-year-olds, fail by asserting that the child will look for the chocolate where it was moved (Wimmer & Perner, 1983).

When children start to pass the false-belief test, they start to distinguish between "the knower" and "the knowledge" as the knowers' own mental representations of it (Kuhn, 1999). Understanding knowledge as the result of human knowing is an important initial step in the development of children's epistemological reasoning, "which is metacognitive in the sense of constituting an implicit theory of how things are known" (Kuhn, 2000b, p. 178). Here, for personal epistemology we mean the individuals' conceptions of knowledge and knowing (Hofer & Pintrich, 2002), a concept which intersects the idea of epistemic metacognition, defined as "a set of beliefs, organized into theories, operating at the metacognitive level" (Hofer, 2004, p. 46).

Children's thinking about learning

Investigating what children think about learning relates also to children's developing theory of mind (Sobel et al., 2007). The studies that directly examined preschoolers' abilities to reflect on their own learning demonstrated that children begin to talk about learning during the preschool years (Bartsch et al., 2003). In particular, they could track

how they learned a specific piece of information. For example, in an experiment conducted by Tang and Bartsch (2012), most 4- and 5-year-olds correctly reported how information had been learned, whether they had been shown or told about it: children were 98% correct in answering whether they had seen or been told about objects that the experimenter have put in a drawer, but only 69% were correct in reporting that they had learned it ‘‘today’’ as opposed to ‘‘before today.’’ Other studies demonstrated children's difficulty in recognizing the occurrence of a learning event (when they learned it) (Tang et al., 2007): 4- to 5-years old children frequently insisted that they had "always known" a novel fact they had just learned, especially if they had not been warned that they were learning something new (Bemis et al., 2011). 5- and 6-years old children, even if they passed the false beliefs test, nonetheless failed the interpretation tests, in which they were given scenarios in which two characters, played by puppets, were revealed to have interpreted the identical object or message in radically different ways (Carpendale & Chandler, 1996). Heiphetz et al. (2013) conducted experiments focused on the development of children's reasoning about factual (a fact refers to knowledge that is assumed to be true is some objective sense), preference-based (preferences as evaluative attitudes coupled with beliefs, varying across individuals and contexts), and ideology-based beliefs (ideological beliefs contain elements of both fact and preference): Researchers asked the participants, both children and adults, if individuals with opposing opinions could both be correct or if only one could. They discovered that participants of all ages were able to differentiate ideologies from both facts and preferences. According to this study, children can already distinguish between these types of beliefs before the primary school years. Young children—as young as five years old—appear to think that other minds are capable of containing divergent

viewpoints; around the age of 7, they start to recognize that two individuals with opposing opinions can both be right.

This important development involves children's ability to consider the roles of various mental states in learning. Studies demonstrated that children consider at least three aspects of mental state knowledge for the learning process: learning should be supported by the desire to learn; learning involves attention to a task; learning should be facilitated by the intention to learn. Children's initial comprehension of learning appears related to a learner's desires: for example, when asked to explain stories in which characters' mental states consistently indicated that they were or were not learning, most 4-year-olds responded focusing on the character's desire—even if the character's desire was not mentioned. Children 5- and 6-years old start to recognize the importance of mental states other than desire for learning. These data suggest that children's developing conception of learning shifts from a "desire-psychology" to a psychological conception that integrates more mental states (Sobel et al., 2007).

Between 4 and 8 years of age children develop the ability to define learning as a process, that means involving either a source, such as tools (e.g., book) or role (e.g., teacher) or a strategy that allows gaining new knowledge. In the Sobel and Letourneau study (2015), when asked their definition of learning, 4- and 5-year-old children were frequently unable to offer any definition (39.53%), whereas 41.86% of this age group gave process-based responses. A percentage that increases with age: 66.67% for the 6- and 7-year-olds and 94.74% for the 8- to 10-year-olds. That means that by 8 years of age, children understand learning as a process and can reflect on the ways in which they learned in the past. (Sobel & Letourneau, 2015).

The current study

Coming back to our original questions, we wonder if different pedagogical approaches could influence children's metacognitive abilities. If it is established that different teaching approaches, involving for instance constructive approach to learning (Piaget) or sociological theory of education (Vygotsky) can have varying outcomes (Kalina & Powell 2009; Semmar & Al-Thani 2015), not much has been written about the impact of specific pedagogical approaches on the development of metacognitive abilities in preschoolers (Chen & McDunn, 2022; Archana & Sreedevi, 2021).

For this reason, the main goal of this research project is to explore whether the Reggio Emilia Approach influences the theory that children have and develop about "learning". In investigating this question, we paid particular attention to the role played by testimony in children's learning, while the psychological studies of cognitive development are traditionally more focused on children's learning from their own firsthand, empirical experience (Harris et al., 2007). This focus on testimony as a reliable source for gaining knowledge (Harris, 2012) was motivated by the fact that testimony involves different means of learning, such as communication and language, and offers cues to further insights and questions, such as the development of epistemic trust (Koening & Harris, 2005). Actually, the topic of trust will come up as an interesting cue to interpret the results of this study, strongly related to the educational experience of Reggio Emilia.

The Reggio Emilia Approach is a characteristic educational approach that has at the centre of the educational project a "child in relationship, a child who is able to construct his or her learning (relationships, abilities, competencies, knowledge) and who is

endowed with creativity" (Comune di Reggio Emilia, 2017 p. 15). The Approach is therefore based on an idea of a competent child, a child who develops from the early years their attitude to explore and learn. (Rinaldi, 2021).

The role of the group in learning, the attitude to discuss and thus to listen to the other's perspective, typical in the Reggio educational experience, is closely related to a dialogic approach in education which typically requires the participants to explain their reasoning to others and to reach consensus in relation to the solution or preferred strategy for carrying on specific tasks. This dialogic approach supports the development of more reflective and advanced forms of talk and discussion among children and older students (Whitebread et al., 2014) and the construction of what Brown described as a "community of learners": the establishment of a discourse genre where constructive discussion, questioning, enquiring, and critique are the norm rather than the exception is crucial to the success of curricula. These reflecting exercises eventually get internalized as self-reflective behaviors (Brown, 1997). We can therefore expect some differences in children attending, or that have attended, infant toddler centers or preschools directly inspired by the Reggio Emilia Approach. These differences could originate from the concept of the school itself in the Reggio Approach: the idea that school should be considered a kind of civic forum (Dahlberg et al., 2007), in which children are at the center, in a relationship of mutual listening with other children and adults, and their protagonist in co-constructing their learning processes (Rinaldi, 2021) might offer them the possibility to develop more initial metacognitive abilities, influencing their theory about learning. Another characteristic of the Reggio Approach that could play a role is documentation: the habit of children being part of the practice of documentation and its frequent use as a pedagogical tool for

assessing together with children their learning processes (Reggio Children & Harvard Project Zero, 2009), could positively influence their definition of learning as a process.

This research project consists of four chapters.

In Chapter 1, we aim to give a brief description of the main features which characterize the Reggio Emilia Approach and some information about the services' network of infant toddlers centers and preschools in Reggio Emilia. We discuss the role of the pedagogy of listening as a possible influence on children's theories about learning.

In Chapter 2, we present Study 1, which explores what young children think about learning, with particular attention given to the role of testimony as a reliable source for acquiring knowledge. For this purpose, we interviewed four groups of children from 4- to 8-years old, attending both Reggio Emilia Approach and non Reggio Emilia Approach preschools, and also a primary school. The chapter describes in detail the sample, the procedure, and the results of the study. The complete coding scheme is available in the Annexes

The need to listen to the voices of the teachers lead to Study 2, described in Chapter 3, which explores what teachers think children think about learning. An interview concerning the results of Study 1 was proposed to teachers and pedagogista of the schools involved in the research, to collect their interpretation and their comments. The complete transcription of the interviews is available in the Annexes.

Finally, in Chapter 4 we tried to offer an exhaustive final discussion of the topic with possible indications for further research in the same field.

Chapter 1:
The Educational Experience of Reggio Emilia

This section summarizes the key features that differentiate the Reggio Emilia educational experience. The chapter consists of a brief historical overview from the birth of the first preschools in Reggio Emilia to the opening of the Loris Malaguzzi International Centre. This is followed by a discussion of the guiding principles of the educational experience of the infant-toddler centers and preschools of Reggio Emilia, with a particular focus on the pedagogy of listening. The chapter concludes with the figures concerning the 0/6 integrated educational services of the City of Reggio Emilia.

Historical notes

The educational experience of Reggio Emilia originated in 1945, when numerous families took on a leading role and sold war materials left behind to build the school of Cella, the first preschool in Reggio Emilia (Gandini, 2014a). Cella's was the first of many other schools strongly desired and managed by the families of Reggio Emilia, an original self-management experience. This bottom-up participation of the families in Reggio Emilia, with the crucial contribution of the pedagogista Loris Malaguzzi and the dialogue with the Municipal Administration, led by the then Mayor Renzo Bonazzi, resulted in the opening of the first municipal preschool in 1963 (Gandini, 2014a). This first school was followed by others in the decade '60-'70, and then starting in 1971 the first infant-toddler centers were opened. The first exhibition, "If the eye jumps over the

wall", was held in 1981 (Malaguzzi, 1981). Renamed "The Hundred Languages of Children", it became a travelling exhibition, and garnered so much interest that it was duplicated and offered simultaneously in Europe and the United States. It came along with three editions of the catalogue (Reggio Children, 2012). The international success of the exhibition significantly contributed to the interest in the pedagogical experience that was being built in the infant-toddler centers and preschools of Reggio Emilia. In 1991 the magazine Newsweek stated that the schools of Reggio Emilia, represented by the Diana Preschool, were the most advanced early childhood schools in the world (Reggio Children, 2012).

This international prominence led the Municipal Administration, with the support of a low-denomination shares campaign, to establish the company Reggio Children srl, which is 51% owned by the Municipality of Reggio Emilia, for the promotion and dissemination of the Reggio Emilia educational experience labelled with the registered trademark of Reggio Emilia Approach (Reggio Children, 2012). The goals of this fledgling society were to promote educational exchanges on the Reggio Emilia Approach on a national and international level; to foster collaboration and consultancy projects to promote quality education for children; to design and implement exhibitions and to publish texts on these topics (Reggio Children, 2012).

In 2003 the Municipality of Reggio Emilia decided to establish "Istituzione Preschools and Infant-toddler Centre of the Municipality of Reggio Emilia" as its own

managing body in order to directly run the municipal educational services for children aged 0/6 years[1].

In 2004, the Municipality started the renovation of a decommissioned production site, the former dairy Locatelli in the northern area of the city, so as to transform it into the Loris Malaguzzi International Centre, which was completed and inaugurated in 2012.

In 2011 the voluntary association "Friends of Reggio Children", which was established together with Reggio Children Srl to welcome those who came to visit Reggio Emilia when they participated in the educational initiatives that were being developed, was transformed into Fondazione Reggio Children – Centro Loris Malaguzzi, a non-profit international organization that aims to promote educational research not only for children but for the benefit of communities around the world, based on the educational experience of Reggio Emilia[2].

Before taking a look at the distinctive features of this experience, we would like to borrow the words of Howard Gardner who, in the foreword to the latest edition of 'The Hundred Languages of Children', underlined synthetically and effectively the truly distinctive feature of this experience: "It is the Reggio community, more so than the philosophy or method, that constitutes Malaguzzi's central achievement. Nowhere else in the world is there such a seamless and symbiotic relationship between a school's progressive philosophy and its practices" (Gardner, 2012 p. XIV).

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[1] See Art.1 of the Rules of Procedure of Preschools and Infant-toddler Centres – Istituzione, available at http://www.scuolenidi.re.it/allegati/registituzione.pdf

[2] As for Fondazione's mission and activities, see https://www.frchildren.org/en

Distinctive features

It is not easy to summarize in a few paragraphs the distinctive features of the experience of Reggio Emilia. Here we intend to briefly outline those distinctive characteristics developed and elaborated in the infant-toddler centers and preschools of Reggio Emilia since the post-World War II period that, taken together, give life and substance to that characteristic educational approach that has at the center of the educational project a "child in relationship, a child who is able to construct his or her learning (relationships, abilities, competencies, knowledge) and who is endowed with creativity" (Comune di Reggio Emilia, 2017 p. 15). Already in this first statement quoted from the Charter of Services of the Municipal Infant-toddler Centers and Preschools of Reggio Emilia, it is useful to emphasize a particular aspect, a guide for interpreting what follows: at the center of the educational project there is not the child, but the child in relationship. We highlight here a shift from a child-centered pedagogy, which posits an isolated, autonomous, and decontextualized child, to a pedagogy of relationships – between children, parents, pedagogistas, and the community (Dahlberg et al., 2007). This pedagogy of relationships, which is inspired by the work of Dewey, Piaget, Bruner, Vigotsky, and Montessori, among others, was described by Loris Malaguzzi as follows:

> "Children learn by interacting with their environment and actively transforming their relationships with the world of adults, things, events and, in original ways, their peers. In a sense, children participate in constructing their identity and the identity of others. Interaction among children is a fundamental experience during the first years of life. [...]

> Constructive conflicts [resulting from the exchange of different actions, expectations and ideas] transform the individual's cognitive experience and promote learning and development. Placing children in small groups facilitates this process because among children there are not strong relationships of authority or dependence; therefore, such conflicts are more attractive and advantageous... If we accept that every problem produces cognitive conflicts, then we believe that cognitive conflicts initiate a process of co-construction and cooperation" (as cited in Dahlberg et al., 2007, p. 58).

Therefore, the pedagogy of relationships is not an instrumental tool but rather a strategic dimension that offers a systemic vision of the educational context: the relational system that is implemented in the school is real and physical and, at the same time, symbolic, a system of reciprocal representations where the adult is the adult, the child the child and, together, they question, listen to each other and give answers (Gandini, 2014a).

The focus on relationships also gives rise to the pedagogy of listening (Dahlberg et al., 2007), discussed later. Let's now take a look at some of the elements that make up, and at the same time support, the approach developed, not without first pointing out that they are inseparable elements, one in fact recalling the other, born out of practice and experience. As Gardner said, "what is special about Reggio was grown out of promising practices that have been worked out over the years. To be sure, there is a definite theoretical superstructure for the Reggio enterprise [...]. The heart of Reggio enterprise lies in the daily practices in the thirty-four schools and infant-toddler centers in the municipality" (Reggio Children & Harvard Project Zero, 2012, p.338).

Environment, spaces, relationships

One of the distinctive features of the Reggio Emilia educational experience can be immediately perceived when visiting the city's municipal infant-toddler centers and preschools: the design and care of the educational spaces, meant as places of relationship and communication for children and adults (Municipality of Reggio Emilia, 2017). Since the '70s there has been a constant exchange of ideas and dialogue between pedagogy and architecture in order to design spaces supporting the value of visibility, relationship, communication, participation and non-hierarchy between environments. In other words, spaces that foster interactions, autonomies, explorations and the curiosity of children, especially in small groups, a mode suggested by Malaguzzi who said that small group activities are the modules of highest desirability and communication effectiveness, the organizational typology that is the most suitable to the pedagogy of relationships, where the interactive complexity is stronger and more likely to be made and where self-regulatory accommodations, conflictual fruitful opportunities and reciprocal retroactions emerge the most (Gandini, 2014a).

As J. Bruner also stated: "A Reggio preschool is a special kind of place, one in which young human beings are invited to grow in mind, sensibility and in belonging to broader community" (as cited in Ceppi & Zini, 2011 p. 137).

Over time, therefore, a set of orientations, neither taxonomic nor exhaustive, has been generated and can be summarized as (Ceppi & Zini, 2011):

- horizontality, understood as the absence of hierarchies between spaces
- centrality of the square, a large meeting place surrounded by the school's environment

- transformability and flexibility, meant as the school's ability to change both in the short and long term, continually redesigned by children's and teachers' experimentations
- indoor-outdoor relationship, for a school that "feels" what is happening outside (seasons, climates, schedules...)
- transparency and communication, the value of communication does not end inside the school but, as Malaguzzi invited us to consider, "windows are an integral part of our architecture. In homage, internally, to a *circularity* that we consider fruitful, externally to a *collusion* with the territory. We would like the school to be a glass tunnel in the city" (Malaguzzi, 1988).

Atelier

Since the end of the 1960s, Reggio Emilia has made the identity choice to provide preschools and infant-toddler centers with ateliers and to include the atelierista in the working group. The atelierista is a professional figure with an expressive-artistic educational background, who develops varieties of expressive forms and languages who is empathetic with children's ways of building knowledge (Municipality of Reggio Emilia, 2017). The atelier is therefore not so much a privileged place for manual work intended as entertainment and acquisition of technical skills, but rather a place in dialogue with the other spaces of the preschool and the infant-toddler center, according to the idea of internal circularity already observed with regard to the architecture at the service of relationships, which proposes a strengthening of the expressive languages. As Malaguzzi affirmed, "there is only one fixed point: equal respect for the plurality and connections of children's languages, which are different but grafted onto a single root,

and consequently the battle against the old (and still baleful) culture of antinomies that opposes and hierarchizes disciplines, behaviours, intelligences, morality, reason, phantasy, imagination, individuality and sociality, expressiveness and cognition". (Malaguzzi, 1988).

Therefore, the atelier is the privileged place to offer children interesting contexts, leaving them time for exploration and design using different materials and languages (Gandini, 2014b). The plurality of children's modes of expression is reaffirmed in Reggio Emilia by the very image of the child, who has extraordinary potential and resources, which are symbolized by the metaphor of the hundred languages, understood as "ways of thinking, expressing oneself, understanding, and encountering the other through a way of thinking that intertwines and does not separate the dimensions of the experience" (Comune di Reggio Emilia, 2017, p. 38). As we will see below, this image of the hundred languages will come back strongly when we talk about documentation and documentation languages.

Despite the fact that every infant-toddler center and preschool have a space designed and intended for research and experimentation, i.e. the atelier, in the experience of Reggio Emilia the whole school is proposed as learning atelier. Therefore, each place should be able to be inhabited by children (Ceppi & Zini, 2011) according to an idea of interconnection. As Malaguzzi stated, the prevailing model was a school made up of many privacies, of non-communicating parts, of acts and times that were disjointed or discontinuously re-joined by improvised, precarious agreements or ordered by bureaucracy. He said that his assumptions, however, were very different. He thought of the school as a unitary living organism, a place of coexistence and relational exchanges between many adults and many children, where they could think, discuss, work, putting

together what they knew and didn't know, the difficulties, the errors, the expectations, the successes, the questions and problems that continually arise, the reasons for choices (Gandini, 2014a).

Documentation

Documentation, as it is understood in Reggio Emilia, is not to be confused with "child observation", or the activity aimed at assessing children's cognitive development (Dahlberg, Moss & Pence, 2007). Rather, documentation is understood as a way of acting out teaching (Municipality of Reggio Emilia, 2017), through the collection of materials related to ongoing learning processes, in various forms: written notes, video and audio recordings, photos, drawings, and works created by children (Dahlberg et al., 2007).

Pedagogical documentation, however, refers as much to the content collected as to the process, which becomes a tool for reflection on pedagogical action by pedagogistas, atelieristas, children, their parents, and citizens (Dahlberg et al., 2007). In this sense, documentation provides an opportunity for self-reflexivity by pedagogistas about their being pedagogistas (Dahlberg et al., 2007).

Documentation is not neutral, but always partial (Reggio Children & Harvard Project Zero, 2009) insofar as it is not a representation of reality but, in a socio-constructivist perspective, a social construction where the documenter builds up a relationship between the pedagogista/educator and children, making an arbitrary choice among the many possible ones. A choice that reveals how the image of both child and pedagogista/educator has been constructed (Dahlberg et al., 2007). And in this sense,

documentation becomes itself a learning process and the basis for pedagogical relaunches (Carla Rinaldi, 2001).

In summary, the purposes of documentation are:

- Giving visibility to learning processes;
- Reading, revisiting, reflecting on the experience;
- Providing a valorizing look at children's processes and experiences;
- Assessing and self-assessing (Reggio Children & Harvard Project Zero, 2009).

With respect to the last two points, it should be emphasized that through documentation, evaluation becomes contextual, that is, related to the context in which the documented experience develops, and it allows the values with which the documenter has interpreted the learning process to be made explicit (Reggio Children & Harvard Project Zero, 2009).

Documentation understood in this way, not subsequent to but woven into the educational experience, generates a sort of spiral movement that holds together observation, documentation, reflection and re-launching, becoming an essential element of pedagogical design (Reggio Children & Harvard Project Zero, 2009).

Participation

Another distinctive feature of the educational experience of Reggio Emilia is the participatory dimension of the educational project, understood as "a value and a strategy that qualifies the way children, educators and parents are part of the educational project, generating and fostering feelings and a culture of solidarity, responsibility and inclusion" (Comune di Reggio Emilia, 2009, p. 10). From the conception of schools as places of interaction, communication, and relationship, the invitation to participation is

constant and is addressed to children, educators, and parents to practice mutual listening and welcoming (Comune di Reggio Emilia, 2017). Through the design of horizontal, transparent spaces, of openness between indoor and outdoor, where the central square has a particular place since it is a meeting and communication place – communication also supported by the pedagogical documentation – the Reggio Emilia educational project affirms the central role of the school as a political, democratic, participatory place and project, where children's culture, and human culture, is not only transmitted but produced (Rinaldi, 2001).

To emphasize the identity value of this dimension and choice, it is worth recalling the opening of the first preschool, in 1963, desired and built by the families of Reggio. This genesis characterized by solidarity and co-responsibility has strongly marked the subsequent development of the Reggio Emilia experience (Spaggiari, 2014) aimed at reaffirming the value of education as a common good, a condition for the exercise of the fundamental rights of all (Comune di Reggio Emilia, 2017).

The participation of families in the educational project of preschools and infant-toddler centers is embodied in the City-Childhood Councils, one for each preschool and infant-toddler center. They are composed of parents, teachers, pedagogistas and citizens who are democratically elected every three years. The Councils are the key engines for initiatives, meetings, events, projects, which aim to involve not only all those who attend infant-toddler centers or preschools but also to be offered to the neighborhood and the citizens as an opportunity to encounter the culture of childhood and educational services (Municipality of Reggio Emilia, 2017). The City-Childhood Councils find in the *Consulta Cittadina* a place of connection, exchange and shared planning.

The exchange with the families is also supported by the documentation collected in the infant-toddler centers and preschools so as to make visible not only children's learning processes but also their culture, which is democratic and participatory. In this sense, "understood as a public place, documentation substantiates the idea of the infant-toddler center and preschool, a forum in which children's culture and education are developed through a democratic process" (Comune di Reggio Emilia, 2009, p. 12).

Participation and management are elements that revolve around an educational project based on communication, whose protagonists are children, families and staff and whose objective is their general wellbeing in an interconnected form (Rinaldi, 2021).

Pedagogical coordination, co-presence, collegiality, professional development

A key element in ensuring the quality of educational services in Reggio Emilia is the pedagogical coordination function exercised by the pedagogista of reference in each preschool and infant-toddler center for the organization of work, educational design and family participation (Municipality of Reggio Emilia, 2017). The pedagogistas are part of the pedagogical coordination team of Preschools and Infant-toddler Centers – Istituzione, which, besides connecting the pedagogical coordinators, develops the cultural and professional development plan of the 0/6 education system.

In the municipal infant-toddler centers and preschools, two co-teachers or a group of educators work in each classroom in order to guarantee the co-presence throughout the morning. Co-presence was an organizational choice that shows the centrality of the exchange of ideas, co-responsibility, and working with others, a choice that is reaffirmed in the group work with children (Reggio Children & Harvard Project Zero, 2009).

Documentation as visible listening: the pedagogy of listening

> "If we believe that children possess their own theories, interpretations, and questions, and are protagonists in the knowledge-building processes, then the most important verbs in educational practice are no longer 'to talk', 'to explain' or 'to transmit'. . . but 'to listen'. Listening means being open to others and what they have to say, listening to the hundred (and more) languages, with all our senses" (Rinaldi, 2021, p. 91)

The educational experience of Reggio also includes what Carla Rinaldi has called "pedagogy of listening" (Reggio Children & Harvard Project Zero, 2009). In Reggio Emilia, making listening visible means being open to children's theories, which arise from the questions, in their search for meaning, that children continually ask and ask themselves: "How? What? Why?" (Rinaldi, 2014). The interpretation theories that children produce and develop come to life as they are shared, and therefore listened to. Hence, the importance of the pedagogy of relationships and listening (Rinaldi, 2021). In a participatory pedagogy, listening is the guarantee for every education relation (Comune di Reggio Emilia, 2009). The school is therefore the first context outside the family unit in which the child has the opportunity to encounter a listening context (Massimelli et al., 2022), by involving both adults and children who listen to themselves and to others and giving strength to the dimension of learning at the group level, of children and adults together (Rinaldi, 2014). To create a listening context, it is necessary for the individuals who inhabit it to feel legitimized to express their point of view, theories, and interpretation narratives regarding a learning issue or problem

(Rinaldi, 2014). To this end, the task of the educator is not only to allow differences to be expressed but also to cultivate and negotiate them through sharing, dialogue and exchange. Essential in building a context that allows, supports, and values this mutual listening is a relation framed by trust (Rinaldi, 2021). Listening is therefore the key to keep open the dialogue between educational actors, schools firstly, with the political scenario that influences, and is influenced, by education (Comune di Reggio Emilia, 2009). The first tool for this listening is documentation, which ensures the possibility of listening and being listened to, not only through verbal language but also through other languages – graphic, plastic, musical, gestural... (Rinaldi, 2021). Listening is therefore one of the metaphors of the encounter and dialogue, which recognizes the value of the other's point of view and interpretation. (Reggio Children & Harvard Project Zero, 2009). The group is recognized as a teaching place by its members (Rinaldi, 2014). And so, it is that, in this dynamic of continuous exchange, of listening in the group and to the group, which values individuals as much as the group itself, the "learning community" is formed: A community that involves children and teachers, obviously, but also parents, who learn to listen to and value their child not only in the exceptionality and singularity of the individual but also as a subject who takes part in and co-constructs a larger learning group, composed of many individuals with equal rights and responsibilities (Rinaldi, 2014). And in this sense, the pedagogy of listening has to do not only with school but becomes a democratic attitude in life (Rinaldi, 2014).

The integrated network of educational services in Reggio Emilia

The system of early childhood educational services in Reggio Emilia relies on the cooperation of various providers in a network: The Municipality, the national government, FISM (denominational schools), educational cooperatives. The educational services are differentiated by age group: infant-toddler centers for children aged 0-2 years, and preschools for children aged 3-6 years.

The network of infant-toddler centers includes 12 infant-toddler centers directly managed by the Municipality of Reggio Emilia and 13 infant-toddler centers managed by other entities with a special agreement with the city. There are also 17 autonomous *Sezioni primavera* (for 2-year-olds) in the FISM educational centers which are autonomously managed and organized. There are also a number of privately-run educational services.

The network of preschools includes 21 schools directly managed by the Municipality of Reggio Emiilia and 9 infant-toddler centers-preschools managed by other entities with a special agreement with the city. There are 14 state-run preschools. Each state-run preschool refers to an *Istituto Comprensivo* with the perspective of vertical continuity for children aged 3-14 years. There are 20 preschools that are members of FISM and are autonomously managed and organized. There are also some privately-run educational services[3].

[3] See https://www.comune.re.it/retecivica/urp/pes.nsf/web/Sclprmrscndrd?opendocument

Chapter 2:
What Children Think about Learning – Study 1

Introduction

In the current study, we started by asking ourselves if children attending a Reggio Emilia Approach preschool develop a different theory about learning, compared to children attending a preschool inspired by other pedagogical approaches. We also wondered if any differences could persist into the first grades of primary school. To answer these questions, an interview was given to four groups of Italian preschoolers (4-, 5-, 6-years old) and primary schoolers (6-, 7-, 8-years old).

The first group was composed of preschoolers attending a Reggio Emilia Approach preschool; the second group was composed of preschoolers attending a preschool in Reggio Emilia, but not inspired by the Reggio Emilia Approach; the third group was composed of primary schoolers, that had attended a Reggio Emilia Approach preschool; the last group was composed of primary schoolers that had not attended a Reggio Emilia Approach preschool. This sample was designed to offer comparisons with respect to both pedagogical approaches and children's age. In particular, the sample makes it possible to assess whether the different pedagogical approaches of the preschools influence what children think about learning and, should differences emerge in younger children, if these differences persist when children eventually end up in the same primary school.

The interviews consisted of two different sets of questions. The first set was designed to prompt children's definition of learning, asking them to give examples of something they had learned. For each example given, more questions were proposed to discover how, where and with whom they learned. This part of the research is directly inspired by the study of Sobel and Letourneau aimed at determining what children think learning is (Sobel & Letourneau, 2015).

The second set of questions examines how children think someone can learn information that is easy to learn on one's own, information that is hard to learn on one's own, and information that is impossible to learn on one's own. These categories of type of information recall the studies of Lockhart based on the comparison between knowledge that is "direct" and knowledge that is "indirect" and on a more nuanced contrast between knowledge that is "simple to acquire" directly and knowledge that is "difficult but not impossible to gain" directly. Traditional studies on metacognition also imply that young children could struggle to comprehend the difficulties involved in acquiring some types of information when it is, in theory, directly acquirable (Lockhart et al., 2016).

As a whole, the interview could offer a quite complete insight of what children think about learning. In the first part, the questions will provide information about how children learn about learning, in particular, whether how they are taught teaches them about the process of learning itself. In the second part, the questions could provide information about how children learn to think about how different types of information are learned which is important for their ability to engage in self-directed learning and to reflect on learning strategies, a relevant step in the development of metacognitive skills (Kuhn, 2004).

Method

Participants

Our goal was to recruit a total of 80 children (20 per Age X School combination). We exceeded our goal in some cases. In total, 95 children (47 males and 48 females, *mean* age = 72.9 months, *Range* = 42–97 months) were recruited from preschools and primary schools in the "Pieve Modolena" neighborhood in Reggio Emilia, Italy. For the purposes of the research, we divided our sample into four groups: preschoolers attending a preschool that does not use the Reggio Emilia pedagogical approach (*n* = 24, 11 males and 13 females, *Mean* age = 63.0 months, *Range* = 51–74 months), preschoolers attending a preschool that uses the Reggio Emilia pedagogical approach, "Agorà Preschool" (*n* = 24, 9 males and 15 females, *Mean* age = 60.4 months, *Range* = 42–74 months), primary school children who had attended a preschool that does not use the Reggio Emilia pedagogical approach (*n* = 27, 17 males and 10 females, *Mean* age = 84.0 months, *Range* = 73–93 months), and primary school children who had attended a preschool that uses the Reggio Emilia pedagogical approach, "Agorà Preschool", (*n* = 20, 10 males and 10 females, *Mean* age = 85.1 months, *Range* = 76–97 months). Information about the socioeconomic status and ethnicity of children was not collected.

Before seeking the involvement of the schools, we asked for the formal approval of the project by the Ph.D. Board, then the recruitment process began. It took about four months to complete, due to the many institutional steps required: a first meeting was held in November 2021 with the Director of Istituzione of Infant-toddler Centers and

Preschools of the Municipality of Reggio Emilia[4] together with the Pedagogical Coordinators of Istituzione. In this meeting, the "Agorà Preschool"[5] was selected as a possible candidate for the research, also taking into consideration our participation as a private citizen in the City-Childhood Council[6] of the school. Then, a meeting with the President of the non-profit organization managing the school was scheduled to present the research (December 2021). Given the school's willingness to participate, more steps followed: a meeting with the Pedagogical Coordinator (January 2022); a meeting with the Board of Directors of "Agorà" (January 2022); and a meeting with the teachers of the classes involved (February 2022).

[4] Istituzione of Infant-toddler Centers and Preschools is a specific body created by the Municipality in 2003 to safeguard the qualities and values of the educational services in the city of Reggio Emilia. See https://www.reggiochildren.it/en/reggio-emilia-approach/system/

[5] Agorà Preschool is managed by the "Agora ETS - Percorsi Educativi per l'Infanzia", a nonprofit organization founded in 1991, by the parents of children attending the service. The school has a special agreement with Istituzione of Infant-toddler Centres and Preschools of the Municipality of Reggio Emilia. See http://www.scuolenidi.re.it/allegati/AGORA'%202022-23.pdf

[6] The City-Childhood Councils, one for each preschool and infant-toddler center in Reggio Emilia, are composed of parents, teachers, and pedagogistas to promote initiatives, meetings, events, projects to the whole neighborhood. See http://www.scuolenidi.re.it/allegati/carta-dei-servizi-2019-02-web.pdf

Meanwhile, similar steps were undertaken with an FISM Preschool[7], "Pio VI Preschool[8]" in the same neighborhood, so as to minimize the impact of socio-demographic variables on the sample: first, contact with the President of FISM Preschools of Reggio Emilia (February 2022); and a meeting with the Director of "Pio VI Preschool" (February 2022).

The goal of these meetings was to present the project, particularly the interview, to all the personnel involved and to evaluate which Primary school should be engaged: it emerged that the Primary school which receives most children after their preschool grades in that neighborhood is the "Giacomo Leopardi School" of the Istituto Comprensivo "Kennedy"[9]. At the end of February 2022, a first meeting with the Director of the Istituto Comprensivo and her Deputy was therefore arranged to present the research.

All the schools were open to collaborating and welcomed the research as an interesting opportunity for both teachers and families. Regarding the latter, the schools sent an email to the parents of the classes involved in the interview to inform them about the project and to share its purposes (February 2022).

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[7] The F.I.S.M. (Italian Federation of Nursery Schools) was formed by the initiative of the Italian Church to represent, support, and provide services to Nursery Schools run by ecclesiastical institutions or other religious organizations referring to Christian inspiration. See https://www.scuolenidifism-re.it/chi-siamo/

[8] See https://www.scuolenidifism-re.it/portfolio/pio-vi-pieve-modolena/

[9] Each Italian State-run preschool refers to an Istituto Comprensivo, aiming to provide vertical continuity for children aged 3-14 years. See https://ickennedy-re.edu.it

Procedure

From September to November 2021, we drafted the interview, which consisted of two different groups of questions: the first group was designed to prompt children's definition of learning, starting with an open-ended question about learning: ''What do you think 'learning' means?''; we then asked children to give examples of something they had learned. For each example given, more questions were asked to discover: how, where, with whom, and if someone helped them in learning what they had learned. Following these questions, children were asked: "How else can you learn? What are some other ways you can learn?"

The second group of questions explored children's thinking about how someone could learn about information that is easy to learn on one's own, information that is hard to learn on one's own, and information that is impossible to learn on one's own. These questions are listed below:

1. Information that is easy to learn on one's own:
    1.1. How could someone learn that rocks sink in the water, but leaves float?
    1.2. How could someone learn that when a rock is thrown up in the air, it always comes down?
    1.3. How could someone learn how to jump?
2. Information that is hard to learn on one's own:
    2.1. How could someone learn how to ride a bike?
    2.2. How could someone learn the names of colors?
    2.3. How could someone learn that people speak different languages in different places?
3. Information that is impossible to learn on one's own:

3.1. How could someone learn that the Earth is round?

3.2. How could someone learn that viruses make living things sick?

3.3. How could someone learn that in Italy there used to live ancient Romans?

Before starting to conduct the interviews, we agreed with the Directors or the Coordinators of the schools involved to be introduced to the children, in order to make the interviews more comfortable and less stressful for them. Accordingly, we were introduced to each class involved (n = 12), giving us the possibility to briefly introduce ourselves and describe the interview (February and March 2022). These first visits to the schools were also aimed at finding the most appropriate space to host the interview. In each school, we were able, thanks to the collaboration of the teachers, to find a room that was secluded, quiet, silent, and already known to the children. See Pictures n.1, and 2.

Picture 1. Room for interviews, Agorà Preschool

Picture 2. Room for interviews, Giacomo Leopardi Primary School

It is noteworthy that, in every class, the children seemed to be confident and not only available but also excited about the interview.

The individual interviews were therefore conducted and audio-recorded from the end of February till the beginning of April, with a few more in May 2022.

Coding

All interviews were transcribed for coding. Below, we outline how we coded: (1) Definitions of Learning; (2) Purpose of Learning; (3) Learned Content; (4) Learning Process; (5) Physical Context of Learning; (6) Social Context of Learning; (7) Learning information easy to learn on one's own; (8) Learning information hard to learn on one's own; (9) Learning information impossible to learn on one's own.

Children's definitions of learning were divided into four sub-categories, see Table 1.

Table 1. Children's definitions of learning

Sub-Category	Definition	Example
No response	children were unable to offer any definition	"I don't know"[10]
Identity	children simply used the word ''learn'' or ''learning'' to define learning	"learning means when you learn something"
Content	children defined learning as involving a subject or topic that was or could be learned	"it means learning to read and to write properly"
Process	children defined learning as involving either a source or a strategy that would result in gaining knowledge	"learning means learning so many things with the help of the teachers"

In children's definition of learning, the purpose of learning was coded into three sub-categories, see Table 2.

Table 2. Purpose of learning in children's definitions of learning

Sub-Category	Definition	Example
Not inferable	children did not mention any purpose of learning	"It means you have to learn how to study"
Skill improvement	children explicitly referred to the purpose of learning as an improvement of their skills in a particular domain	"For studying" "For sport"
Becoming an adult	children explicitly referred to the purpose of learning as a process to become adults	"For me learning is learning new things so as adults we know many things"

[10] All children's quotes are translated by the authors

Responses to the next question—about children's examples of learned content—were divided into five sub-categories, see Table 3.

Table 3. Children's examples of learned content

Sub-Category	**Definition**	**Example**
No response	children were unable to offer any examples of what they had learned	"I don't know what to tell you"
Subjects	either academic or proto-academic topics or other, generalizable knowledge	"I learned how to write"
Skills	either motor skills or procedural knowledge	"I learned how to stay on the skateboard"
Conventions	including social and nonsocial rules	"I learned that at home you should respect the rules, and you should always help the others"
Facts	non-generalizable knowledge such as single observations or statements of trivia	"I learned, I heard this thing that the teacher said: if we don't touch bees, they make honey"

When children gave multiple examples of their own learning, each example was coded separately.

Children's examples of process (their descriptions of how they had learned each content example and their examples of how else they could learn in general) were divided into three sub-categories, see Table 4.

Table 4. Children's description of how they had learned

Sub-Category	Definition	Example
No response	children were unable to state how they had learned or could learn	"Q.: And how did you learn this thing? A.: I know it"
Source	citing a person (e.g., ''from my teacher'') or a place (e.g., ''in school'') as the source of knowledge	"Q.: How did you learn to write? A.: My mother taught it to me"
Strategy	involving an active process through which knowledge was gained	"Q.: And how did you learn to draw properly? A.: Looking at the others' drawings, I thought I had become older, I took the marker, it became a nice thing, I learned how to draw properly"

For each example of learned content, the physical context in which children gained their knowledge was coded and divided into five sub-categories, see Table 5.

Table 5. Children's description of physical context in which they had learned

Sub-Category	Definition	Example
No response	children were unable to offer any examples of contexts in which they had learned	n.a.
Informal setting	involving family or informal contexts	"Q.: Where did you learn that? A.: At my home"
Formal setting	involving school or other contexts formally directed at learning	"Q.: Where did you learn writing and reading? A.: In primary school, first grade"

Mixed	Involving both informal and formal contexts	"Q.: Where did you learn to do this thing, coloring and decorating? A.: At home, at school"
Other	repository category for answers that did not refer to a context	"From the others, I saw others drawing their drawings"

The social context of learning was coded too, into six sub-categories, see Table 6.

Table 6. Children's description of social context in which they had learned

Sub-Category	**Definition**	**Example**
No response	children were unable to offer any examples of who supported or participated in what they had learned	n.a.
Alone	involving no other person in their learning	"Q.: And did someone help you? A.: No. But also, when I was 3 years old, I was able to do that alone"
Peers	involving friends or schoolmates that assisted or supported their learning	"Q.: And were you alone or with someone else when you learned it? A.: With someone Q.: Who were you with? A.: All my friends Q.: And did someone help you? A.: Yes, all of them"
Family	involving parents, grandparents, siblings that assisted or supported their learning	"Q.: And were you alone or with someone else when you learned to guess the fishes? A.: My grandfather read them to me, and I guessed them"

Teachers	involving teachers or educators that assisted or supported their learning	"Q.: And were you alone or with someone else when learned it? A.: Someone helped us when we were in trouble. The teacher's name is Maria, the teacher who helped us"
Ambiguous	mentioning in the same answer both learning alone and someone else's participation or support in their learning or mixed answers	"Q.: Did you learn alone? A.: I learned alone. But my mother told me"

Finally, responses to the three categories of information (i.e., information that is easy to learn on one's own, information that is hard to learn on one's own, and information that is impossible to learn on one's own) were divided into the same six sub-categories, see Table 7.

Table 7. Children's responses to how someone else could learn information easy, hard or impossible to learn on one's own

Sub-Category	**Definition**	**Example**
No response	children were unable to offer an explanation about how someone can learn something through a direct experience	"Q.: How could someone learn that rocks sink in the water, but leaves float? A.: I don't know these questions"
Identity	children explained how someone can learn, but only by citing the same words as in the question	"Q.: How could someone learn that in Italy there used to live ancient Romans? A.: Because the ancient Romans lived in Italy, they always stayed in Italy"
Process involving experience	children referred to their own experiences or cited a process involving experience	"Q.: How could someone learn how to ride a bike? A.: Then, first at all, they use the training wheels, the tricycle, then the training

		wheels, then bicycle without wheels. So, you slowly go and succeed"
Process involving knowledge artifacts	children referred to a process involving the acquisition of knowledge from artifacts (e.g., books, digital devices)	"Q.: How could someone learn that rocks sink in the water, but leaves float? A.: While we are watching videos, which we watch many times"
Process involving testimony	children referred to a process involving the acquisition of knowledge from testimony	"Q.: How could someone learn the names of colors? A.: With mother and father. They would say "This is blue, this is red"
Repeating information learned	children referred only to the information learned but not to how someone could learn that information	"Q.: How could someone learn that viruses make living things sick? A.: Viruses make people sick because the virus is threatening, and it only wants it to live, instead we don't want the virus, so we get treatment and take medicine that protect us"

The complete coding scheme, with more examples of children's responses, is included in the supplementary materials.

A graduate research assistant, blind to the purpose of the experiment coded a subset of children's responses (about 70% of the dataset). Agreement with the first author was 90%; discrepancies were resolved through discussion.

Results

Children's thinking about learning

Definition of Learning:

Children's responses to the question: "What does learning mean?" were coded into four categories: no response; identity, (i.e., for answers that simply repeated the word ''learn'' or ''learning'' to define learning); content, (i.e., for answers that involved a subject or topic that was or could be learned); process, (i.e., for answers that involved either a source or a strategy that would result in gaining knowledge.

The effects of Pedagogical Philosophy (2: Reggio vs. Non-Reggio) and Age (2: Preschool vs. Elementary) were examined using a Chi-square test. This analysis revealed no significant differences between children exposed to the Reggio Emilia educational approach and children not exposed to this educational philosophy, χ^2 (3) = 3.69, p =.297. However, the data shows that compared to younger children, older children are more likely than younger children to provide a definition that involves either a source or a strategy that would result in gaining knowledge (70.2 % vs. 50%), although this difference was not statistically significant, see Table 8. This result is consistent with prior work showing that the ability to define learning as a process develops between 4 and 8 years of age (Sobel & Letourneau, 2015).

Table 8. Percentage of responses to the question "What does learning mean?" by children age

	Preschool	***Primary***
No Response	18.8%	8.5%

Identity	12.4%	6.4%
Content	18.8%	14.9%
Process	50.0%	70.2%

Number of words used:

Given that older children are more likely to provide process definition of learning, we were concerned that this correlation could be explained by children's developing language capacities. Although we did not formally assess these abilities, we did count the number of words children used to express their definition of learning. A 2 X 2 ANOVA with the between subject factors of Pedagogical Philosophy (2: Reggio vs. Non-Reggio) and Age (2: Preschool vs. Primary) revealed only a main effect of age of children, $F(1, 82) = 7.0275$, $p = .010$, $\eta^2 = .079$. Older children used more words than younger children, see Table 9.

Table 9. Mean number of words used in the definition of learning by children's age and schools' pedagogical approach (range 2-73), Standard deviation in parentheses

	Preschool	**Primary School**
Reggio Approach	11.5 (9.43)	19.2 (13.0)
Not Reggio Approach	9.21 (6.65)	17.8 (20.2)
Total	10.4 (8.21)	18.3 (17.4)

To test whether language ability (as measured by the number of words used) rather than age predicted a difference in children's definitions of learning, using a multinomial logistic regression we regressed the type of definition children provided on their age and

the number of words they used in their definition. These analyses showed that age and the number of words used did not predict whether children provided an identity, content, or process definition. However, using fewer words was positively associated with providing a No response (p=.021). These results are consistent with those of Sobel and Letourneau (2015).

Purpose of Learning:

Overall, children rarely provided a purpose for learning. Thus, about 80% of children did not do so. The effects of Pedagogical Philosophy (2: Reggio vs. Non-Reggio) and Age (2: Preschool vs. Elementary) were examined using a Chi-square test. There was no difference with age. Among the minority of children who did provide a purpose, there was a difference in the kind of purpose invoked based on the pedagogical philosophy. The children exposed to Reggio schools focused more on "becoming an adult" than learning a skill, whereas the reverse was true for children not exposed to the Reggio Approach, χ^2 (2) = 7.26, p =.026, see Table 10.

Table 10. Percentage of possible purposes of learning by schools' pedagogical approach

	Reggio Approach	***Not Reggio Approach***
Not Present	81.8%	82.4%
Skill Improvement	2.3%	13.7%
Becoming an Adult	15.9%	3.9%

Number of examples of learned content:

When asked to provide examples of learned content, children offered a number of examples varying between 0 and 5 examples. A 2 X 2 ANOVA with the between subjects factors of Pedagogical Philosophy (2: Reggio vs. Non-Reggio) and Age (2: Preschool vs. Primary) revealed only a main effect of pedagogical philosophy, $F(1, 82) = 4.432$, $p = .038$, $\eta^2 = .05$. Children exposed to the Reggio Emilia Approach gave more examples compared to children not exposed, in both age groups, see Table 11.

Table 11. Mean number of examples of learned content by children's age and schools' pedagogical approach (range 0-5), Standard deviation in parentheses

	Reggio Approach	***Not Reggio Approach***
Preschool	2.57 (1.40)	1.79 (1.47)
Primary School	2.84 (1.26)	2.37 (1.33)
Total	2.70 (1.32)	2.13 (1.41)

Learned Content:

Each example of learned content provided by children was coded to collect data about what children remembered learning (subjects, skills, conventions, facts), the process through which they had learned (source, strategy), the physical context in which they had learned (informal, formal, mixed, other) and the social context (alone, peers, family, teacher, ambiguous). The effects of Pedagogical Philosophy (2: Reggio vs. Non-Reggio) and Age (2: Preschool vs. Elementary) were examined using a Chi-square test. There was a significant difference based on the age of children: younger children, both exposed and not exposed to the Reggio Approach, were more likely to provide skill

examples, χ^2 (1) = 13.1, $p < .001$, whereas older children were more likely to provide examples related to either academic or proto-academic topics or other generalizable knowledge (subjects), χ^2 (1) = 13.1, $p < .001$, see Table 12.

Table 12. Percentage of different kinds of learned content examples by children age

	Preschool	***Primary***
No Response	7.1%	4.5%
Subjects	28.6%	53.7%
Skills	46.4%	17.9%
Conventions	7.1%	13.4%
Facts	10.7%	10.4%

Learning Process:

Statistical analyses – a Chi-square test was used to examine the effect of Pedagogical Philosophy (2: Reggio vs. Non-Reggio) and Age (2: Preschool vs. Elementary) – with respect to the learning process through which the examples of content had been learned. This test revealed no significant differences between younger and older children or between children exposed to the Reggio approach and children not exposed to this approach. However, it is noteworthy that children in the Reggio Approach Preschool were more likely (40.6%) to provide responses that involved an active process through which knowledge was gained (strategy) than children not exposed to the Reggio Approach (25.0%). There were no differences in responses referring to a person (e.g., ‘‘from my teacher’’) or a place (e.g., ‘‘in school’’) as the source of knowledge (source), see Table 13.

Table 13. Percentage of responses to the question "How did you learn that?" by children's age and schools' pedagogical approach

	Reggio Approach		**Non-Reggio Approach**	
	Preschool	***Primary***	***Preschool***	***Primary***
No Response	6.3%	0.0%	20.8%	2.7%
Source	53.1%	48.3%	54.2%	54.1%
Strategy	40.6%	51.7%	25.0%	43.2%

Physical Context of Learning:

Data regarding children's responses concerning where they had learned the examples of content were examined with a Chi-square test. This revealed no significant difference based on the pedagogical approach. A significant difference was evident based on the age of children: younger children were more likely to mention informal contexts (such as family or other informal settings) for their learning examples, χ^2 (1) = 5.3, p =.021, whereas older children were more likely to mention formal contexts (schools or other contexts formally directed at learning), χ^2 (1) = 16.5, p < .001. See Table 14.

Table 14. Percentage of responses to the question "Where did you learn that?" by children age

	Preschool	***Primary***
No Response	23.7%	0.0%
Informal Setting	37.3%	23.3%
Formal Setting	23.7%	60.0%

Mixed	3.4%	13.3%
Other	11.9%	3.3%

Social Context of Learning:

The children's responses with respect to whom they had learned from were examined with a Chi-square test that revealed a difference related to the age of children: during the preschool years both children exposed and not exposed to the Reggio Approach were more likely to mention the role of family in learning, χ^2 (1) = 6.48, p= .011, whereas in the primary school years the role of teachers greatly increased, χ^2 (1) = 18.0, p < .001. See Table 15.

Table 15. Percentage of responses involving help of family or teachers by children's age

	Preschool	***Primary***
Family	42.9%	19.5%
Teacher	8.9%	33.8%

The data also show some significant differences based on pedagogical philosophy. Children not exposed to the Reggio Approach, both in preschool and primary school, were more likely to give responses that involved no other persons in their learning process (alone). The mention of teachers' and educators' role in learning is lower for children exposed to the Reggio Approach, both preschool, and primary. Another significant difference is seen for responses that involve peers (friends or schoolmates)

that assisted or supported their learning (peers); these responses were more frequent among children exposed to the Reggio Approach, χ^2 (1) = 7.24, p =.007. See Table 16.

Table 16. Percentage of responses to the questions "Did someone help you? Were you alone when you learned that?" by schools' pedagogical approach

	Reggio Approach	***Not Reggio Approach***
No Response	1.5%	0.0%
Alone	14.9%	25.8%
Peers	20.9%	7.6%
Family	32.8%	25.8%
Teacher	14.9%	31.8%
Ambiguous	14.9%	9.1%

With regard to the role of the family in learning, it is remarkable that, while coding the social context, we found that 24.4% of the children interviewed mentioned the help given by grandparents, with that response slightly more likely among children exposed to Reggio Emilia (30.0%) compared to children not exposed (19.6%). There was no relevant effect of age (21.7% in Primary school compared to 27.5% in Preschool).

Learning as Studying

When asked for their definition of learning, or how they had learned the examples of learned content that they provided, children sometimes used the word "study" or "studying". In the coding phase, we took note of these mentions and examined the data with a Chi-squared test, which revealed a statistically significant difference related both

to age and to pedagogical approach. Younger children not exposed to the Reggio Approach were more likely to mention "study/studying" compared to younger children who were exposed, χ^2 (1) = 5.20, p =.023. In primary schools. we found the opposite: older children exposed to the Reggio Approach were more likely to mention "study/studying" compared to children not exposed, χ^2 (1) = 8.67, p =.003. See Table 17.

Table 17. Percentage of responses involving "study/studying" by children age and by schools' pedagogical approach

	Reggio Approach	***Not Reggio Approach***
Preschool	14.3%	47.4%
Primary	73.7%	29.6%

Discussion

Children's thinking about learning

We investigated what children think about learning and whether exposure to the Reggio Emilia Approach influences their thinking.

In the first part of the interview, children were asked to provide a definition of learning and to give examples of what they had learned. We analyzed their definition and their examples. We found difference in children's responses as a function of two factors: their age – whether they were attending a preschool or a primary school, and their exposure to the Reggio Emilia Approach. With regards to the age of children, we found differences in the definition of learning, in the content, and in the physical, and social context of the examples of what they had learned. With respect to the effects of the pedagogical experience, we found that exposure to Reggio influenced the perceived purpose of learning, when provided by children in relation of their definition of learning, as well as the social context of the examples of learning they had provided. Below, we discuss these results in more detail.

Age-related differences.

The data show that older children, attending primary schools, define learning as involving either a source or a strategy that would result in gaining knowledge, emphasizing the process rather than the content, as for example "Imparare vuol dire che, tipo la maestra ti dice delle cose, e tu lei impari [Learning means, you know, the teacher

tells you something and you learn][11]"; or "Per me imparare significa, significa che, sei un bambino, nasci, però non è che sai molte cose, vai a scoprire un po il mondo e poi impari nuove cose man mano che vai avanti [For me learning means that you are a child, you were born, however, you don't know a lot of things, so you go to discover a little bit about the world, and then you learn new things as you go along]". This contrasts with younger children who often defined learning as involving a subject or topic that was or could be learned, as for example "Significa imparare le lettere, anche i numeri" [It means learning the letters, the numbers too], or "Imparare la pazienza" [Learning to be patient].

Concerning content, and the examples of learning that children offered in the interviews, there was a significant increase with age in examples coded in the "subjects" category, which refers to either academic or proto-academic topics or to other generalizable knowledge, such as "storia [history]" or "Io, noi abbiamo imparato in inglese, sappiano i numeri, sappiamo le cose, tutto quello che ci dice la nostra maestra, noi lo dobbiamo dire [I, we learned English, we know numbers, we know things, everything our teacher tells us, we have to say it]". In contrast, younger children were more likely to provide examples that referred to skills or procedural knowledge. For example: "Ho imparato a fare l'orologio con dei materiali [I learned how to make a watch with some materials]", or "Ho imparato a tagliare un pezzo di foglio e a trasformare i fiocchi [I learned how to cut a paper sheet and how to transform into bows]".

[11] All children's quotes are translated by the authors

Two further differences appear to be linked to each other: when asked where they learned and who helped them, children attending primary schools more frequently cited formal contexts, such as school, and mention teachers: “Q: E dove hai imparato le tabelline? A: L'abbiamo imparata a scuola, perché se no se lo impareremo a casa non c'avevamo capito se erano giuste. Q: E qualcuno ti ha aiutato a impararle? A: I maestri. Perché loro sono molto bravi a fare le tabelline. Quindi ci hanno aiutato loro. [Q: Where did you learn the times table? A: At school. We learned it at school because if we learn it at home we couldn’t understand if they were right. Q: Did someone help you? A: Teachers. Because they are very good at times tables. So they helped us]”.

In contrast, children in preschools more frequently cited informal settings and the role of the family in their learning examples: “Q: Come hai fatto a imparare a disegnare le scale e il bimbo? A: La mamma me l'ha fatto vedere io l'ho ricopiato. Q: Dove l’hai imparato? A: A casa. [Q: How did you learn to draw stairs and a child? A: My mother showed it and I copied it. Q: Where did you learn it? A: At home], or “Q: come hai imparato a camminare? A: Prima, mi ha dato la mano la mamma, poi il papà, e ho fatto così. Q: E dove eri? A: Ero o al mare o a casa mia. O anche giù dai nonni [Q: How did you learn to walk? A: First my mother held my hand, then also my father, I did it in this way. Q: Where did you learn it? A: I was at the sea or home. Or also at my grandparents’ home]”.

These differences, which are also statistically significant, seem coherent with the change in the school context, and thus daily experience, that children encounter in the transition from preschool to elementary school. Given that the primary school is more structured, with a time organization involving multiple teachers, and a daily schedule sorted into different subjects, in which play, and free exploration have a very marginal

role compared to preschool, it is plausible that children's responses reflect these realities. This could also explain the high number of examples of subject content provided by older children, in which they referred to a more classifiable and categorizable knowledge, as it begins to occur in primary schools, at least compared to preschools. In this regard, it seems useful to remember that the Reggio Emilia educational philosophy influences preschools, not primary schools which are managed by the national government and follow a national framework of set curricula.

Pedagogy-related differences

Our analyses also revealed significant differences in children's thinking about learning and what they learned based on the educational approach they had experienced in their preschool years. The first difference is evident in an aspect not directly solicited in the interview, but which emerged in the data analysis: almost 20% of the children interviewed, when asked what learning means, spontaneously provided a definition that invoked a purpose for learning. Among these definitions, a difference related to the educational approach appeared. Children not exposed to the Reggio Emilia educational philosophy seem more likely to refer to the improvement of their skills, with a close-in-time benefit, such as "Imparare per sport [Learn for sport]", "Per studiare [For studying]", or "Per me imparare vuol dire fare, cioè se non so fare cose nuove, per proprio, riuscire a fare cose nuove [For me learning means doing, that is, if I don't know how to do new things, to be able to do new things]". Children exposed to the Reggio Emilia approach seem more likely to give answers that refer to adult life or becoming an adult, gaining improvements in a future time, such as "Per me imparare è imparare nuove cose così da grandi sappiamo tante cose [For me learning is learning new things,

so as adults we know a lot of things]"; "Per andare a lavoro da grandi [To go working as adults]", or "Imparare per me è tipo studiare. Così poi possiamo guadagnare, non diventiamo capre perché dopo non riusciamo a leggere e a scrivere. Poi anche con i soldi puoi fare delle cose che ti aiutano. E anche la tua famiglia [Learning for me is like studying. Then we can earn, we don't become goats that cannot read and write. And with money you can do things that help yourself. And your family too]".

This statistically significant difference can be plausibly linked to Reggio Emilia's emphasis on contexts in which children are invited to co-construct their own plans and to co-design activities (Municipality of Reggio Emilia, 2017). Reggio Emilia preschools also involve parents in the educational project, so children probably feel them to be more engaged in their learning processes. (Municipality of Reggio Emilia, 2009).

A further statistically significant difference concerns the role exercised by others in children's learning. Children not exposed to Reggio's philosophy were more likely to mention learning alone, for example "Q: Ed eri da solo o con qualcuno quando hai imparato la tabellina del 5? A: Ero da solo, la stavo facendo da solo la tabellina del 5. Q: E qualcuno ti ha aiutato? A: No [Q: Were you alone or with someone else when you learned the five times table? A: I was by myself, I was doing the five table by myself. Q: And did somebody help you or not? A: No]".

In the response to the same questions, children exposed to Reggio's approach much more often cited the role of friends and classmates in their learning examples: "Q: Ed eri da solo o con qualcuno quando l'hai imparato? A: Ero con qualcuno. Q: Con chi? A: Ero con tutti i miei amici. Q: Certo. E senti, qualcuno ti ha aiutato ad imparare? A: Eh i miei amici che conoscevo già da tanto [Q: Were you alone or with somebody else when you learned how to write? Q: With somebody, I was with all my friends. Q: And did

somebody help you? A: All my friends, that I've known for a lot of time]" or "Q: Eri da solo o con qualcuno quando hai imparato l'amicizia? A: Con qualcuno. Q: Con chi eri? A:Tutti i miei amici. Q: E qualcuno ti ha aiutato a imparare questa cosa? A: Si, tutti quanti [Q: Where did you learn about friendship? A: Together with my friends. Q: Were you alone or with someone when you learned it? A: With all my friends. Q: Did somebody help you in learning this? A: Yes, all of them".

This difference is consistent with the Reggio Emilia Approach which values the role of the group in learning (Gandini, 2014a), and relies considerably on the group even in the daily organization of the school. We can mention, as an illustrative example, the role of children's morning assembly, which assigns tasks, creates a moment of reciprocal listening, promotes discussion, makes activity proposals for the day, and works as a kind of forum (Dahlberg et al., 2007). This habit of discussion, confrontation, and mutual listening, a distinctive feature of the Pedagogy of listening (Reggio Children & Harvard Project Zero, 2009), can also explain the greater number of examples given by children, in both age groups but in particular in preschools, exposed to the Reggio Approach, when asked to provide examples of learned contents. This difference (*Mean* Agorà number of examples= 2.57 compared to Mean Pio VI number of examples=1.79) could confirm a great inclination toward engagement and conversation even with adults, such as the researcher in the present study.

Another remarkable difference related to the pedagogy was evident when children were asked for their definition of learning, or how they had learned the particular examples of learned content that they cited. Some of them mentioned the word "study" or "studying", such as "Imparare significa studiare [Learning means studying]" or as a learning process through which they learned, such as "Q: E come hai imparato a fare

queste cose [di matematica], come hai fatto? A: Ho imparato perchè abbiamo studiato tanto. Abbiamo fatto delle cose molto belle [Q: And how did you learn these things [of math], how did you do it? A: I learned because we studied a lot. We did really nice things]". The fact that children attending a Reggio Emilia Approach preschool are less likely to mention "study/studying" could be explained by the attention given by teachers to support children's natural inclination to explore and learn (Malaguzzi, 1988), in playful contexts, not rigidly structured as contexts for studying, overcoming the traditional "antinomy" between play and study (Rinaldi, 2021) – a possibility that is lost in the primary school. This same insight may come to our aid in explaining a finding that would otherwise appear to be contradictory: the fact that primary school children who attended a Reggio Emilia Approach preschool mentioned the word "study/studying" more often than others to explain learning. The reason could lie in having experienced to a lesser extent the distinction between "study" and "play" in the preschool years, when in primary school, in a new and different, more regulated context, where learning is more formalized and framed in moments of "study", they could be more sensitive to this distinction.

Other considerations

It is notable that, while coding the social setting, we discovered that 24.4% of the children interviewed emphasized the role and the assistance provided by grandparents. Given that the role of grandparents in learning, and school as a whole, is often neglected (Dozza & Frabboni, 2012), maybe these data could be a cue to foster further research on this specific topic, taking into consideration the fundamental support grandparents

provide in families (Mitchell, 2008), and asking if and how the Covid-19 pandemic affected roles within the family[12] (Guo et al., 2021).

Children's thinking about how different types of information are learned

In the second half of the interview, children were asked how someone else could learn three different kinds of information: information that is easy to learn on one's own, such as how to jump; information that is hard to learn on one's own, such as the names of colors; and information that is impossible to learn on one's own, such as that the Earth is round. For each type of information, children were asked three different questions, for a total of 9 questions. All three types of information were coded into the same categories: (a) No response; (b) Identity, in which children explained how someone can learn, citing the same words as in the questions; (c) Process involving experience, in which children referred to their own experiences or cited a process that was involved; (d) Process involving artifacts, in which children referred to a process involving the acquisition of knowledge from artifacts (e.g., books, digital devices); (e) Process involving testimony, in which children referred to a process involving the acquisition of knowledge from testimony; and (f) Repeating information learned, in which children referred to the information learned and not to how someone could learn that information. For more details and examples of children's responses, see above Table 7.

[12] A teacher in a preschool involved in the interviews, when asked for a comment about the frequent mention of grandparents, argued that in the previous two years most of children spent a lot of time with their grandparents during the lockdown of schools

In the analyses, we decided to merge Identity (2.58% of the overall responses) and Repeating information learned (29.19% of the overall responses) together as Other response because both categories did not provide any insight about the method of gaining the knowledge.

Using repeated measures multinomial logistic regression, we regressed children's reflections on how someone could learn each fact on the type of information they were asked about (3: easy to learn on one's own; hard to learn on one's own; and impossible to learn on one's own), their age (2: preschool; primary) and whether or not they had been or were currently exposed to the Reggio pedagogical philosophy (2: non-Reggio; Reggio). Our analyses revealed a main effect of Information Type, χ^2 (8) = 119.87, $p <$ .001, and a significant interaction between Age and Pedagogical Philosophy, χ^2 (4) = 10.35, $p < .001$. None of the other interaction terms were statistically significant.

In Figure 1, we display the main effect of information type. Inspection of Figure 1 reveals no difference across information type for the No Response category. Children were most likely to provide a response coded as Other (repeating the prompt or providing their own explanations) for information easy to learn on one's own, less likely to provide such responses for information impossible to learn of one's own, and least likely to do so for information hard to learn on one's own, all contrasts $p < .05$. Children referenced first-hand experience as a means of learning information hard to learn on one's own most often, followed by information easy to learn on one's own, and were least likely to mention experience for information impossible to learn on one's own, all contrasts $p < .05$. Children mentioned using knowledge artifacts most often for information impossible to learn on own's own, followed by information hard to learn on own's own, and least for information easy to learn on one's own. Only the difference

between information impossible to learn on one's own and information easy to learn on one's own was statistically significant, $p < .05$. Children mentioned testimony as a method of learning more often for information impossible or hard to learn on one's own and least for information easy to learn on own's own. Only the difference between information impossible to learn on one's own and information easy to learn on one's own was statistically significant, $p < .05$.

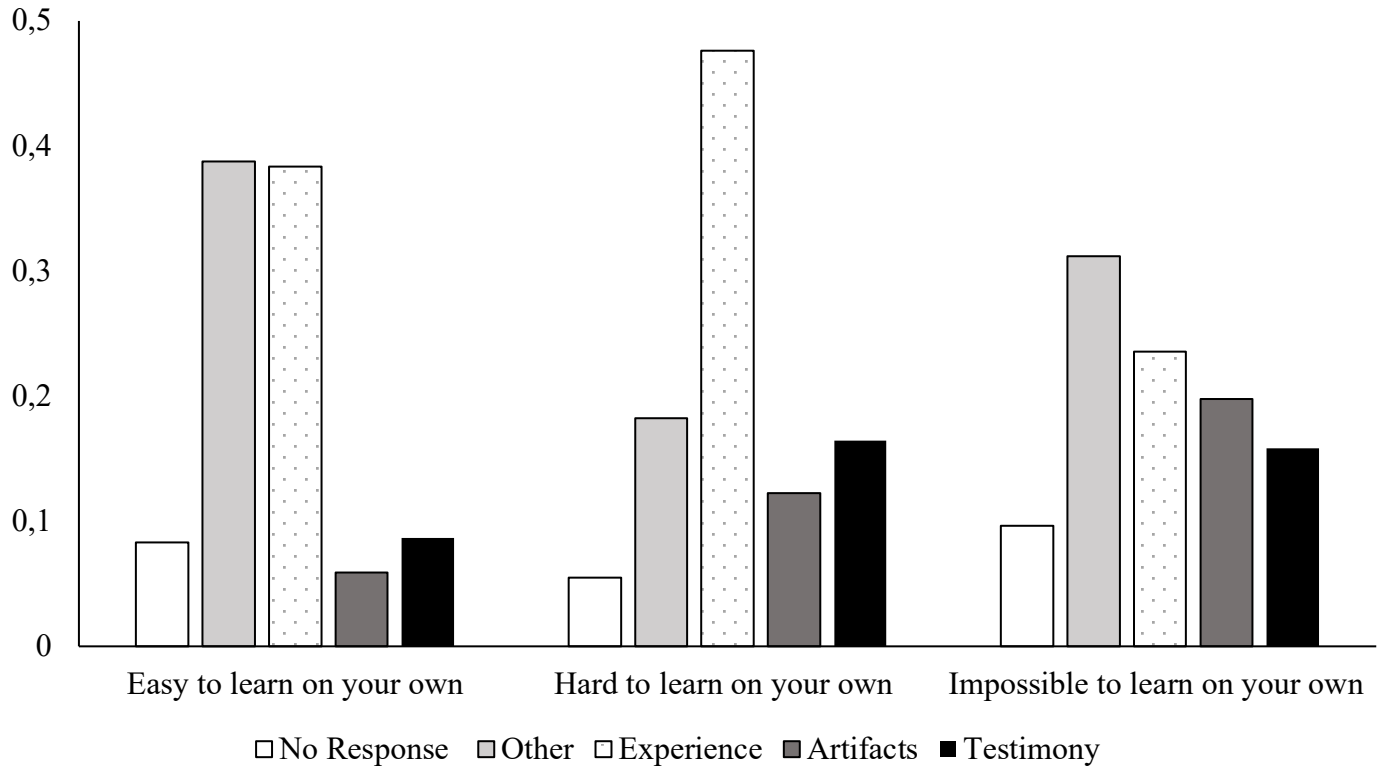

Figure 1. Predicted probability of a providing each response for type of information. Error bars represent 95% confidence intervals.

In trying to understand why children frequently either repeated the questions we asked or repeated the information learned (responses that in our study we coded as Other), we should consider that prior research showed that although young children have some understanding of knowledge acquisition, they do not have an adultlike conception of learning and have difficulty in recognizing both how and when knowledge is acquired (Taylor et al., 1994). This difficulty could be further raised by the open-ended questions we asked them in our interviews, which they could have found too difficult to understand. Children might have found it easier to focus on the strategy or the process to acquire new knowledge if they had had the possibility to imagine a character playing in a scenario, such as in the study of Lockhart et al. (2016). In that study, to test children's ability to make the distinction between direct and indirect knowledge, and between "easy-to-acquire" direct knowledge and knowledge that is "difficult but not impossible to acquire" directly, the researchers described different scenarios in which children were asked to imagine different players (such as a baby, or a man), acquiring new knowledge alone on a desert island. "Based on comments made by some child participants, they seemed to imagine themselves in the isolated context and then consider step-by-step the challenges of collecting the relevant information" (Lockhart et al., 2016, p. 489), and this could partially explain the impressive results of that research.

The open-ended nature of our questions should have made them equally difficult to answer regarding information that is easy, hard, and impossible to learn on one's one. Thus, we might have expected the frequency of Other responses to be equally prevalent across all categories of information. However, our data shows that responses coded as "Other" were more frequent when children were answering questions about easy to

learn information (38.74%) – where they have approximately the same likelihood of answers that refer to Experience (38.37%) – and for information that is impossible to learn directly (31.18%), but not for difficult information (18.21%) – for which answers that refer to Experience (47.61%) play the greatest role.

The differences in the responses related to the type of information seem to suggest another possibility: the questions related to information that is easy to learn directly, and to a lesser extent, those related to information that is difficult to learn on one's own, referenced learning situations that are so obvious and self-evident that children focused on the content rather than the process. For the simplest information, close to their everyday life and therefore not only easier to learn but also to explain, children found it difficult to reflect on the learning process, often providing answers coded as Other, in which the category of Repeating information learned plays a considerable role (82,8% of Other responses belongs to that category). Information such as "how someone could learn how to jump" could probably seem quite obvious to them and thus they could find it difficult to shift their thinking to a meta-level, i.e., to think about how the information was acquired rather than the information itself. The likelihood of Other responses for information impossible to learn on one's own could be explained by the difficulty for children to understand the questions and imagine a possible strategy that someone could adopt to learn this kind of more abstract content. Arguably, information that is hard but not impossible to learn on one's own represents the right balance between information that is too easy to explain and information to difficult to learn, and this could account for the lower frequency of Other responses for questions like "how someone could learn how to ride a bike".

For information that is more difficult to learn on one's own, Experience, either one's own or that of others, seems to play, understandably, a greater role, compared to information that is impossible to learn on one's own. With respect to this type of information, the most cited source of learning is either the testimony of other people or artifacts—an indirect form of testimony.

On the whole, it seemed that children's responses, aside from the "Other" category, suggest that they were able to reason about different types of knowledge and the different types of strategies required to get that knowledge.

In Figure 2, we display the interaction between children's age and the pedagogical philosophy they were exposed to in preschool. Inspection of Figure 2 reveals that preschool children currently attending a Reggio educational program were significantly more likely than the other three groups of children to mention testimony as a method of acquiring knowledge, all contrasts $p < .05$. No other differences were significant.

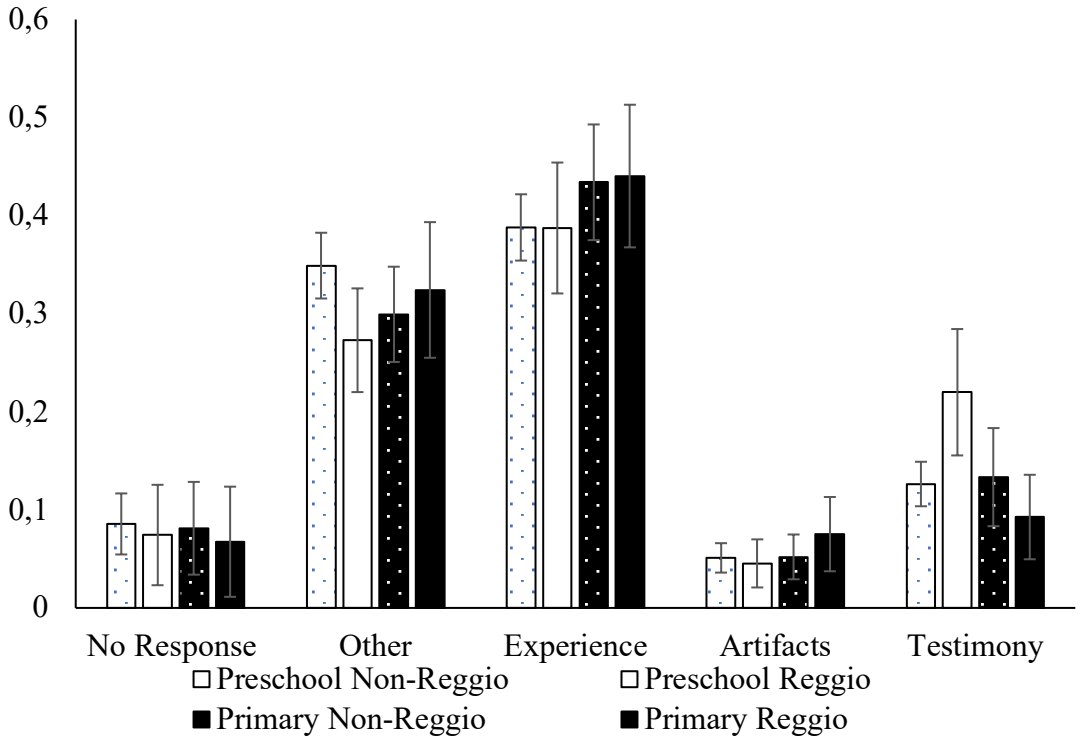

Figure 2. Predicted probability of providing each response as a function of the age of children (preschool vs. primary) and the pedagogical philosophy of their school (Reggio vs non-Reggio). Error bars represent 95% confidence intervals.

The fact the children attending a Reggio Emilia preschool are more likely to mention the role of testimony in learning is consistent with the attention given to mutual listening in children's daily life in school, a key element of the Reggio Approach that Carla Rinaldi defined as "listening pedagogy" (Reggio Children & Harvard Project Zero, 2011). The school is, according to this approach, the first context outside the family in which the child has the opportunity to encounter a listening context. The school involves both adults and children in this context, listening to each other, strengthening the learning dimension at the group level. There is also a strong relation between listening and documentation, another distinctive feature of the Reggio

Approach: the process of documenting the learning processes in schools is a way to make visible the reciprocal listening among children, and between children and adults as well (Rinaldi, 2021). The schools support this mutual listening by offering contexts in which individuals feel entitled to express their ideas and their interpretative narrative regarding the cognitive issues and problems that they face. To this end, the educator's task is not only to allow differences to be expressed but also to be cultivated and negotiated through discussion, dialogue and exchange. In this way, the group becomes and is recognized by children as a place for learning (Rinaldi, 2014). This relevant role played by the peers' group in schools inspired by the Reggio Approach is consistent with what emerged with respect to the social context of learning, in the first part of the study. Children attending, or who had attended a Reggio preschool, were more likely to mention schoolmates or friends when asked about who helped and supported their learning.

This context, which invites and supports mutual dialogues, is based on and is the foundation for building a trusting environment that supports children's development and in which children can trust adults as a reliable source of knowledge (Rinaldi, 2021).

That could explain also why this difference between children who had attended Reggio preschools and children who had not is lost in primary school, where the "learning environment" changes completely: primary school is more tightly structured, with a slightly more formal and vertical relation between teachers and schoolers, with a more explicit distinction among subjects. The analyses that the primary school, as it is organized, does not offer the same "listening context" as the Reggio Preschool, which treats the role of the school as a kind of "civic forum" (Dahlberg et al., 2007). These differences between preschools and primary schools in their environments and contexts

also fits with what we observed in the first part of the analysis, regarding the social and physical context for children's learning. Children in preschools were more likely to mention informal settings and the involvement of the family in their learning instances when asked where they learned and who helped them. By contrast, children in primary schools mentioned formal settings like school and teachers more frequently. This is likely due to the tighter structure, which includes a time management system involving multiple teachers, a daily schedule divided into different subjects, and a more vertical and transmissive approach to teaching (Hermans et al., 2008).

In conclusion, our study suggests that the Reggio Emilia Approach influences what children think about learning, in particular with regard to the role played by friends and schoolmates in their learning. This difference seems to persist also in the first years of primary school. The other more relevant difference, the importance given to testimony by Reggio Emilia Approach preschoolers with respect to learning information that is more abstract and impossible to learn on one's own, such as that Earth is round, seems surprisingly to immediately disappear n the first grades of primary school. To gain insight into possible reasons for such a rapid change after just a few years, if not months, in primary school, further investigations are surely required. This consideration led us to Study 2 in which we invited conversations with teachers and pedagogista, asking for their support in interpreting what emerged in the present study.

Chapter 3:
What Teachers Think Children Think about Learning – Study 2

Introduction

To more deeply explore if and how a pedagogical experience such as the Reggio Emilia Approach might influence what children think about learning and how they develop their own theories about learning, we decided to collect data from some of the teachers or pedagogistas of the schools involved in the research project. Listening to the teachers is also consistent with the perspective of Reggio Emilia, that traditionally values teachers as co-creators, together with children, of knowledge, and whose major task is to create a context in which children's theories are listened to and validated (Rinaldi, 2021). By involving the teachers of the students, we interviewed and giving them a voice, we make them co-creators of this research project.

In other words, in Study 1 we investigated what children think about learning, and their theories about how someone else could learn information that is easy, difficult, or impossible to learn on one's own. Our main focus was understanding if children exposed to different pedagogical approaches in the preschool years develop different theories about learning and if differences that might emerge could persist in the primary school years. Eventually, some statistically significant differences emerged, both with regard to the pedagogical approaches and the age of the children.

In Study 2 we were interested in listening to the teachers' and the pedagogistas' voices of the schools involved in Study 1, with two aims: first, to collect suggestions that could support us in the interpretation of the data collected with children; second, to broaden our insight into the topic, as a starting point for developing further possible research in the same field.

Method

Participants

For this second Study, we adopted a qualitative approach. We decided to target at least one teacher or pedagogista involved in the education of children at each of our Study 1 sites. This approach was justified by three reasons, typical of a qualitative approach (Maxwell, 2013): first, we wanted to select individuals that could provide critical data or interpretation of the results of Study 1; this selection was also intended to offer the clearest comparison between the different schools involved; last, we invited teachers or pedagogistas with whom we had built a positive and collaborative relationship during the Study 1, in order to have access to their sincere views and perspectives.

Following these criteria, the sample was composed of 1 pedagogista and 2 teachers: we proposed the interview to the pedagogista in charge of the pedagogical coordination of the Agorà Preschool, who is also one of the Pedagogical Coordinator of Istituzione of Infant-toddler Centers and Preschools of the Municipality of Reggio Emilia; we interviewed one teacher of the Giacomo Leopardi Primary School, who is also the

Deputy Director of the Istituto Comprensivo Kennedy; for the Pio VI Preschool, we interviewed the teacher of one of the classes involved in Study 1.

Procedure

From October to November 2022, we drafted the interview, which consisted of three sections: the first one was designed to introduce the topic of the research, with broad questions about what interviewees think children think about learning; the second one aimed to share some definitions and to build a common background, based on prior research; the third section, presented the most relevant results of Study 1 to the interviewees and asked for their comments and interpretation.

The questions are listed below:

Section 1:

The main goal of this research project is to explore what children think learning is and whether 4-, and 5-years old children exposed to different pedagogical and educational experiences in preschool develop different theories about learning and, if they do, whether these differences persist when children subsequently attend primary school.

1. What do you hope children in your class/school learn about learning?
2. Do you do anything in your classroom helps to give them opportunities to learn about learning?
3. What do you think children think learning is?
4. Do you think this topic of learning is relevant in your job as a pedagogista/coordinator/teacher?

5. In your daily activities with children, do you sometimes mention or encounter the topic of what learning is, and does this include discussions of the role of other people for one's learning (in particular how we learn from what other people tell us)?

Section 2:

Prior research has found that children between 4 and 8 years of age differ in how they define learning. Older children define learning as a process, that involves either a source, such as tools (e.g., learning from a book) or from someone in a particular role (e.g., a teacher; parents) or a strategy that allows the acquisition of new knowledge (e.g. "learning means, you know, the teacher tells you something and you learn"; or "Looking at the others' drawings, I thought I had become older, I took the marker, it became a nice thing, I learned how to draw properly"). In contrast, younger children are more likely to define learning as a content (e.g. "it means learning to read and to write properly") or children simply to use the word ''learn'' or ''learning'' to define learning (e.g. "learning means you can, you have to learn").

6. Based on your experience, how could we (researchers) best explore what children think about learning?
7. What, in your opinion, could significantly influence what children think learning is?
8. Do you think children's thinking about learning undergoes significant change based on
    8.1. different ages, from the last grades of preschool to the first grades of primary school?
    8.2. different pedagogical approaches?

Section 3:

In our study, we found some differences related to children's age and to particular pedagogical approaches. Based on the children's ages, we noticed that:

- *Younger children are more likely to define learning as a content (e.g., numbers, letters, skills), in contrast, older children are more likely to define learning as a process (e.g., doing what teachers say).*
- *Younger children are more likely to provide examples of learned content that refer to skills (e.g., to make a watch with different materials); in contrast, older children are more likely to provide subjects as examples of learned content (e.g., English, numbers, letters).*
- *Younger children are more likely to mention an informal context and informal help for their learning (e.g., family at home) in contrast with older children who are more likely to mention a formal context (e.g., teachers at school)*

9. What is your opinion about that?

Based on the schools' approaches, we noticed that:

- *When asked what learning means, almost 20% of the children interviewed spontaneously provided a definition invoking a learning purpose. Children attending or who had attended PIO VI or PIO X preschools or who did not attend any preschool at all are more likely to refer to the improvement of their skills, with a close-in-time benefit, such as "Imparare per sport [Learn for sport]", "Per studiare [For studying]". Children attending or who had attended Agorà are more likely to give answers that refer to adult life or to becoming an adult, gaining benefits at some future time, such as "Per me imparare è*

imparare nuove cose così da grandi sappiamo tante cose [For me learning is learning new things, so as adults we know a lot of things]

10. What is your opinion about that?

When asked who helped and supported them in learning, children attending or who had attended PIO VI or PIO X preschools or who did not attend any preschool at all are more likely to mention learning on an individual basis. In contrast, children attending or who had attended Agorà are more likely to mention their schoolmates or friends in learning.

11. What is your opinion about that?

In this study, we also investigated which strategy children think someone should use to learn information that is easy, hard, or impossible to learn on one's own; and whether they rely on information provided by adults or by other people in order to acquire new knowledge. With regard to the different types of information, we noticed that:

- *For information that is easy to learn on one's own (e.g., How could someone learn that rocks sink in the water, but leaves float?), children are more likely to repeat the question or to provide their own explanation;*
- *For information that is hard to learn on one's own (e.g., How could someone learn the names of colors?), children are more likely to mention direct experience;*
- *For information that is impossible to learn on one's own (e.g., How could someone learn that the Earth is round?), children are more likely to mention*

artifacts or information provided by other people as a reliable source for acquiring new knowledge.

12. What is your opinion about that?

Regarding the role of information provided by other people, we noticed that preschool children attending Agorà are significantly more likely than the other three groups of children to mention other people as a source of knowledge.

13. What is your opinion about that?
14. What is your opinion about the topic of this study? Do you have any comments about it?

The individual interviews were therefore conducted and audio-recorded in December 2022.

Coding and Analyses

All interviews were transcribed for coding. Based on the concepts and themes that emerged in the interviews themselves, following the methodological suggestions given by the literature about qualitative research (Maxwell, 2013; Seidman, 2006; Rubin & Rubin, 2012), we looked for connecting threads and patterns within and among and the interviews. As an initial step, we identified eight tentative categories, see Table 18.

Table 18. Categories in teachers' interviews

Category	**Definition**	**Example**

Children's thinking about learning	what teachers think about what children think about learning	"I think children think that learning is not separate from life"[13]
Teachers' expectation about children's learning	what teachers think learning should or could be	"Expectations are that they [children] will still learn to deal with everything they are told"
Role of learning about learning in school	what teachers think about learning about learning	"More or less, all teachers are within the discourse of metacognition"
Role of teachers	teachers' view about the role played by teachers in school and in education	"Teachers and pedagogistas should work on this possibility, that is, not just worrying about what contents they offer, but how they offer them, what contexts they set up"
Role of family	teachers' view about the role played by families in school and education	"the stimulation coming from the family is fundamental at this age and plays quite a strong role"
Role of peers	teachers' view about the role played by peers in school and education	"when someone says he or she learned with friends, this for me is fundamental, it is stated the recognition that friends, other children, are fundamental resources"
Role of testimony	teachers' view about the role of testimony in learning	"[The importance of testimony] tells you that you alone can do almost nothing, you can do a little piece but if at some point you don't meet the community in the different forms that you said, such as advice, opinions you don't do anything. So to me this is a demonstration that children think that learning is absolutely not in the head of the individual person alone."

[13] All quotes are translated by the authors

Idea of school	teachers' idea of the school	"The idea of learning is not unrelated to the idea of school, the role of the adult, and the organization, all this influence"
Research methodology	teachers' suggestions about how to explore the topic of learning with children	"In my opinion, it's very important to make interpretations not only from verbal conversations but to infer things from the actions"

Therefore, we decided to summarize the results into three sections, consistent with the pattern of how the interview was framed, and responding to three different questions:

- Question 1: Did teachers and pedagogistas from different types of schools express different ideas about what they want children to learn about learning, and did they describe different methods for supporting that learning in children?
- Question 2: Did teachers and pedagogistas from different schools have different ideas about how children develop and learn about learning and how it can be studied?
- Question 3: How did teachers and pedagogistas from different schools interpret the results of Study 1?

Results and Discussion

Did teachers and pedagogistas from different types of schools express different ideas about what they want children to learn about learning? Did they describe different methods for supporting that learning in children?

In our teachers' interviews, some relevant differences in their ideas of what children should learn about learning came up, both with respect to the pedagogical approach of the preschools, and between preschools and primary school.

With respect to the pedagogical approach of the two preschools involved in the study, a significant difference emerged not just in the idea of what children should learn about learning, but also in the role played by teachers in the educational process as a whole.

The pedagogista of Agorà preschool outlined the importance of connections and transversal thinking for children's learning and, consequently, in the expectations of the educators: "L'aspettativa che gli addetti ai lavori indistintamente, che siano insegnanti o pedagogisti, devono avere su questo tema, è che i bambini acquisiscano una mente trasversale. Cioè, secondo me il tema è non tanto che loro apprendano delle nozioni, delle abilità e delle competenze, cioè probabilmente il processo di crescita prevede anche questo, però che loro apprendano una struttura che diventa trasversale poi ai diversi contenuti, alle diverse discipline" [The expectation that those who work in the field of education, whether they are teachers or pedagogistas, must have on this issue is that children acquire a transversal mind. That is, in my opinion, the issue is not that they learn notions, skills, and competencies, I mean this certainly in the process of growing

up includes this, however, they learn a structure that becomes transversal then to the different contents, to the different disciplines].

In her words, a distinctive feature of the Reggio Emilia Approach stands in the attention given to meta-reflection and auto-reflection of children: “Abbiamo sempre lavorato con i bambini chiedendo delle autoriflessioni, delle autovalutazioni, cioè questo riflettere sulla conoscenza da parte dei bambini da parte degli adulti, cioè questo processo di meta riflessione... Una sorta di epistemologia che i bambini devono mettere in campo sull'apprendimento, secondo me questo è fondamentale” [We have always worked with children by asking for self-reflections, self-evaluations, that is, this reflecting on knowledge from children by adults, that is, this process of meta-reflection... A kind of epistemology that children have to put in place about learning, in my opinion, this is fundamental]. And to support this epistemology, she mentioned the relevant role played by contexts design and the attention given to support the children in making connections, advancing the idea that teachers should pay a great attention to a meta-level in children’s learning: “Le insegnanti e le pedagogiste devono lavorare su questa possibilità, cioè non preoccupandosi solo di quali contenuti offrono, ma di come li offrono, di quali contesti predispongono e soprattutto cercando di aiutare i bambini sempre a fare delle connessioni, cioè non a separare il contenuto. E' questo il ruolo dell'adulto” [Teachers and pedagogistas should work on this possibility, that is, not just worrying about what contents they offer, but how they offer them, what contexts they set up, and, above all, trying to help children to always make connections, that is, not separate content. This is the role of the adult].

This perspective influences also what she thinks about younger children’s theory of learning: “Io penso che i bambini dell'apprendimento pensino che non sia separato dalla

vita… che loro connettono le questioni a una dimensione ampia dell'esistenza della vita, [I think that children think that learning it is not separate from life… they connect issues to a broad dimension of the existence of life therefore]. As a result, the idea of school that emerged from her interview is strongly influenced by the socio-constructivist approach (Dahlberg et al., 2007), as explicitly recalled by the pedagogista: "Il campo culturale deve essere ampio. Io sono convinta che la teoria più interessante più democratica, più colta, più rispettosa, sia sempre quella del socio costruttivismo" [I am convinced that the most interesting, the most democratic, the most educated, the most respectful theory is always that of social constructivism].

Framed by this theory, her idea of what children think about learning is influenced by their ability to seek learning in every aspects of life, not only in school: "Io penso che i bambini dell'apprendimento pensino che non sia separato dalla vita. L'aspetto trasversale è sempre questo: che loro connettono le questioni a una dimensione ampia dell'esistenza della vita, quindi; non è apprendere la grafica, apprendere la matematica, apprendere il linguaggio ma sono degli apprendimenti che ti permettono di avere una prospettiva proprio sul mondo. Quei luoghi comuni, quel pensiero corrente che a un certo punto comincia a dichiarare ai bambini che si impara a scuola, invece i bambini piccoli hanno ancora quella libertà di accreditare al mondo di essere un luogo di apprendimento [I think children think that learning is not separate from life. The cross-cutting aspect is always this: they connect issues to a broad dimension of the existence of life, therefore; it's not about learning graphics, math, language but some learnings allow you to have your own perspective on the world. Those clichés, that common way of thinking that at a certain point begins to declare to children that you learn in school,

instead younger children still have that freedom to credit the world to be a place of learning].

This idea of learning and of school once more is, in her words, a distinctive feature of Reggio Emilia Approach, together with the children's leading role in learning processes: "L'idea di apprendimento non è slegata dall'idea di scuola, dal ruolo dell'adulto, dall'organizzazione, questo influisce. Lo scatto è quando noi riflettiamo su come i bambini apprendono tra di loro. Questo secondo me è lo scatto perché è la differenza nella nostra idea di servizio educativo. Cioè io credo che il ruolo dell'adulto sia un ruolo contemplato in tantissime realtà italiane, nazionali, internazionali secondo me, ma che le insegnanti riflettano su come i bambini apprendano tra di loro, è un elemento che ancora mediamente inedito" [The idea of learning is not unrelated to the idea of school, the role of the adult, and the organization, all this influence. The trigger is when we reflect on how children learn among themselves. This in my opinion is the trigger because it is the difference in our idea of educational service. That is, I believe that the role of the adult is a role that is contemplated in so many Italian, national, and international realities in my opinion, but for teachers to reflect on how children learn with each other is something that is still on average unheard].

In contrast, the teacher of Pio VI Preschool focused on the importance of contents in children's learning, putting aside any meta-reflections: "Le aspettative sono quelle che [i bambini] imparino comunque a gestire tutto quello che gli viene detto e, non indottrinato perché non sono delle dottrine, però comunque tutto quello che gli viene propinato" [Expectations are that they [children] will still learn to deal with everything they are told and, not indoctrinated because they are not doctrines, however, everything that is served up to them].

As such, the teacher of Pio VI Preschool does not acknowledge the topic of learning about learning as a suitable topic for preschoolers: “Come teoria, devo dire la verità, non l'ho mai presa in considerazione, perché per me stare coi bimbi significa proprio insegnargli un qualcosa, proprio nel vero termine della parola *insegnamento*, proprio per dargli delle nozioni... Solo che, ecco io faccio fatica a capire come si possa spiegare ai bambini una teoria del genere” [As a theory, I have to tell the truth, I have never considered it, because for me being with children really means teaching them something, just in the true sense of the word teaching, just to give them notions... I struggle to understand how you can explain such a theory to children].

The idea of school that emerged in the interview of the Pio VI teacher is therefore a completely different one, compared to the Reggio Approach preschool. Thus, the role played by teachers is providing notions and concepts (“stare coi bimbi significa proprio insegnargli un qualcosa, proprio nel vero termine della parola "insegnamento" proprio per dargli delle nozioni” [being with children really means teaching them something, just in the true term of the word teaching, just to give them notions], offering learning proposal that can match with the children’s interests (“parte da noi la proposta, poi si sviluppa a mano a mano, comunque cercando i loro interessi” [it starts from us the proposal, then it develops step by step, anyway, looking for their interests].

Central to this idea of learning are the children’s personal interests: “Il fatto che riescano a selezionare anche le cose che magari più gli interessano, perché comunque così loro non è che prendono tutto quello che gli viene dato, prendono soprattutto quello che più sono i loro centri di interesse. Negli anni ho notato questa cosa qua, che ci sono delle cose che proprio li sfiorano da un lato e non gli entrano proprio quando una cosa non gli interessa” [The fact that they are able to select even the things that maybe

interest them mostly, because anyway, they don't just keep everything that is given to them, they mainly keep what are their centers of interest. Over the years I've noticed this thing here, that there are some things that just graze them on one side and don't really fit them when something doesn't interest them]. Children in her view, compared to the Agorà Preschools, seem to play a different role: they should receive proposals likely to match their expectations and interests, but the key role in learning seems to be played by teachers: “Sei tu che li accompagni, cioè parte da noi la proposta, poi si sviluppa a mano a mano, comunque cercando i loro interessi. Però siamo noi che comunque proponiamo, nel comunale invece so che è diverso, si segue l'istinto del bambino” [you are the one who accompanies them, that is, the proposal starts from us, then it develops step by step, anyway, looking for their interests. But it's us who propose anyway, though in the communal instead I know it's different, you follow the child's instinct].

With regard to the differences between preschools and primary school, the role played by schools and teachers in children’s learning beyond formal contexts seems to become crucial in the primary school teachers’ interview: “Che l'apprendimento sia una curiosità, ci sia un qualcosa che li che che li emozioni e che gli interessi e che li incuriosisca… L'apprendimento è per tutta la vita e che qualunque momento è giusto per apprendere qualche cosa, sarebbe già un successo [per la scuola]” [That learning is a curiosity, there is something that excites them and interests them and makes them curious... Learning is for a lifetime and that any time is right to learn something, that would already be a success [for the school]].

She explicitly linked the theme of learning about learning to the metacognition, referring also to the recent experience given by the Covid19 emergency and the changes

underway in Italian school: “Più o meno tutti gli insegnanti sono dentro al discorso della metacognizione. L'epoca del Covid ha permesso a tutti di allargare gli orizzonti: noi abbiamo un nuovo sistema di valutazione dall'anno scorso e il nostro nuovo sistema di valutazione ci porta obbligatoriamente a valutare il processo dei bambini e non tanto la risposta a quell'obiettivo legato alla disciplina. Non nego che qualcuno sia ancora abbastanza tradizionale però i passaggi si stanno facendo” [More or less, all teachers are into the discourse of metacognition. The Covid era has allowed everyone to broaden their horizons: we have had a new assessment system since last year and our new assessment system obliges us to assess the (learning) process of the children and not so much the response to a discipline-related goal. I don't deny that some colleagues are still quite traditional, but steps are being taken].

The teacher in Primary school highlighted the relation between learning and subjects, as had emerged in Study 1 which revealed a significant increase with age in children’s examples of learning contents coded as "subjects", referring to either academic or proto-academic topics. The teacher explained this increase with reference to how the primary school is framed: “La domanda così precisa [di cosa i bambini pensano sia l’apprendimento] non l'ho mai fatta. Il loro apprendimento secondo me lo scindono un po’ tra quelle che sono le discipline… Il rendersi conto che si impara anche dagli amici, dal gruppo, quello è un pensiero che non è automatico nei bimbi così come non è automatico che un insegnante possa insegnare anche la materia dell'altro insegnante, perché comunque in un qualche modo sono entrati dentro uno schema per cui la scuola è così” [I never asked the question [of what children think about learning] so precisely. Their learning, in my opinion, they split a little bit between what are the disciplines... The realization that you also learn from friends, from the group, this is a thought that is

not automatic in children just as it is not automatic that one teacher can also teach the other teacher's subject, because anyway, they entered into a pattern whereby the school is so].

In the Primary school, concern about the tight connection between learning and school subjects emerged also in the role played by teachers, who should try to offer children a broader vision of learning: “Perché il rischio è che gli insegnanti, noi insegnanti, incrementiamo questo pensiero che secondo me hanno i bimbi, cioè che a scuola si impara e fuori ci si diverte... E non riescono secondo me sempre i bimbi ad avere quest'idea che è tutto apprendimento… Si rischia anche da insegnante di rimanere dentro un ruolo, cioè di essere un po’ ingabbiati. Il programma e i tempi e 1.000 motivi per cui ogni tanto si perde di vista che effettivamente possono apprendere tanto anche al di fuori di quella che è l'ora di matematica tradizionale” [Because the risk is that teachers, we teachers, increase this idea that I think children have, which is that in school you learn and outside you have fun... And children not always, in my opinion, got these ideas that it's all learning… As a teacher you also risk staying inside a role, that is to be a little bit caged in. The syllabus, and the timing, and 1,000 reasons why sometimes you lose sight of the fact that actually they can learn so much outside of what is the traditional math class].

Concerning the role of testimony in learning, the teacher from the Primary school confirmed that it could be crucial, but once again voices the concern that children of this age only credit formal sources as major sources of learning: “Sì molti insegnanti spessissimo invitiamo anche persone esterne comunque perché appunto proprio [per offrire] testimonianza… anche se per i bimbi questo è un momento leggero della scuola, poi noi sappiamo che quello rimane e i bimbi, però non sempre loro lo considerano quel

momento un momento di apprendimento. Quindi su quello spesso dobbiamo intervenire noi, insomma fargli fare proprio la riflessione "guardate che facciamo un'attività, è un'attività importante]. [Yes, many teachers very often, we also invite people from outside the school precisely [to offer] testimony... even if for children this is a light moment of school, then we know that remains and the children, however, they don't always consider that moment as a learning moment. So, we often have to intervene, in short, we have to make them do just the reflection "look, we are doing an activity, it is an important activity].

In conclusion, we did not expect that such diverse views would be so explicitly affirmed by the teachers and pedagogistas of the two different preschools. The relevance given to learning processes and children's theories about learning was claimed by the pedagogista of Agorà as the critical aspect that distinguishes Reggio Approach preschools from the others: "Che le insegnanti e le pedagogiste riflettano su come i bambini apprendono è fondamentale, è fondamentale perché se non lo si fa si rimane davvero nelle scuoline che ti danno delle informazioni, ti danno dei compiti, ti danno degli obiettivi" [That teachers and pedagogistas reflect on how children learn is crucial, it's crucial because if you don't do that you really remain in the little schools that give you information, give you assignments, give you goals].

In contrast, the teacher of Pio VI claimed as a distinctive feature of the preschool she works for a methodology framed by more concreteness, compared to the Agorà preschool: "Ogni scuola ha un suo metodo. Quindi varia, varia tantissimo, dipende tanto dalla scuola... Infatti secondo me anche fra noi e l'Agorà c'è differenza... Il metodo che usiamo noi è più, è davvero un accompagnarli. Ti faccio un esempio pratico: il nostro metodo a inizio anno, si sceglie uno sfondo integratore e quindi si sceglie un tema... Il

nostro metodo è più concreto quindi nelle loro teorie [dei nostri bambini] vien fuori questo, il fatto che "io sono abile nello sport" quindi cose pratiche, imparare, apprendere comunque cose pratiche" [Every school has its own method. So it varies, it varies so much, it depends so much on the school... In fact, in my opinion even between us and Agora, there is a difference... The method we use is more, it's really accompanying them. I'll give you a practical example: our method, at the beginning of the year we choose an integrating background, and then you choose a theme... Our method is more concrete, so in their [our children] theories this comes up, the fact that "I am skilled in sports" so practical things, learning, learning practical things anyway].

She highlighted many times the need for concreteness among preschool children: "Nella scuola dell'infanzia hanno bisogno di pratica, di qualcosa di concreto… E invece i bimbi dell'Agorà… loro sono un po' più, i comunali sono un po' più "teorie, teorie, teorie, teorie" e quindi loro sono abituati a ragionare molto sulle teorie, ecco, su quello che è un po' più filosofica come cosa" [In preschool, they need practice, something concrete… And instead the Agora kids ... they are a little bit more, the communal ones are a little bit more "theories, theories, theories, theories," and so they are used to thinking a lot about theories, you know, about what is a little bit more philosophical as a thing].

Interestingly, the teacher from the Primary school recognized this difference and affirmed that different pedagogical approach in preschools might lead to differences in children's thinking: "Può essere che in certe scuole organizzate con una metodologia diversa, un approccio diverso comunque, ci sia effettivamente la possibilità di far sì che i bimbi arrivino a dei pensieri comunque diversi" [It may be that in certain schools that

are organized with a different methodology, a different approach anyway, there is actually a possibility that children come to different thoughts anyway].

Did teachers and pedagogistas from different schools have different ideas about how children develop and learn about learning and how it can be studied?

In the previous section, we highlighted many differences in the teachers' views on how children can learn about learning, and how teachers can support such learning. Here, we note that the pedagogista and the teachers of the two different preschools agreed in recognizing that school as a whole plays a critical role in influencing the idea of learning in children. The pedagogista of Agorà Preschool affirmed that "L'idea di scuola [è centrale]. L'idea di apprendimento non è slegata dall'idea di scuola, dal ruolo dell'adulto, dall'organizzazione. Questo influisce" [The idea of school [is crucial]. The idea of learning is not unrelated to the idea of school, to the role of the adult, the organization. This affects].

Similarly, the teacher of Pio VI Preschool stated that "l'influenza maggiore loro [i bambini] ce l'hanno soprattutto da quello che si fa a scuola, tantissimo. E quindi l'influenza maggiore ce l'hanno proprio dal sistema scuola, quindi dall'insegnante, dalla maestra, dagli amici" [the biggest influence they [children] have is mainly from what they do in school, so much. And so the biggest influence they have comes from the school system, from teacher, the teacher, the friends].

Also, the teacher of the Primary school agreed with this perspective, crediting the school with a crucial positive role in influencing children's emotions and thereby their learning: "Intanto emotivamente, cioè come stanno, cioè come stanno, come vivono quel momento lì, perché l'apprendimento per loro è interessante e piace se piace, se

piace l'argomento, ma se piace il contesto. Anche lo stato fisico dei bambini influisce, e sicuramente perché apprendono, l'ambiente è fondamentale, l'ambiente e l'approccio degli insegnanti. Però si l'ambiente sereno e il motivarli assolutamente indispensabile perché ci sia un apprendimento costruttivo" [Meanwhile emotionally, that is how they are, that is how they are, how they experience that moment there, because learning for them is interesting and they like it if they like it, if they like the topic, but if they like the context. The physical state of the children also influences, and certainly because they learn, the environment is crucial, the environment and the teachers' approach. But yes, the positive environment and motivating them are absolutely essential for a constructive learning]. In her perspective, she also glimpsed a risk, the risk that children credited the school as the unique place for learning: "e il rischio è proprio quello che crescendo, lo colleghino sempre di più alle materie scolastiche e al libro e a quello che dice l'insegnante" [And the risk is just that as they grow up, they connect it more and more to the school subjects and the book and what the teacher says]. Her concern seems to be consistent with the results of Study 1, which demonstrated that older children both provided examples of learning that referred to subjects and, compared to the younger ones, mentioned the formal contexts in their learning more frequently.

With regard to the methodology that researchers might rely on to explore what children think about the nature of learning, all the teachers and pedagogista agreed in suggesting that interviews could offer only a limited insight into the topic.

The Pedagogista of Agorà suggested that "Secondo me è molto importante fare delle interpretazioni non solo sulle conversazioni verbali ma desumere delle cose da dalle azioni... mentre lavorano fanno delle cose, dicono delle cose, che tu puoi desumere la loro idea di apprendimento. Quindi secondo me fermarsi solo ad alcune domande di una

griglia verbale per i bambini della scuola dell'infanzia può essere mediamente riduttivo" [In my opinion, it's very important to make interpretations not only from verbal conversations but to infer things from the actions… as they work they do things, they say things, from which you can infer their idea of learning. So, in my opinion limiting yourself to just a few questions from a verbal grid for preschool children can be – on the average – reductive].

Similarly, the teacher of Pio VI preschool, consistent with the repeatedly stated concrete approach of her school, suggested that "Sicuramente [i bambini] hanno le loro teorie, però sono molto concreti. Ecco, in quell'età lì, mentre vedi già la differenza alle elementari c'è più una teoria… nella loro età devi essere pratico… Bisognerebbe trovare comunque un qualcosa di concreto per poter fargli capire e arrivare a cosa sia veramente l'apprendimento a livello teorico. Perché la teoria con i piccoli secondo me si fa molto più fatica" [Certainly [children] have their theories, however, they are very concrete. At that age, while you already see the difference in primary school there is more theory ... in their age, you have to be practical ... You should find something concrete to make them understand and get to what learning really is on a theoretical level. Because for toddlers in my opinion theory is much more difficult].

The teacher of Primary school suggested direct observation of children engaged in a project in which they can reflect on their own learning processes: "Sull'intervista non tutti effettivamente hanno gli strumenti per poterlo esporre [il loro concetto di apprendimento] o comunque spiegare effettivamente il tutto… L'osservare sul campo potrebbe essere interessante insomma, e quel lavoro che solitamente si fa dopo aver sviluppato un piccolo progetto in team, quella riflessione che si fa sempre sul dopo: "Come ha funzionato, cosa avete in più, che cosa correggereste, che cosa rivedreste e

che cosa avete imparato" [In the interview, not everybody actually has the tools to be able to explain it [their concept of learning] or in any case actually explain it... Observing in the field could be interesting, and that work that you usually do after developing a small project in a team, that reflection that you always do in the aftermath: "How did it work, what do you have extra, what would you correct, what would you revise, and what did you learn].

How teachers and pedagogistas from different schools interpret the results of Study 1?

In the last section of the interview, we asked teachers and pedagogista of the school involved in the research how they interpret the results of Study 1. Given that we did not conduct observations in the classrooms, we expected that they could provide us with helpful cues to support our analyses.

Age-related differences

In Study 1, we found some differences related to children's age: we noticed that younger children are more likely to provide examples of learned content that refers to skills (e.g., to make a watch with different materials); in contrast, older children are more likely to provide particular topics as examples of learned content (e.g., English, numbers, letters). We also noticed that younger children are more likely to mention an informal context and informal help for their learning (e.g., family at home) in contrast with older children who are more likely to mention a formal context (e.g., teachers at school).

These data were consistent with the experience of the primary school teacher that we interviewed. The reason she gave stands in the fixed frame of primary school, with many different subjects, each of them led by a different teacher. In her interview, she repeatedly stated the need to open this expectation that children might have, that learning occurs only in school and not outsides. As she affirmed: “Ma è un lavoro importante secondo me che si fa nella vita di tutti i giorni, cioè è un'abitudine che i bimbi hanno a soffermarsi sulle cose che non sempre hanno, e se non ce l'hanno, bisogna incrementarla, perché comunque si, obiettivamente tutto è apprendimento. Quindi questo magari serve anche a noi, cioè potrebbe essere un nostro punto di partenza” [But it is an important work in my opinion that is done in everyday life, that is, it is a habit that children have to dwell on things, that they don't always have, and if they don't have, you have to increase it, because anyway, yes, objectively *everything is learning*. So, this maybe serves us as well, I mean it could be our starting point]. The rigidity of the primary school is seen by her as a potential risk for teachers too: “si rischia anche da insegnante di rimanere dentro un ruolo cioè di essere un po ingabbiati” [one risks even as a teacher to remain within a role, that is to be somewhat caged in].

She expressed her surprise, as well as her concern, that this close correspondence between learning and school lessons emerged also in her school, a long-time school: “Perché noi col fatto che rimaniamo otto ore a scuola abbiamo anche l'interscuola… sono quei momenti al di fuori delle discipline, però li vivono come momenti di gioco, come momenti di svago, non li vivono come momenti di apprendimento… Quindi se non c'è in una scuola a tempo pieno questa percezione [dell’apprendimento slegato dalle discipline scolastiche] vuol dire che è davvero molto radicata perché la scuola a tempo pieno permette di confrontarsi tanto, di lavorare diversamente. Invece se anche a scuola

a tempo pieno hanno questa idea che tu hai riscontrato... bisogna che ci ragioniamo un pochettino" [Because we, with the fact that we stay eight hours in school, we also have *interschool* ... it's those moments outside the disciplines, however, they experience them as moments of play, as moments of leisure, they don't experience them as moments of learning... So, if there is not in a full-time school this perception [of learning disconnected from school disciplines] it means that it is deeply rooted, because the full-time school allows you to confront so much, to work differently. Instead, if even in full-time school they have this idea that you have highlighted ... we need to think about it a little bit].

Concerning the informal context and informal support in children's learning, the teacher of Pio VI explained the relevance of families for preschools children given the strong bond between younger children and their families: "Comunque nella scuola dell'infanzia c'è ancora un legame molto forte con la mamma, il papà, i nonni… Nelle elementari già inizia un attimino a scardinarsi questo rapporto, inizia un attimino a decentrarsi quindi si dà forse più importanza a quel punto alla scuola" [Anyway in kindergarten there is still a very strong bond with mom, dad, grandparents... In primary school this relationship already starts a little bit to diminsh, starts a little bit to decentralize so you give maybe more importance to school]. She also referred to the incentives given by families to younger children: "Però ci sono delle famiglie che stimolano molto i bambini e si vede… Ecco quello soprattutto nell'infanzia è un ruolo molto fondamentale, gli stimoli esterni. Certo noi li accompagniamo, li educhiamo. Però a volte non si è affiancati neanche tanto bene, quello sì, è verissimo, perché gli stimoli della famiglia sono fondamentali in quest'età giocano un ruolo abbastanza forte" [But some families stimulate children a lot and you can see... Especially in early

childhood, they play a very crucial role, the external stimuli. Of course, we accompany them, we educate them. But sometimes you are not even accompanied well, that yes, that is very true, because the stimuli coming from the family are fundamental at this age and play a quite strong role].

Also the teacher of the Primary school highlighted the role of families for older children, in particular the pressure given by the parents' expectations, to take into consideration together with the openness to dialogue with children, greater in some families compared to other ones: "Dobbiamo essere noi insegnanti a dire ai genitori andate con calma… Anche la presenza dei genitori e la motivazione dei genitori ad apprendere, piuttosto che in una situazione dove un genitore non è abituato a fare grandi ragionamenti con i bimbi per cui si vive nell'immediato, quindi io imparo a fare le costruzioni perché mi serve che così dopo gioco e mi diverto. In altri contesti, genitori più abituati a dialogare con i figli, a motivarli a dire che che l'apprendimento non è un qualcosa che ti serve oggi ma che servirà poi" [we have to be the teachers who tell the parents "go slowly"... Also the presence of the parents and the motivation of the parents to learn, rather than in a situation where a parent is not used to doing big reasoning with the children so you live in the immediate, so "I learn how to do construction because I need that later and so I play and have fun". In other contexts, parents who are more used to having a dialogue with their children, motivating them to say that learning is not something you need today but you will need it later].

Pedagogy-related differences

A relevant difference between the two preschools in Study 1 was that children attending Agorà preschool were more likely to mention the support of peers, both

friends and classmates, in their learning, compared to the children attending Pio VI preschool, who are more likely to mention learning alone. In Study 2 we asked teachers their opinion about this difference and therefore, the role played by peers in children's learning.

The pedagogista of Agorà explained this difference by recognizing the crucial role played by peers in learning: "Quindi nel momento in cui uno dice imparo da solo vuol dire che ti sai riconoscere delle potenzialità, nel momento in cui dice che ha imparato con gli amici questo per me è fondamentale, rimane il riconoscimento che gli amici, gli altri bambini sono delle risorse fondamentali" [So when someone says "I learn by myself" it means you can recognize potential abilities in yourself, when someone says he or she learned with friends, this for me is fundamental, it is stated the recognition that friends, other children, are fundamental resources].

In contrast, the teacher of Pio VI preschool was puzzled by the more likelihood of Pio VI preschoolers mentioning selfdom learning, and she tried to explain this attitude by referring to the personal character of each child: "Ci sono alcuni bimbi, sono un po più protagonisti e un po più egocentrici… E quindi non so, qua mi spiazza un po' perché per come la vedo io penso sia una questione di carattere e non di metodologia… Questo non lo so, mi lascia un po' perplessa questa cosa" [There are some children, they're a little bit more protagonist and a little bit more self-centered... And so I don't know, here it kind of throws me off a little bit because the way I see it I think it's a matter of character and not a matter of methodology... I don't know, I'm a little bit puzzled by this].

It is worth noting that the Primary school teacher recognized the differences between children coming from preschools with different pedagogical approaches, although this

difference did not persist into primary school: “L'essere abituati a lavorare insieme è più di scuole comunali rispetto a scuole parrocchiali o comunque a scuole statali. Dopo si, basta pochissimo, dopo l'insegnante dà il suo imprinting e quindi dopo cambiano abbastanza alla svelta... E lì dopo subentra invece appunto la metodologia che propongono gli insegnanti” [Being used to working together is more like municipal schools than parochial or in any case state schools. After that yes, very little is needed, after that, the teacher gives his or her imprint, and then, they change quite quickly... And then the methodology proposed by the teachers takes over”.

In Study 1, we also investigated which strategy children think someone should use to learn information that is easy, hard, or impossible to learn on one’s own; and whether they rely on information provided by adults or by other people in order to acquire new knowledge. With regard to the different types of information, we noticed that:

- For information that is easy to learn on one’s own (e.g., How could someone learn that rocks sink in the water, but leaves float?), children are more likely to repeat the question or to provide their own explanation;
- For information that is hard to learn on one’s own (e.g., How could someone learn the names of colors?), children are more likely to mention direct experience;
- For information that is impossible to learn on one’s own (e.g., How could someone learn that the Earth is round?), children are more likely to mention artifacts or information provided by other people as a reliable source for acquiring new knowledge.

The teacher of Pio VI explained these differences by referring explicitly to her preschool methodology, more related to concrete learning compared to the Reggio Approach. In her vision, the testimony could be too abstract and remote for younger children, who need to be more concrete: “La prima [tipologia di informazione, facile da

apprendere direttamente], tipo le foglie e i sassi, i bimbi ci arrivano molto facilmente a queste cose perché le fai, son concrete. Torna sempre il discorso della concretezza… Sì ecco, lì vedi la nostra teoria, cioè nel senso che la concretezza è quello che loro comunque alla fine hanno bisogno di qualcosa... nel concreto infatti. [La testimonianza] è sempre un qualcosa di sì me ne han parlato, ma non so manco cos'è, quindi io lo vivo più nel concreto" [The first [type of information, easy to learn on one's own], like the leaves and the rocks, the children get to these things very easily because you do them, they are concrete. It always comes back to the issue of concreteness... Yes, there you see our theory, that is in the sense that concreteness is what they anyway eventually need something... in the concrete. [Testimony] is always something, yes they told me about it, but I don't even know what it is, so I experience it more in the concrete].

The Primary school teacher agreed with our interpretation which suggests a kind of scale in children's thinking about learning processes, depending on the type of information and its ease of explanation: "Allora, secondo me sì, le cose facili le danno, le sanno, cioè le sanno e fanno fatica a ragionare su una cosa, un apprendimento facile, perché per loro è istintivo… Sulle cose un po più complicate effettivamente l'esperienza diretta e il lavorare concretamente può aiutare. Sul difficile, credo che per tutti insomma sia quello il pensiero "ho bisogno di qualcosa che non riesco ad avere ad avere io direttamente", quindi quello lì anche a scuola... Quindi per alcune cose per quelle che sono le cose difficilissime manca la consapevolezza e manca forse il percorso fatto che a volte ci si può arrivare anche a queste conoscenze con un'esperienza diretta" [So, in my opinion yes, and the easy things they give it, they know it, I mean they know it and they have a hard time reasoning about something, easy learning, because it's instinctive for them... On the somewhat more complicated things actually direct experience and

working concretely can help. On the difficult, I think for everyone in short is that thinking "I need something that I can't get to have myself directly," so that one there even in school... So for some things for what are the very difficult things there is a lack of awareness and a lack of maybe the path made that sometimes you can get there even with direct experience].

With regard to the relevance of testimony in learning, and the greater likelihood of children attending Agorà Preschool to mention other people as a source of knowledge, compared to the other three groups of children, the pedagogista of Agorà Preschool explained this difference by referring to the role played by others and the community as a whole in education: “[Questo] ti dice che tu da solo non puoi fare quasi nulla, puoi fare un pezzettino ma se a un certo punto non incontri la comunità nelle forme diverse, consigli, pareri, prove, cioè, tu non fai niente… I bambini pensano che l'apprendimento non è assolutamente in capo solo all'uomo singolo. E io di questo sono contentissima perché mi dà l'idea che allora le scuole e i servizi hanno un futuro” [[This] tells you that you alone can do almost nothing, you can do a little piece but if at some point you don't meet the community in the different forms, advice, opinions, or tests, that is, you don't do anything... Children think that learning is absolutely not up on an individual person alone. And I am so happy about that because it gives me the idea that then schools and services have a future]. Related to the relevance of the community in learning, she also mentioned the role played by trust in education, a critical goal for Reggio Emilia Approach (Rinaldi, 2021): “Cioè io mi fido di te, che tu puoi fare una parte con me” [That is, I trust you that you can play a part with me].

In contrast, the teacher of Pio VI preschool explained this difference with the more concrete approach adopted in her preschool, where testimony could be seen by children

as something too far from their daily experience: “È sempre un qualcosa di sì, me ne han parlato, ma non so manco cos'è, magari c'è, quindi io lo vivo più nel concreto” [is always something, yes they told me about it, but I don't even know what it is, so I experience it more in the concrete].

Other considerations

To complete the discussion about what teachers think children think learning is, we tried to identify significant recurrences in the words used by the teachers, which could support us in our analyses. A few cues seem to emerge: the pedagogista of Agorà Preschool often used the words “idea/ideas” (n. 10) and “research” (n. 11), for a total of 1.12% of the interview (total words n. 2,050). This pair of terms, idea and research, is practically absent from the interview of the teacher of Pio VI Preschool: about 0.07% of the words used (n. 2,843). Rather, two other terms emerge as significant in her interview: the word “theory/theories” (n. 26) and the word “concrete/concreteness” (n. 17), which together correspond to 1.51% of her interview. This lexical analysis allows us to highlight a further nuance, compared to the analyses already discussed: from a closer look, in addition to the Pio VI Preschool teacher's claim with respect to the very concrete method applied in her school, as already highlighted, a real distinction, if not opposition between the two spheres, that of theory, as opposed to the one of practice, seems to emerge (e.g. “come teoria non l'ho mai presa in considerazione” [as theory I have never considered it]; “io faccio fatica a capire come si possa spiegare ai bambini una teoria del genere” [I have a hard time understanding how you can explain such a theory to children]; “Perché la teoria con i piccoli secondo me si fa molto più fatica” [Because theory with preschoolers in my opinion is much harder]; “tutto quello che noi

facciamo segue una spiegazione, ma poi serve concretezza" [everything we do, an explanation follows, but then you need concreteness]; "nella scuola dell'infanzia hanno bisogno di pratica, di qualcosa di concreto" [in preschool they need practice, something concrete]; "il nostro metodo, noi facciamo molto sul concreto" [our method, we do a lot on the concrete]). And therein a further element of differentiation arises with the Reggio Emilia educational experience, which instead consider theory as a practice that becomes reflective and generates further theoretical cues, which is renewed in daily practice in school (Reggio Children & Harvard Project Zero, 2009). This is, in short, the idea of research developed in the Reggio Emilia Approach (Rinaldi, 2021), and this interpretation could explain the relevance of the word "research" in the interview of the pedagogista of Agorà, who never used the word "concrete/concreteness" (n. 0), and only occasionally used the word "theory/theories" (n. 2), together corresponding just to 0.10% of her interview: "La scuola dell'infanzia comunale ha sempre lavorato molto su questa idea della ricerca. Cioè, la ricerca è anche la ricerca che fanno i bambini, non è solo la ricerca degli adulti" [The municipal preschool has always worked a lot on this idea of research. That is, research is also the research that children do, not just the research of adults].

These aspects do not emerge in the elementary school teacher's interview, where instead the use of other two words seems to be relevant: "teacher/s" (n. 32) and "school" (n. 41), which in combination correspond to 2.19% of the words used in her interview (n. 3,338). This frequency seems to be consistent with the attention that the teacher (who also holds, it is worth noting, the role of Vice-Principal of the Comprehensive Institute) devoted during the interview to the role of teachers in improving schools (e.g. "Perché il rischio è che gli insegnanti, noi insegnanti,

incrementiamo questo pensiero che secondo me hanno i bimbi che quello che a scuola si impara e fuori ci si diverte" [Because the risk is that the teachers, we teachers, increase this thinking, that I think the children have, that what you learn in school and have fun outside]; "Quindi se non c'è in una scuola a tempo pieno questa percezione vuol dire che è davvero insomma molto radicata perché la scuola a tempo pieno permette di confrontarsi tanto, di lavorare diversamente. Invece se anche a scuola a tempo pieno hanno questa idea che tu hai riscontrato... bisogna che ci ragioniamo un Pochettino" [So if there is not in a full-time school this perception it means that it is really in short deeply rooted, because the full-time school allows you to confront so much, to work differently. Instead, if even in full-time school they have this idea that you have highlighted.... we need to think about it a little bit]).

This focus on change and improvement also emerges in her words with reference to the idea of learning, a very broad one, not confined only within the walls of the school. And with her words and her invitation, we feel it is appropriate to conclude this chapter, aimed at listening to the teachers' voices: "Quindi quello potrebbe essere il nostro stimolo, insomma: fare in modo che non si creino dei ruoli che vadano sempre su quei binari… tutto il mondo insegna, quindi dobbiamo essere noi a spronarli [i bambini] a guardarsi intorno e a trovare soluzioni nell'ambiente, nelle altre persone, gli amici, i compagni, chiunque" [So this could be our incentive, I mean: to make sure that we don't create roles that always go on those tracks… all the world teaches, so we have to be the ones to stimulate them [children] to look around and find solutions in the environment, in other people, friends, classmates, whoever].

Chapter 4:
General Discussion and Conclusions

In this final chapter, we will summarize the key findings that emerged in our research, in relation to the aims and questions, discussing the value and contribution thereof. We will also review the limitations of the project and propose opportunities for further development.

Starting from the acknowledgment that metacognitive abilities and critical thinking are key features that can support the construction of a democratic society (UNESCO, 2021), our goal was to ask if different pedagogical approaches to preschool, and in particular if the Reggio Emilia Approach, could influence children's theory about learning, as an initial step to develop such abilities. The findings of Study 1, concerning the pedagogical approach, seem to suggest a positive answer. When 4- to 8-years old children were asked to provide their definition of learning and some examples of learned content, the pedagogical approaches of the preschools did not seem to affect their responses. Nevertheless, a relevant difference emerged instead in the perceived role played by others in the learning example they provided: children attending Reggio Emilia Approach preschool mentioned peers, both friends and classmates, as partners in their learning; children not attending Reggio Emilia Approach were more likely to mention themselves as the unique protagonist in their learning. This result was in some way confirmed when we interviewed the pedagogista of the Reggio Emilia Approach preschool, which confirmed the tendency of children to credit peers as fundamental resources in learning. Besides, this finding is consistent with the claimed influence

played by the socio-constructivism approach in the Reggio Preschool (Dahlberg et al., 2007), as explicitly mentioned by the pedagogista of the school: in this perspective, the group is crucial in supporting and co-constructing the learning processes of children. This philosophical inspiration could explain also another relevant finding that emerged in Study 1 which confirmed that different pedagogical approaches can influence what children think about learning. When asked which strategy someone should apply to learn different kinds of information, children currently attending a Reggio educational program were significantly more likely to mention testimony as a method of acquiring knowledge, compared to other children who were more likely to give their tentative answer to the question or repeat it.

A greater tendency to credit testimony as a reliable source of learning could be explained again by the role of the group in the daily life of the Reggio preschool as well as the attention that pedagogistas and teachers pay in creating contexts where the mutual listening among children and between children and adults becomes the cornerstone to build a trusted learning space, where democracy is exercised by adults and children from the early years. “Democracy is impossible where some claim the truth and privileged access to knowledge” (Dahlberg & Moss, 2005, p. 168). Democracy is possible when schools are seen as social and political places where everyone – parents, children, staff – is listened to as competent and able to become more so (Dahlberg & Moss, 2005). Thus, it is possible to explain the greater credit given to testimony by children in the Reggio Emilia Approach preschool. Related to the democratic attitude in school, and in education as a whole, it could be of great interest to investigate if exposure to particular pedagogical approaches, and in particular to the Reggio Emilia Approach, could influence young children’s proto-political sensitivities and structure

their social cognition. This would be a new research direction, given that research in political psychology largely ignores early childhood (Reifen-Tagar & Cimpian, 2022). Recent studies demonstrate that already in infancy, children show proto-political sensitivities: for example, they form expectations based on cues of authority, social convention, social hierarchy and inequality. In the preschool years, such proto-political sensitivities are joined by proto-political attitudes expressed in preferences, prescriptive beliefs, and even behavioral intentions and behaviors (Reifen-Tagar & Cimpian, 2022). This topic is far beyond the scope of the present study, but we will return to the limitations and insights of our research later.

Coming back to the findings of this study, they seem therefore confirm that the Reggio Emilia Approach could influence what children think about learning and their learning strategy, providing the foundation to give more credit to both peers and testimony as reliable sources or helps in their learning processes. While the importance of peers seems to persist, probably because the relevance given to the group in Reggio preschools offers them an effective strategy to increase their learning abilities, reinforcing their cognitive development through social interactions (Vygotsky, 1962), the importance given to testimony seems to fade away when children attend primary school. One possible explanation for such a rapid decay in the effects of a given preschool pedagogical approach on the transition to primary school might be the extremely fast rate with which children learn how to learn, or simply adapt their learning to comply with new expectations: as the primary school teachers told us in Study 2, they "learn very early what we call the teaching contract, that is they know very quickly what the teacher expects; in the first 15 days of [primary] school they have already more or less learned it. And we see it even after a little while they arrive, they

already do things because they know the teacher is going to ask them. That is something that would be up to us to work on always." In other words, in a short period of time children understand the expectations that teachers have so as to adapt their own expectations and strategies. This insight would explain also some of the most relevant differences that emerged in what primary school children think about learning, compared to preschool children. In brief:

- Preschool children are more likely to provide examples of learned content that refers to skills (e.g., to make a watch with different materials); in contrast, older children are more likely to provide subjects as examples of learned content (e.g., English, numbers, letters).

- Preschool children are more likely to mention an informal context and informal help for their learning (e.g., family at home) in contrast with primary children who are more likely to mention a formal context (e.g., teachers at school).

When asked how she could interpret these differences, the primary school teacher expressed the concern that these changes were caused by the rigid structure of the primary school, with many different subjects each led by a different teacher. In her interview, she repeatedly stated the need to expand the narrow expectations that children might have, namely that learning occurs only in school and not outside. But what really supports our idea of the relevant role played by adults, both teachers' and parents' expectation in determining what children think learning is, is articulated by the pedagogista of Agorà Preschool: "In my opinion this is not the children's fault or responsibility. In my opinion these are those clichés, that current thinking that at some point starts to declare to children that you learn in school. Instead, young children still have that freedom to credit the world with being a place of learning. But that's not up to

the children, though, it's up to the context, it's up to us, the adults, the school that often emphasizes "here you come to learn." So, it's not their responsibility, it's ours, our culture that continues, at some point in life, to separate the place of learning and the place of sociality".

The validation of our insight goes far beyond the possibilities of this research but stands as an interesting cue for further investigation. We will come back to this point later. What we consider useful at this point is to compare the results of our research with some of the evidence provided by previous research which significantly inspired us, in particular the study by Sobel and Letourneau (2015). They stated that:

> "the current study suggests that by 8 years of age, children understand learning as a process and can reflect on the ways in which they learned in the past. Such capacities appear to be developing between 4 and 8 years of age, but regardless of age, having a process-based understanding of learning is associated with children being able to offer more varied examples of what they have learned (describing skills and not just topics or pieces of information) and an improved ability to reflect on the ways in which they have learned" (Sobel & Letourneau, 2015, p. 228).

Our findings were mostly consistent with their conclusion: our data show that older children, attending primary schools, start to define learning as involving either a source or a strategy that would result in gaining knowledge, emphasizing the process rather than the content. Another common result concerns the type of learned content that children provided: in both studies, older children, attending primary schools, were more likely to offer "subjects" examples of learning, compared to younger children. At the

same time, the two studies differ in two relevant aspects. First, in our research, we did not just investigate what children think about learning, we also asked if different pedagogical approaches could influence their theories about learning: even if the process-based definition of learning seems to be related to the age of children, as in the study of Sobel and Letourneau, some differences emerged in how children think they can learn in relation to children's exposure to the Reggio Emilia Approaches. Second, we probed the metacognitive abilities of children by asking them how someone else could learn different kinds of information, and found that their responses were affected by the pedagogical approaches to which they were exposed in the preschool years. Taken together, these results led us to argue that children, even in the preschool years, have abilities to reflect not only on their own learning but also on others' learning. Moreover, these early metacognitive abilities appear to be influenced by the pedagogical approaches to which children are exposed from their earliest years.

On the whole, we judge the results of our research as significant and useful for fostering further studies on this topic. The statistical analyses we used to process the data support this conviction, even if we also encountered some limitations, as the teachers and pedagogista, involved in the research pointed out particularly with regard to the methodology we adopted. Before discussing those limitations, we comment on a discrepancy that we noticed between the findings of Study 1, investigating children's theories about learning, and those of Study 2, based on the teachers' perspective on these topics. Looking at the results of Study 1 in the light of the different perspectives expressed by the pedagogista and teachers in Study 2, we might expect even more relevant differences in the children's conceptions of learning based on the pedagogical approach to which they were exposed in the preschool years, leaving aside the

differences related to children's age. Accordingly, we ask why, despite being exposed to radically different educational philosophies, the children did not differ more radically in their thinking about learning.

One reason why our study revealed relatively small effects of the Reggio Emilia Approach on children's beliefs about learning could be that we did not address the most relevant outcome. The Reggio Emilia educational experience rather than child-centered is mostly focused on the idea of a competent child, who is a co-constructor of knowledge (Dalhberg et al., 2017):

> Our image of children no longer considers them as isolated and egocentric, does not see them only engaged in action with objects, does not emphasize only the cognitive aspects, does not belittle feelings or what is not logical and does not consider with ambiguity the role of the affective domain. Instead our image of the child is rich in potential, strong, powerful, competent and, most of all, connected to adults and other children. (Loris Malaguzzi, 1993, as cited in Dalhberg et al., 2017).

The role played by relationships in the Reggio Emilia Approach suggests that we may have underestimated the impact of the group on learning given the methodology that we adopted in exploring children's thinking. More specifically, we chose a one-to-one interview composed of two sets of open-ended questions which could be partially appropriate for revealing the differential impact of pedagogical approaches of the preschools. Although this method suggested some interesting differences, we may have missed the possibility – through direct observation of their exploration – of collecting data

that would reveal more radical variation in what children think about group learning. Indeed, this was also suggested also by the pedagogista of the Reggio Emilia preschool: “In my opinion, it is crucial to not only interpret verbal conversations but also derive insights from actions. Let me provide an example: clay. Children are working with clay on a project, let's say building a bridge. In my view, while they work, they do and say things that allow you to infer their idea of learning. Therefore, I believe that solely relying on specific questions from a verbal grid for preschool children can be somewhat limiting”. In this comment, we value two interesting suggestions: through direct observation of children focused on acting and exploring through different expressive languages, and thanks to the accompanying documentation, we could have collected more data about their theories of learning. The second suggestion is probably more important: the role of the group in children’s learning and in children’s co-construction of theories about their own learning. In this regard, we recall some of the most interesting results that emerged in the *Making Learning Visible* research conducted by Harvard Project Zero and Reggio Children on children’s learning process: the seven propositions advanced by Dr. Mara Krechevsky about learning groups (Reggio Children & Harvard Project Zero, 2009, p. 246-268). These propositions provide a framework that recognizes the immense value of collaborative learning experiences.

First and foremost, understanding and building upon children's ideas and theories is a foundational aspect of group learning: when children come together in a group setting, they bring their unique perspectives, experiences, and understandings which is influenced by the learning approaches of the other children – what she called

“modifiable fingerprints” (Reggio Children & Harvard Project Zero, 2009, p. 247). By actively listening and valuing each other's contributions, children can develop a deeper understanding of the subject matter and expand their thinking. By encouraging them to explore complex topics together, they can delve into the subject matter from various angles and uncover new insights. This process of inquiry and exploration fosters critical thinking, problem-solving skills, and a genuine curiosity for learning. This creates a supportive learning community: When children feel safe, respected, and valued within their learning group, they are more likely to actively participate and share their ideas. Collaboration becomes a natural part of the learning process, allowing children to learn from and with their peers.

Integrating different disciplines and modes of expression is vital to providing a holistic learning experience. Group learning environments can incorporate various subjects, arts, and hands-on activities to cater to diverse learning styles.

Documenting children's learning processes and encouraging reflection is an integral part of group learning. By capturing and reflecting upon their learning journeys, children can be supported in understanding their own thinking and progress and becoming more self-directed learners (Reggio Children & Harvard Project Zero, 2009).

Coming back to the concept of the “modifiable fingerprints”, it could be of particular interest to observe and analyze if these “fingerprints” could be influenced by the pedagogical approaches to which children are exposed and to what extent these influences, if they exist, could influence not just the individual theory of learning but how a group as a whole could develop its own peculiar theory of learning.

We want to briefly mention three further possible explanations of why the different approaches in the two preschools produced only modest differences in what children think about learning.

One explanation is partially related again to the methodology of our investigation: through verbal interview, children may not have been able to express themselves well enough to highlight more radical differences in their theories. This is consistent with what emerged in the research of Sobel and Letourneau: Studies on metacognitive awareness indicate that preschoolers encounter challenges when attempting to articulate their understanding of learning (Sobel & Letourneau, 2015).

Another possibility concerns Study 2: we interviewed the pedagogista of the Reggio Emilia Approach preschool and a teacher in the not Reggio Emilia Approach preschool. The different roles played by both in the daily life of school should be outlined. While teachers spend their time daily in direct contact with children, pedagogistas have a different role: they coordinate and supervise the educational life of the school as a whole, proposing themes, projects, supporting teachers in their auto-reflective educational efforts through documentation. In other words, they lead the educational life of the school. The differences in their role might encourage us to wonder whether the differences expressed at a theoretical level may blur in the daily practice of both preschools' teachers. In order to settle this doubt, it might therefore be particularly relevant in further research on this topic to combine methodologies: in addition to interviews, direct observation in the classroom could help significantly to analyze the activities and theories about learning of both children and adults.

Finally, another hypothesis relates to the possibility that there may be certain universals in how children learn and think about learning, to the extent that the impact

of education philosophy is rather minimal. This possibility is partially supported by recent research and studies that seek to validate universal developmental models for children's education. For example, we might refer to the DUP (Developmental Universal Practice), a framework that aims to identify and promote universal practices in child development and education. It seeks to uncover core principles and strategies that are effective across different cultural and educational contexts.

The DUP model recognizes that while there may be cultural and contextual variations in educational practices, there are also underlying principles that hold true across diverse settings. By identifying and understanding these universal practices, educators can enhance their pedagogical approaches and promote optimal learning experiences for children.

The model emphasizes the importance of holistic development, taking into account various domains such as cognitive, social-emotional, and physical development. It also recognizes the significance of creating nurturing and supportive environments that foster children's curiosity, creativity, and autonomy.

The DUP model serves as a resource for educators and researchers to examine and reflect on their practices: By incorporating universal practices into their approach, educators can create inclusive and effective learning environments that support the diverse needs and potentials of all children (K. I. Harris, 2015).

The validation and verification of these hypotheses extend beyond this research and stand as a valuable starting point for further studies on the subject.

Coming back to the limitation of the present study, the first one we have to point out was given by the Convid-19 pandemic restrictions, which did not allow us to make direct observations in children’s classes. We were actually lucky enough to interview

children, one by one, in person, avoiding remote interactions which could affect the quality of the conversations and therefore the data collected.

A second limitation was the script of our interview: we chose an open-ended format that probably, in some cases, especially with younger children, sounded too difficult, and that could explain the frequency of answers that we coded as repeating the question or repeating the information itself. This open-ended format was not a casual choice. Rather, for us, it was a matter of finding the right balance between simplicity and complexity, and open-form questions seemed to us the most appropriate tool to elicit the metacognitive ability of children to reflect on learning, a complex ability that appears present in younger children, yet is still developing (Sobel 2015). We also, consistent with the image of the child promoted by the Reggio Emilia Approach, value children as capable of not just selecting among pre-framed answers but of expressing their thoughts and their strategy, even on such a complex topic as learning about learning. The relevant number of examples of learned contents together with the marginal number of interviews we had to interrupt, in some way, lends support to our trust in children.

Two more limitations should be considered. We investigated what children think about learning through a verbal approach, putting aside other media (such as graphics, modeling, lights and shadows…) that are usually proposed in Reggio Emilia preschools (Edwards, Gandini & Forman, 2014). As the teacher of the primary school involved in the research pointed out in her interview, this choice could have limited our ability to collect children's interpretation of our research question, given that not every child has the ability to express their thinking in such an oral conversation. The use of different media could have provided a powerful tool for investigating children's theories (Rinaldi, 2021), but it would have required more time and resources, such as an

atelierista to support us in designing contexts in which children could have expressed their views and opinions. This was not possible, due to the inherent limitations of doctoral research. Also, some doubts would have emerged: the possibility to choose different media to express themselves could have privileged the children attending Reggio Emilia Approach preschools, where the availability of an atelierista and the attention given to the creativity of children in their learning processes are a constant in the daily life of the school (Vecchi & Giudici, 2004).

Perhaps the most significant limitation of the present study, as already mentioned, was the decision to collect data from children in a one-to-one conversation, putting aside the possibilities given by working in small groups, - observing the conversation among children, and their mutual listening and questioning on the topic itself. Given the results of Study 1, in which a difference emerged with regard to the perceived role played by others in children's learning, this limitation could be the most important one to reconsider if any further research were prompted by this study.

Given this overview of the limitation of our study, we now try to identify innovative elements in our research and possible contributions to the further development of knowledge about the topic of learning about learning.

First, it is worth noting the relative scarcity of literature investigating the impact of different pedagogical approaches on the idea of learning that children develop (Archana & Sreedevi, 2021). In particular, it is surprising how little research deals with the effects of the Reggio Emilia Approach on the development of metacognitive abilities in younger children, during the preschool years (Fernndez Santn & Feliu Torruella, 2017; Fernndez Santn & Feliu Torruella, 2020). Conversely, few studies in the cognitive development field deal with the Reggio Emilia Approach. We not a lack of research

investigating which effects of the Reggio Emilia Approach persist and which fade out when children start primary school.

Another point of interest of the present study concerns the methodology that we adopted to investigate some of the impacts of the Reggio Emilia Approaches: statistical data analyses are not commonly used to assess the features of the Reggio Approach. We emphasize that we made a significant effort to build a bridge between a merely quantitative study and an approach that relies primarily on narrative and documentation to assess the learning processes of children. We could find an important precedent in the study conducted by James Heckman and colleagues on the economic impacts of investing in early childhood education, with a focus on Reggio Emilia educational services (Biroli et al., 2018).

In conclusion, in our opinion, this study prompts further research in two directions.

Combining both Study 1 and Study 2, what emerged in our conversations with children and teachers led us to ask ourselves about the idea of school that we have in mind, a school able to scaffold the development of children and to value adults – both teachers and parents – as educational and social resources. This was particularly clear when we interviewed the pedagogista of Agorà Preschool: “That pedagogistas and teachers reflect on how children learn is critical; it's critical because if you don't do that you really remain in the little schools [*scuoline*]. In the little schools that give you information, give you assignments, give you goals”. This strong bond between investigating the idea that children have about learning and the idea that society as a whole has about the role of the school could be critical for fostering further research in the field.

The second aspect of our research that we value as an interesting future direction is the role, not just of testimony but of trust in early childhood education: Trust among classmates and with adults, trust in the school as an institution (Dalhberg et al., 2017) but also trust in digital devices as reliable sources of knowledge. Many children, in our interviews, mentioned digital devices as tools to acquire new information: “dad’s mobile phone”; “newscast”; “watching a picture on the internet”; “watching videos”; “YouTube”. The increasing role played by digital devices in children’s learning was confirmed also by the primary teacher in her interview: “Now in recent years the internet is a way, children are aware that through the internet they learn. For better or for worse, it’s still not very clear for them what is right and what is not right, and what to rely on. But the internet is coming overbearingly into their way of learning, and they are aware of the internet. And they use it a lot and they know a lot more from the tutorials they see rather than from other sources. So, we have to start keeping this chapter in, that is important as well”. Some research explores what children think about internet-based devices and the influence that early and prolonged exposure to internet-based devices may have on children's cognitive development. (Danovitch, 2019). Some research focused on the trust that children have in internet-based devices: these early findings suggest that children's trust in information obtained from internet-based devices may take significant time and experience to develop. (Danovitch, 2019). Depending on the situation, young children may judge an internet source's credibility differently: Children are more likely to rely on the internet, for instance, when the information in question involves precise numerical values connected to scientific phenomena that they are unable to observe directly. However, when the information comes from other domains (such as information that is more accessible or that can be

observed directly), they do not see the unspecified internet as more trustworthy than a peer (Wang et al., 2019). More studies exploring if and to what extent different pedagogical approaches, and in particular the Reggio Emilia Approach, can influence children's building of trust in different sources for acquiring knowledge, comparing human sources - and peers in particular - versus digital sources might be of particular interest. As suggested by one of the children interviewed, when asked how someone might learn that the Earth is round: “Someone could ask Google that will give you some clues. As my mother does”.

In summary, this study is the first to provide experimental evidence that the Reggio Emilia Approach could influence what children think about learning, their theories about learning and how they could learn different type of information, from easy to impossible to learn on one’s own. While much more research needs to be done to clarify the ways in which a particular education philosophy shapes children’s belief about learning and their actual learning, these studies suggest that:

- children attending or who have attended Reggio Emilia preschools mentioned peers, both friends and classmates, as partners in their learning; children not attending Reggio Emilia Approach were more likely to mention themselves as the unique protagonist in their learning;
- When asked which strategy someone should apply to learn different kinds of information, children currently attending a Reggio educational program were significantly more likely to mention testimony as a method of acquiring knowledge, compared to other children who were more likely to give their tentative answer to the question or repeat it.

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Annexes

Study 1 - Coding guide

Overview of the project

The Reggio Emilia Approach is a characteristic educational approach that has at the centre of the educational project a "child in relationship, a child who is able to construct his or her learning (relationships, abilities, competencies, knowledge) and who is endowed with creativity" (Municipality of Reggio Emilia, 2017). The Approach is therefore based on an idea of competent child, a child who develops from the early years his/her attitude to explore and learn. (Rinaldi, 2021)

The main goal of this research project is to explore if the Reggio Emilia Approach influences the theory that children have and develop about "learning", with particular attention paid to the role of testimony. For this purpose, an interview was proposed to four groups of Italian preschoolers (4-, 5-, 6-years old) and primary schoolers (6-, 7-, 8-years old): the first group was composed of preschoolers attending a Reggio Emilia Approach preschool; the second group was composed of preschoolers attending a preschool in Reggio Emilia, but not inspired by the Reggio Emilia Approach; the third group was composed of primary schoolers, that had attended a Reggio Emilia Approach preschool; the last group was composed of primary schoolers that had not attended a Reggio Emilia Approach preschool.

The interviews consisted of two different sets of questions. The first set was designed to prompt children's definition of learning, asking them to give examples of something

they had learned. For each example given, more questions were proposed to discover how, where and with whom they learned.

The second set of questions aimed to explore children's theory about how someone can learn information that is easy to learn on one's own, information that is hard to learn on one's own, and information that is impossible to learn on one's own.

Coding scheme

Category (*the same as in the Sobel, 2015)	**Sub-Categories** (*the same as in the Sobel, 2015)	**Function and description**	**Examples**
Definition of Learning*	**No response***	children were unable to offer any definition	"I don't know"[14]
	Identity*	children simply used the word ''learn'' or ''learning'' to define learning	"learning means you can, you have to learn" "learning means when you learn something"
	Content*	children defined learning as involving a subject or topic that was or could be learned	"learning means learning new letters"

[14] All children quotes are translated by the authors

			"it means learning to read and to write properly"
	Process*	children defined learning as involving either a source or a strategy that would result in gaining knowledge	"learning means, you know, the teacher tells you something and you learn" "learning means learning so many things with the help of the teachers"
Purpose of Learning	**Not inferable**	in their definition of learning, children didn't mention any purpose of learning	"It means you have to learn how to study"
	Skill improvement	in their definition of learning, children explicitly referred to the purpose of learning as an improvement of their skills	"For studying" "For sport" "For me learning is like being older, doing new things, for me being more intelligent, because through learning things, you become also more intelligent. Because at school, you speak about many things, so as your brain becomes every time bigger" "Because we can't play badly"

			"For me learning means doing, if I don't know how to do something new, to be able to do that" "For the other ones, to make them learning what you say, as it's the cycle of life, everybody knows what they have to know and so it goes on. Yes, a better life"
	Becoming an adult	in their definition of learning, children explicitly referred to the purpose of learning as a process to become adults	"learning for me is like studying. Then we can earn, we don't become goats that cannot read and write. And with money you can do things that help you. And your family too" "learning means becoming adults, and doing new things" "When you study then you become and adult" "For me learning is learning new things so as adults we know many things" "It is a work to go as adults" "For me learning is a nice thing, because then, as adult, I will want to do other things and I will be able to

			tell my children something related to the school. So they will be already know something at school" "It means you have to listen to what they tell you, so you can do additions, multiplications, when you are an adult"
Learned Content*	**No response***	children were unable to offer any examples of what they had learned	"I don't know what to tell you"
	Subjects*	either academic or proto-academic topics or other generalizable knowledge	"I learned how to draw" "I learned how to write" "Firstly, I learned the numbers"
	Skills*	either motor skills or procedural knowledge	"I learned how to tape" "I learned how to stay on the skateboard"
	Conventions*	including social and nonsocial rules	"I learned that at home you should respect the rules, and you should always help the others"

			"At school, I learned that you have to be always friendly, welcoming. And you shouldn't be bad"
	Facts*	non-generalizable knowledge such as single observations or statements of trivia	"I learned, I heard this thing that the teacher said: if we don't touch bees, they make honey" "Only what I remember, this is easy, that the snake is poisonous"
Learning process*	**No response***	children were unable to state how they had learned or could learn	"Q.: And how did you learn this thing? A.: I know it"
	Source*	citing a person (e.g., ''from my teacher'') or a place (e.g., ''in school'') as the source of knowledge	"Q.: Ok, so you learned how to do a mosquito. And how did you learn that? A.: My friend Diego did it" "Q.: How did you learn to write? A.: My mother taught it to me"
	Strategy*	involving an active process through which knowledge was gained	"Q.: Ad how did you learn to draw properly? A.: Looking at the others' drawings, I thought I had become older, I took

			the marker, it became a nice thing, I learned how to draw properly" "The way you can learn is like, when you finish a course and then you begin another"
Physical context of learning	**No response**	children were unable to offer any examples of contexts in which they had learned	n.a.
	Informal setting	involving family or informal contexts	"I learned at home" "Q.: Where did you learn that? A.: At my home"
	Formal setting	involving school or other contexts formally aimed to learn	"Q.: Where did you learn how to make slides? A.: At football… At the football's school I have a friend called Dejan and he comes with me to the Fantus [team]" "I learned at school, with Tiziana teacher"

			"Q.: Where did you learn writing and reading? A.: In primary school, first grade"
	Mixed	Involving both informal and formal contexts	"Q.: Where did you learn to do this thing, coloring and decorating? A.: At home, at school" "I was, I learned it a little bit at home, and a little bit in the kindergarten, then at home and then at the kindergarten, to learn it well"
	Other	repository category for answers that don't refer to contexts	"From the others, I saw others drawing their drawings" "Q.: Where did you learn about the wheels of the scooter? A.: I had BUM BUM [scoo]ter"
Social context of learning	**No response**	children were unable to offer any examples of who supported or participated in what they had learned	n.a.

	Alone	involving no other persons in their learning	"Q.: And did someone help you? A.: No. But also when I was 3 years old, I was able to do that alone" "Q.: And did someone help you? A.: No. I laid on it and I pushed myself"
	Peers	involving friends or schoolmates that assisted or supported their learning	"Q.: And were you alone or with someone else when you learned it? A.: I was with someone Q.: Who? A.: With all my friends Q.: And did someone help you to learn it? A.: A little bit yes and a little bit no Q.: Who did help you a little bit yes? A.: My friends I had known for so long" "Q.: And were you alone or with someone else when you learned it? A.: With someone Q.: Who were you with? A.: All my friends Q.: And did someone help you? A.: Yes, everyone"

	Family	involving parents, grandparents, siblings that assisted or supported their learning	"Q.: Did somebody help you to learn how to write B and C? A.: Yes, unfortunately, my brother helped me. But my mother and my father not, because they were working downstairs, in the garage" "Q.: And were you alone or with someone else when you learned to guess the fishes? A.: My grandfather read them to me, and I guessed them"
	Teachers	involving teachers or educators that assisted or supported their learning	"Q.: And were you alone or with someone else when learned it? A.: Someone helped us when we were in trouble. The teacher's name is Maria, the teacher who helped us" "Q.: And were you alone or with someone else when learned it? A.: When we were in classroom, the teachers told us many times Q.: Ok, so did someone help you to learn it? A.: Yes Q.: Who?

			A.: The teachers. I look at someone and so I learned it" "Q.: And did someone help you to learn how to play football? A.: Yes, the coach helped me"
	Ambiguous	involving in the same answer no other persons and someone else's participation or support in their learning or mixed answers	"Q.: Did you learn alone? A.: I learned alone. But my mother told me"
Learning information easy to learn on one's own	**No response**	children were unable to offer an explanation about how someone can learn something through a direct experience	"Q.: How someone could learn that rocks sink in the water, but leaves float? A.: I don't know these questions" "Q.: How someone could learn that rocks sink in the water, but leaves float? A.: My mother brought me to Chiara and I made the sound of water"
	Identity	children explained how some can learn, citing	"Q.: How someone could learn that rocks sink in the water, but leaves float?

		the same words as in the questions	A.: Leaves float in water? Nice Q.: How someone could learn that? That rocks sink? A.: They sink"
	Process involving experience	children explained their own experiences or citing process that requires experiences	"Q.: How someone could learn to jump? A.: He must train his legs. And his feet, too. And then he trains himself with the trampoline, to dive" "Q.: How someone could learn that rocks sink in the water, but leaves float? A.: He makes a test"
	Process involving knowledge artifacts	children explained process that requires acquiring knowledge from artifacts (i.e. books, digital devices)	"Q.: How someone could learn that rocks sink in the water, but leaves float? A.: While we are watching videos, that we watch many times"
	Process involving testimony	children explained process that requires acquiring knowledge from testimony	"Q.: How someone could learn to jump? A.: Someone who already knows how to jump teaches him"

	Repeating information learned	children explained that information and not how someone could learn that	"Q.: How someone could learn that rocks sink in the water, but leaves float? A.: Because rocks are small and leaves are big" "Q.: How someone could learn that rocks sink in the water, but leaves float? A.: Because rocks are heavier and leaves lighter"
Learning information hard to learn on one's own	**No response**	children were unable to offer an explanation about how someone can learn something hard to learn on one's own	"Q.: How someone could learn the names of colors? A.: Eh"
	Identity	children explained how some can learn, citing the same words as in the questions	"Q.: How someone could learn that people speak different languages in different places? A.: And, when you go in a different place, they speak different languages"

			"Q.: How someone could learn how to ride a bike? A.: With the bike"
	Process involving experience	children explained their own experiences or citing process that requires experiences	"Q.: How someone could learn how to ride a bike? A.: Then, first at all, they use the training wheels, the tricycle, then the training wheels, then bicycle without wheels. So you slowly go and succeed" "Q.: How someone could learn the names of colors? A.: Only using them"
	Process involving knowledge artifacts	children explained process that requires acquiring knowledge from artifacts (i.e. books, digital devices)	"Q.: How someone could learn that people speak different languages in different places? A.: From the flags, because they are different from the our one. You can ask to the phone "How is England like?" And you see that flag is not the same"
	Process involving testimony	children explained process that requires	"Q.: How someone could learn the names of colors?

		acquiring knowledge from testimony	A.: With mother and father. They would say “This is blue, this is red” “Q.: How someone could learn the names of colors? A.: Calling, calling the mother, which color is? Like the color you are writing with. Which color is? It’s blue”
	Repeating information learned	children explained that information and not how someone could learn that	“Q.: How someone could learn the names of colors? A.: Red, orange, yellow, green, light blue. And purple and black, green, yellow, indigo, violet, brown, and pink”
Learning information impossible to learn on one’s own	**No response**	children were unable to offer an explanation about how someone can learn information impossible to learn on one’s own	“Q.: How someone could learn that virus make living things sick? A.: It doesn’t come up to my mind”
	Identity	children explained how some can learn, citing the same words as in the questions	“Q.: How someone could learn that in Italy there used to live ancient Romans? A.: Because the ancient Romans

			lived in Italy, they always stayed in Italy"
	Process involving experience	children explained their own experiences or citing process that requires experiences	"Q.: How someone could learn that in Italy there used to live ancient Romans? A.: Because you explore Italy" "Q.: How someone could learn that the Earth is round? A.: Because if you go in the space you see that it is round" "Q.: How someone could learn that in Italy there used to live ancient Romans? A.: Because he has to, he goes in the desert and sees stuff of the ancient Romans"
	Process involving knowledge artifacts	children explained process that requires acquiring knowledge from artifacts (i.e. books, digital devices)	"Q.: How someone could learn that the Earth is round? A.: He learns from books "Q.: How someone could learn that the Earth is round? A.: He looks in a book with all the planets and then he sees that Earth is round"

			"Q.: How someone could learn that the Earth is round? A.: Watching videos about the Earth" "Q.: How someone could learn that virus make living things sick? A.: He could learn, watching TV news, he could watch they speaks about this virus and he could learn that it hurts"
	Process involving testimony	children explained process that requires acquiring knowledge from testimony	"Q.: How someone could learn that in Italy there used to live ancient Romans? A.: Maybe you can ask, I don't know, I have some grandparents in Rome. Since they are Romans too, you can ask them" "Q.: How someone could learn that virus make living things sick? A.: Maybe looking at some persons which were sick, they ask someone, they say why they were sick, and they say there is Coronavirus" "Q.: How someone could learn that the Earth is round?

			A.: Because the astronauts saw it is round”
	Repeating information learned	children explained that information and not how someone could learn that	“Q.: How someone could learn that virus make living things sick? A.: Viruses make people sick because the virus is threatening, and it only wants it to live, instead we don't want the virus, so we get treatment and take medicine that protect us” “Q.: How someone could learn that virus make living things sick? A.: Because they are really bad”

Study 2 - Teachers' interviews transcription

Daniela Lanzi, Pedagogista, Agorà Preschool

The main goal of this research project is to explore what children think learning is and whether 4-, and 5-years old children exposed to different pedagogical and educational experiences in preschool develop different theories about learning and, if they do, whether these differences persist when children subsequently attend primary school. What do you hope children in your class/school learn about learning?

But in my opinion, I was also talking about this at the university these days, in my opinion the expectation that practitioners indiscriminately, whether they are teachers or pedagogists, must have on this issue is that children acquire a transversal mind. That is, in my opinion the issue is not so much that they learn notions, skills and competencies i.e. this certainly in the sense that probably the process of growing up also involves this, however that they learn a structure that becomes transversal then to the different contents, to the different to the different disciplines. So in my opinion teachers and pedagogists have to work on this possibility, that is, not just worrying about what content they offer, but how they offer it, what contexts they set up, and above all trying to help children always make connections, that is, not to separate the content. This is the role of the adult, in the sense that while you are working with children that is if you help them to make connections between contexts, places, situations this is an important quality also because then the formation of concepts also arises in this way that is you form a concept to the extent that something you have learned you can apply it in different contexts. So I would say this.

Do you do anything in your classroom helps to give them opportunities to learn about learning?

That is in my opinion what we also try to do when we work in training with teachers is to work on the genesis of the projects, their reflection in itinere, to see that there are how to say always these connections between languages and between places. The other aspect in my opinion is that we have always, especially in kindergarten this more than the nursery but the nursery you don't contemplate, we have always worked with children asking for self-reflections, self-evaluations i.e. this reflecting on knowledge by children by adults i.e. this process of meta-reflection in my opinion is what is done on average guarantor of what you ask.

What do you think children think learning is?

But I think the children of learning I think I think they think it's not separate from life. I mean just these days I was watching videos where children talk about things. And the cross-cutting aspect is always this that they connect the issues to a broad dimension of the existence of life so it's not learning graphics, learning math, learning language but it's learnings that allow you to have your own perspective on the world. At least I would say that in kindergarten children there is still this planetary perspective of learning. I would put it this way.

Do you think this topic of learning is relevant in your job as a pedagogista?

So much, so much. In my opinion, too, that pedagogical teachers reflect on how children learn is fundamental, it's fundamental because if you don't do that you really remain, as Carla would say, in the little schools, that is, in the little schools that give you information, give you assignments, give you goals. However, in my opinion, that children reflect on how they know, how they do it, where they do it, with whom. This in

my opinion is fundamental, so a kind of epistemology that children have to put in place about learning, in my opinion this is fundamental.

In your daily activities with children, do you sometimes mention or encounter the topic of what learning is, and does this include discussions of the role of other people for one's learning (in particular how we learn from what other people tell us)?

That is, in my opinion, the theme here if I understood the question, is that is to understand the role of the adult, so that we reflect on that, but in my opinion the snapshot is when we reflect on how children learn with each other. That in my opinion is the click because that is the difference in our idea of educational service. That is, I believe that the role of the adult is a role that is contemplated in so many Italian, national, international in my opinion, that teachers reflect on how children learn with each other. It is something that is still on average unheard of.

Prior research has found that children between 4 and 8 years of age differ in how they define learning. Older children define learning as a process, that involves either a source, such as tools (e.g., learning from a book) or from someone in a particular role (e.g., a teacher; parents) or a strategy that allows the acquisition of new knowledge (e.g. "learning means, you know, the teacher tells you something and you learn"; or "Looking at the others' drawings, I thought I had become older, I took the marker, it became a nice thing, I learned how to draw properly"). In contrast, younger children are more likely to define learning as a content (e.g. "it means learning to read and to write properly") or children simply to use the word "learn" or "learning" to define learning (e.g. "learning means you can, you have to learn").

Based on your experience, how could we (researchers) best explore what children think about learning?

I mean in my opinion we should on the one hand ask very precise questions, not contingent by studies i.e. I remember when you and I talked the first time you told me that some of the questions that you were asking were let's say predisposed i.e. you didn't have to be in those questions there am I wrong? There was a grid here in my opinion the grid on this issue is a grid that needs to be changed i.e. in the sense that those times we talked to the children about learning we saw that some of the initial questions were appropriate some were a bit trivial some needed to be changed. So this is in my opinion the first thing being that the questions that you ask, as it were, are, qualify then the discussion among the children the argumentation among the children in my opinion there should not be a closed grid. The other thing is that in my opinion it is very important to make interpretations not only on verbal conversations but to infer things from the actions, that is let's take an example: clay, children are working with clay on a project, for building a bridge, let's take the most common example, in my opinion they while they are working they do things, they say things, that you can infer their idea of learning. So in my opinion stopping at just a few questions from a verbal grid for kindergarten children can be reductive on average.

What, in your opinion, could significantly influence what children think learning is?

The idea of school. Yes also why? Working, working with many, with many realities, as we always say that is, it is not that the children of Reggio Emilia are different from the children of Catania or the children of Pordenone or the children of Latin America. And let's say that there are cultural conditions, okay, but with respect to their growth in my opinion it counts a lot on how you set the school, that is, the idea of learning is not unrelated to the idea of school from the role of the adult, from the

organization, this influences because anyway in relation to some conditions they have the possibility to do, or not to do, to say or not to say some things.

Do you think children's thinking about learning undergoes significant change based on different ages, from the last grades of preschool to the first grades of primary school? On different pedagogical approaches?

Absolutely. I am convinced that we have to have a broad theoretical perspective, that is, adults should not, I also said this at the university, that is, adults should not say we studied Montessori, we studied Malaguzzi. That is, the cultural field must be broad. I am convinced that the most interesting theory that is more democratic, more educated, more respectful, is always the theory of social constructivism, I think so.

In our study, we found some differences related to children's age and to particular pedagogical approaches. Based on the children's ages, we noticed that:

- ***Younger children are more likely to define learning as a content (e.g., numbers, letters, skills); in contrast, older children are more likely to define learning as a process (e.g., doing what teachers say).***
- ***Younger children are more likely to provide examples of learned content that refers to skills (e.g., to make a watch with different materials); in contrast, older children are more likely to provide subjects as examples of learned content (e.g., English, numbers, letters).***
- ***Younger children are more likely to mention an informal context and informal help for their learning (e.g., family at home) in contrast with older children who are more likely to mention a formal context (e.g., teachers at school)***

What is your opinion about that?

Eh yes I have the opinion. No, in my opinion this is not the children's fault or responsibility. In my opinion these are those how can you say those, those clichés, that current thinking that at some point starts to declare to children that you learn in school. Instead, young children still have that freedom to credit the world with being a place of learning. So. But that's not up to the children, though, it's up to the context, it's up to us, the adults, the school that often emphasizes it "here you come to learn." So it's not that, it's not their responsibility, it's our, our culture that continues, this doesn't surprise me, I hoped it wouldn't, but it doesn't surprise me, it continues at some point in life, to separate the place of learning and the place of sociality.

Based on the schools' approaches, we noticed that:

- ***When asked what learning means, almost 20% of the children interviewed spontaneously provided a definition invoking a learning purpose. Children attending or who had attended PIO VI or PIO X preschools or who did not attend any preschool at all are more likely to refer to the improvement of their skills, with a close-in-time benefit, such as "Learning for sport [Learn for sport]," "To study [For studying]." Children attending or who had attended Agora are more likely to give answers that refer to adult life or to becoming an adult, gaining benefits at some future time, such as "For me learning is learning new things so as adults we know a lot of things [For me learning is learning new things, so as adults we know a lot of things]***

What is your opinion about that?

In my opinion here it affects, here it affects a little bit the role of adults. I mean I then unfortunately here you know I'm, I'm, I know what we're talking about, I mean I know the teachers in Agora and they in my opinion take a little bit of these risks actually, to be functional in growth. I mean they have this concept a lot. This yes, this I kind of

regret. I regret it in the sense that in this the adults, the teachers, can play a little bit more neutral part from this point of view and also in the questions they ask the children. So here actually in my opinion it would have been very interesting to do an analysis not only of the children's answers but also of the adults' questions. But this is another research though, this is another research. The other thing I think is that children, let's say who live situations of complexity, sometimes have a broader view of learning. That is, children who live in sometimes very high socioeconomic conditions may have responses that are more functional, but this is a totally personal thought, that is so maybe even very partial, very wrong, but in my opinion the research could have kept inside also a let's say sociological analysis of the children of the types of children that were there: cultures, backgrounds, the home, the places where they live, what they do in their free time, like these are indicators. Fortunately, however, you stopped there because at least we have a more neutral analysis.

- ***When asked who helped and supported them in learning, children attending or who had attended PIO VI or PIO X preschools or who did not attend any preschool at all are more likely to mention learning on an individual basis. In contrast, children attending or who had attended Agora are more likely to mention their schoolmates or friends in learning. What is your opinion about that?***

And here in my opinion actually both are values. To me it's good that in both cases adults are not mentioned but your, your resource is mentioned. So the moment one says I learn by myself it means that you can recognize potential, the moment they say they learned with friends this to me is fundamental, it remains the recognition that friends, other children are fundamental resources. The fact that they in both cases did not say the adult makes me say that we are both two smart schools.

In this study, we also investigated which strategy children think someone should use to learn information that is easy, hard, or impossible to learn on one's own; and whether they rely on information provided by adults or by other people in order to acquire new knowledge. With regard to the different types of information, we noticed that:

- ***For information that is easy to learn on one's own (e.g., How could someone learn that rocks sink in the water, but leaves float?), children are more likely to repeat the question or to provide their own explanation;***
- ***For information that is hard to learn on one's own (e.g., How could someone learn the names of colors?), children are more likely to mention direct experience;***
- ***For information that is impossible to learn on one's own (e.g., How could someone learn that the Earth is round?), children are more likely to mention artifacts or information provided by other people as a reliable source for acquiring new knowledge.***

What is your opinion about that?

And I explain, no, I explain that they more than us recognize that they are not self-referential. I love them too much children because they have this ability not to close themselves off, I mean to breathe the idea that you always need somebody and that's why I think I go back there, socio constructivism is a beautiful theory. Because socio constructivism ultimately tells you what? It tells you you by yourself can do almost nothing, you can do a little piece but if at some point you don't meet the community in the different forms that you said, advice, opinions, evidence, I mean, you don't do anything. So to me this is a demonstration that children think that learning is absolutely not in the head of the individual man alone. And I am so happy about that because it

gives me the idea that then schools, services, schools and services have a future. Why does one say why do parents have to send children to preschool, even daycare? The fees the problems the inconvenience of transportation in the morning? That is the difference, that is the difference.

Regarding the role of information provided by other people, we noticed that preschool children attending Agora are significantly more likely than the other three groups of children to mention other people as a source of knowledge. What is your opinion about that?

According to me it's not that you lose, I don't know if you lose, there you would have to do a deeper analysis. I mean I of primary I don't have any experience it gives me the idea that primary for the characteristics that it has, it's very, I mean at a certain point it goes very focused on the things that there are to be done on the programs i.e. here teachers also have a responsibility, a more institutionally determined duty. So they can afford, they can afford to lose more time in the sense that researching the sources makes us lose more time. Maybe in elementary school sometimes you need to take a more direct more linear path however I think, no I think source research children always contemplate it so even here I credit it more, I charge it more to the idea of school.

Yes I think it can be a little bit that, it can be a little bit that, however now maybe when you confront with the teacher, maybe she can give you some key insights as well. Let's say that our school, that is the municipal preschool, has always worked a lot on this idea of research. That is, so research is also the research that children do It is not only the research of adults. That is, children researching to build a field of knowledge for themselves. Maybe this at the IMF school being, I give an example, even the adults are less, you don't have the atelierista, that is I want to imagine that there are also

conditions, that is when we say that our educational project has sine qua non organizational conditions, without which it would not be what it is, I am convinced of that. There is I trust you that you can do a part with me absolutely yes, it is so for me yes.

What is your opinion about the topic of this study? Do you have any comments about it?

No, I think this topic is very good so very important very useful very current. I think it would be good when this research is concluded to make a finding and create an event about it.

Anna Zappia, Teacher, Pio VI Preschool

The main goal of this research project is to explore what children think learning is and whether 4-, and 5-years old children exposed to different pedagogical and educational experiences in preschool develop different theories about learning and, if they do, whether these differences persist when children subsequently attend primary school. What do you hope children in your class/school learn about learning?

What about learning that is, what we give to babies? So a theoretical thing? And let's say that the expectations are that they still learn to handle everything that they are told and, not indoctrinated because they are not doctrines, however everything that is fed to them. That for them it's really an understanding that what they are told, at least grasping what they are most interested in, and yes in short more or less that. The fact that they can also select the things that maybe interest them the most, because anyway so they don't really take everything that is given to them, they mostly take what is most their centers of interest. Over the years I've noticed this thing here, that there are some things that just graze them on one side and don't really fit them when one thing doesn't interest them. And so it's really to teach at least a method, something like that so more that.

Do you do anything in your classroom helps to give them opportunities to learn about learning?

Ni, no in the very specific sense as a theory, as a theory I have to tell the truth I mean as a theory I have never taken it into consideration, because for me being with the babies really means to teach them something, just in the real term of the word "teaching" just to give them notions. Then I come back to tell you, anyway they learn what they like best, what they like best for example I give you the example of this year of the babies, it's a very small section, reduced in number this year, so here already the

number gives you the possibility almost to work a little bit better because you can see the different abilities of each child, so just there you differentiate by learning mode. I mean so though as a theory just not no.

Do you think this topic of learning is relevant in your job as a teacher?

Yes because anyway, yes the basis of everything is always that that is learning so. Only, here I struggle to understand how you can explain such a theory to children, here. Maybe it's my, it's my limitation, but yes in short I think it's a useful thing to be able to.

Prior research has found that children between 4 and 8 years of age differ in how they define learning. Older children define learning as a process, that involves either a source, such as tools (e.g., learning from a book) or from someone in a particular role (e.g., a teacher; parents) or a strategy that allows the acquisition of new knowledge (e.g. "learning means, you know, the teacher tells you something and you learn"; or "Looking at the others' drawings, I thought I had become older, I took the marker, it became a nice thing, I learned how to draw properly"). In contrast, younger children are more likely to define learning as a content (e.g. "it means learning to read and to write properly") or children simply to use the word "learn" or "learning" to define learning (e.g. "learning means you can, you have to learn").

Based on your experience, how could we (researchers) best explore what children think about learning?

Yeah, no whatever. With children investigating is very easy, in the sense that they are spontaneous anyway, so anything they are asked they use their spontaneity and it comes out of every, the world comes out. They certainly have their theories, however, they are very concrete. There, at that age there, while you already see the difference in elementary school there is more of a theory, learning use books, teacher teaching me

something. In their age you have to be practical, even us when we do, in fact everything we do follows an explanation but then you need a concrete thing, so anyway we have to do concrete. So yes, you would still have to find something concrete to be able to make them understand and get to what learning really is on a theoretical level. Because theory with the little ones in my opinion is much harder, I mean they have their own ideas because anyway from them comes out an inexhaustible source of ideas, quotes of all kinds. Maybe here we for example in the Morning Assembly is an inexhaustible source of stuff that comes out, absurd even however beautiful theories also come out. It is the most significant moment here where you can grasp theory, you can grasp, there it is just the moment of theory where everything comes out, the Assembly. So the comparison with others as well, because the single child struggles more and when there are many of us in the group the different theories really come out, "but no, but maybe in my opinion it's like this." So significant and important theories might emerge in the group.

What, in your opinion, could significantly influence what children think learning is?

Then the biggest influence they have is mostly from what is done in school, so much. I realize that in their dialogues always comes up something that was said or done in school, or said by the friend or however even the teachers, that maybe at a certain time. So they are easily in quotes pass me the term influenced by what they hear in school, because anyway they experience it as a place where I learn, they have that, in my opinion, they perceive it as early as four or five years old, that they are here because I learn. And so the biggest influence they have it just from the school system so the teacher, the teacher, the friends. It's that in short, in the end it's all about what happens here, basically. From my experience.

Do you think children's thinking about learning undergoes significant change based on different ages, from the last grades of preschool to the first grades of primary school? On different pedagogical approaches?

Depending on the method, the educational method, the method of what you do here, and how you do it, is really the method because every school has its own method. So it varies, it varies so much, it depends so much on the school, where the child is, I mean. In fact in my opinion even between us and Agora there is difference, differences will have emerged because it is really different the method we use so there are really differences that have come out.

And how do you think the method is different, if you can tell me?

Yes yes, no, I tell you for my knowledge in short. The method that we use is more, it's really a accompany them in the, we, I'll give you a practical example: our method at the beginning of the year, you choose an integrating background and then you choose a theme, this year it's the territory, then each section according to the children, the age they have, this theme is developed. And yet you are the one who accompanies them, I mean it starts from us the, how do you say, the proposal here. And then it develops as we go along, anyway looking for their interests, in the sense based on their interests then it goes to develop. But it's us who propose anyway, in the municipal instead I know it's different. I used to work in another school that used a slightly more communal method. So you follow the child's instinct, so today you will talk about one topic, in a week you will finish that topic, you will talk about another topic because you mostly follow where the child takes you. I mean I remember, when I was working in the other school, maybe we would go from pole to pole as a type of work in short. And we

instead here just follow a topic and carry it on anyway, and yes, we work on it all year long, but still following the interests of the children. For example we went to the city, then the square, we have, we are working on the square. We saw the square, we saw the fountain, so we went to the Victory Square, we saw various monuments, now we will dwell on these things here. However, we are the ones who accompany them, here ours is an accompanying just. It's a little bit different, maybe.

I step out of the interview for a moment: is the Assembly also different? this moment of the Assembly I mean, because it has a somewhat different function perhaps?

In my opinion, the Assembly maybe is something like that because anyway in the Assembly so many topics come out, beyond the topic you are dealing with, there it comes out of each ie. And there just the personality of each child emerges and different topics emerge, that's it, it's never the same topic. In the Assembly, no, it comes out of every, so I think it's very similar at the Assembly level, it doesn't change.

And more on the level of work in the sections?

Eh yes and then the work that is then done more or less in the various sections or however even the method, but the Assembly no, I think it's very similar, because it remains something where you just give the child a way to come out and so, I tell you, there you don't talk about the topic territory but you talk to him, it depends on the day, it depends on what was being, that is, many, many good things come out.

In our study, we found some differences related to children's age and to particular pedagogical approaches. Based on the children's ages, we noticed that:

- ***Younger children are more likely to define learning as a content (e.g., numbers, letters, skills); in contrast, older children are more likely to define learning as a process (e.g., doing what teachers say).***
- ***Younger children are more likely to provide examples of learned content that refers to skills (e.g., to make a watch with different materials); in contrast, older children are more likely to provide subjects as examples of learned content (e.g., English, numbers, letters).***
- ***Younger children are more likely to mention an informal context and informal help for their learning (e.g., family at home) in contrast with older children who are more likely to mention a formal context (e.g., teachers at school)***

What is your opinion about that?

Eh no, no I, that's what I told you before. In the sense that in school, in kindergarten they need practice, something concrete. He told you "the clock is made with many different pieces," I mean, so I concretely learn, but I do, I do concretely what I am learning. And this is also our method, we do a lot on the concrete, unlike the communal, which is much more aerial the thing, we don't, we give the children concrete things to develop, to be able to complete. And they are like that I mean, the child is like that, I mean in my opinion theory is a concept that begins to belong to him already around the age of six, when he is in elementary school in fact he tells you "in school I learn because I have the books, because the teachers." It's already more concrete and more realistic. In young children there is this difference "I learn though, because to make this object I used so many things." There is always the part that I have to touch, it has to be tangible what you are telling me. And so it always goes, what you explain, it has to be contrasted with what I then do. That is, I explain it to you but then I do it to you as well.

And so the two always go in correlation unlike precisely the primary which already starts to develop a more theoretical concept of what is learning, of what happens to me.

Of course, and this difference with respect to the formal and informal context, that is family versus school in your opinion how do you explain it?

Eh but because here, I at least for what I think, is that anyway in preschool there is still a very strong bond with mom, dad, grandparents. It's still very visceral that relationship there so "mommy told me," and what mommy says is sacrosanct for children of this age and the teacher has a fundamental role also, but the family still has a very strong, ingrained role at this age. There is still that, just, that really symbiotic relationship with mom. In elementary school it already starts a little bit to unhinge that relationship, it starts a little bit to decentralize so you give maybe more importance at that point to the school, to the teacher, to the formal thing more than to mom, dad. And you distinguish the two things, they start to become two separate, distinct things, because now I realize even with children when sometimes you tell them one thing and maybe mom told them the same theory but in another way, in short, "my mom didn't tell me this," so he points out to you that his mom told him in another way. It's still a strong role, the parent, at this age. Then in the four, five years, I come back to tell you, a little bit more of in short of stronger positions the teacher takes it, but mom and dad are the mom and dad, they are the ones who always tell the truth. I mean it's inescapable what mom tells you can't be countered. But it's a matter just in my opinion of age and still very strong relationship with mom. That is. Let's say that especially in childhood, the role of the family, mom, dad have a really fundamental role because why. However, there are some families that stimulate children a lot and it shows. Just I find it in the daily life, others who get less stimulation, you find it. There is little to say. Here that

especially in childhood is a very fundamental role external stimuli. Of course we accompany them, we educate them. It should be a mutual thing generally accompany them here so accompany them. But sometimes you are not even accompanied that well, that yes, it is very true, because family stimuli are fundamental in this age play a quite strong role. And as Paola said precisely, if there is a family that gives a lot of stimulation, you receive a lot also, you notice it. I have children who really say stuff, nonsense that you don't expect from a four-year-old. But because I know there is a family behind it that is a constant stimulus, that's it. I mean, family plays a key role at this age.

Based on the schools' approaches, we noticed that:

- ***When asked what learning means, almost 20% of the children interviewed spontaneously provided a definition invoking a learning purpose. Children attending or who had attended PIO VI or PIO X preschools or who did not attend any preschool at all are more likely to refer to the improvement of their skills, with a close-in-time benefit, such as "Learning for sport [Learn for sport]," "To study [For studying]." Children attending or who had attended Agora are more likely to give answers that refer to adult life or to becoming an adult, gaining benefits at some future time, such as "For me learning is learning new things so as adults we know a lot of things [For me learning is learning new things, so as adults we know a lot of things]***

What is your opinion about that?

But, I come back to say, here the talk of different methods. In the sense that precisely we, our method is more concrete so in their theories comes out this, the fact that "I am skilled in sports" so practical things, learning, learning anyway practical things. And instead the Agora kids that they are a little bit more, the communal ones are a little bit

more "theories, theories, theories, theories" and so they are used to thinking a lot about theories, you know, what is a little bit more philosophical as a thing. We are a little more practical, I mean we think that learning at this age is much more essential. Show them what I'm explaining, wait till I show you in practice, too. So I think the difference is that, the fact that we are different in the way we approach children. And a different approach just in the method, in imparting what we say. In the communes yes, more futuristic, it's all much more in the air. It's true, I worked with that method there, I mean, I worked in a private school that we followed a lot however the municipal because my school had conventions with the municipality so it was a very different method. And here I noticed, I noticed the difference that is just a thing of making concrete what you do here. I think on a communicative level you learn a lot with this way of doing things. And then there are the various theories that we will not discuss them, they are not debatable, it's not up to us.

- ***When asked who helped and supported them in learning, children attending or who had attended PIO VI or PIO X preschools or who did not attend any preschool at all are more likely to mention learning on an individual basis. In contrast, children attending or who had attended Agora are more likely to mention their schoolmates or friends in learning. What is your opinion about that?***

Eh this yes, it depends on who you interviewed, in the sense that, then, there are some children, they are a little bit more protagonist and a little bit more self-centered. So anyway I think it's more like that. It's no longer a question of method, it's a question of personality, in my opinion. Because the babies, especially the strong ones, the ones who have a character and who really have their own in quotes "identity" already anyway, are the ones who feel that they are almost protagonists of what happens to

them and not actors. So because protagonists of what you ask, I answer based on. And so I don't know, here it kind of throws me off because the way I see it I think it's a question of character and not methodology. I think it's just the children are, there are those who are a little bit more protagonists and those who see in others something more and so they tell you "I learned it because others told me, because I did it together with others." This I don't know, I'm a little puzzled by this.

In this study, we also investigated which strategy children think someone should use to learn information that is easy, hard, or impossible to learn on one's own; and whether they rely on information provided by adults or by other people in order to acquire new knowledge. With regard to the different types of information, we noticed that:

- ***For information that is easy to learn on one's own (e.g., How could someone learn that rocks sink in the water, but leaves float?), children are more likely to repeat the question or to provide their own explanation;***
- ***For information that is hard to learn on one's own (e.g., How could someone learn the names of colors?), children are more likely to mention direct experience;***
- ***For information that is impossible to learn on one's own (e.g., How could someone learn that the Earth is round?), children are more likely to mention artifacts or information provided by other people as a reliable source for acquiring new knowledge.***

What is your opinion about that?

And so, whatever, the first one, like the leaves and the stones, babies get to these things very easily because you do them, they are concrete. It always comes back to the concrete thing. I learn because I see it and because I did it because certainly at the sea I

threw the rock and it went down so anyway on concreteness they are very good at it. And the second one was about the difficult things, the colors in short. Yes there you see our theory, that is in the sense that concreteness is what they anyway in the end needs something, someone to stimulate them to do this thing and so anyway then you make it concrete "it's done the color, now let's make a painting with colors, with red let's do". So always he refers to who ga them teachers, who pitched them to him and the last one instead I think it's more the elementary school ones who gave those answers, some because they just associate the harder things in the news with the higher level things but. Yeah, I mean.

Regarding the role of information provided by other people, we noticed that preschool children attending Agora are significantly more likely than the other three groups of children to mention other people as a source of knowledge.

What is your opinion about that?

Here yes, we also do that a lot, we always try to look for an explanation in them. I mean they, from coming up with something from them to then get to explain it to them, however it starts with I ask you let's see what comes out of you, so from our question we always try to. And then they still trudge, they climb, but in their own way they take out a theory of their own always. So yes, it's always the kind of method, which is different, it's just different our method from the communal method. And at that point also the formation of the child because it is obvious that it is just different.

On this aspect, it occurs to me that the recurring theme in our talk is this aspect: the principle of concreteness.

Of course, yes in the concrete in fact. It is always something yes they told me about it, but I don't even know what it is, maybe there is, so I experience it more in the

concrete. I saw it because maybe I saw the globe. There, that we did, we brought the globe to school and so yes, it's always lived. I saw it, I saw a movie and we always try to make it concrete. We start with the theories, their theories, however we try to get out of them what comes out as we go along and then give it the realistic, what it really is.

What is your opinion about the topic of this study? Do you have any comments about it?

No no, I was pleased. And then I would like then when you did everything to understand the differences with the others, with the municipal school in short. Just in the details here, our differences, and how they emerge because in my opinion they emerged, I saw that differences emerged because the method is different, there is little to say. So they also emerge in the dialogues of the children, in the interviews you did, the differences emerged. There is little to say.

Monica Codeluppi, Teacher, G. Leopardi Primary School

The main goal of this research project is to explore what children think learning is and whether 4-, and 5-years old children exposed to different pedagogical and educational experiences in preschool develop different theories about learning and, if they do, whether these differences persist when children subsequently attend primary school. What do you hope children in your class/school learn about learning?

So, first of all that learning be a curiosity, there be something that excites them and interests them and makes them curious. So that learning is not something that once they learn a notion or a concept, that once they learn it stays there, but that it is always a starting point to then do some more therefore learning, that is, if they stayed with the idea that learning is for a lifetime and that any, any time, is right to learn some thing, it would already be a success, I mean, from my point of view.

Do you do anything in your classroom helps to give them opportunities to learn about learning?

And yes, I mean more or less all teachers are into the metacognition discourse, anyway there are. So some do it in a more structured way. Some at the time had followed the proposals of "I learn this way" various possibilities. The Covid era allowed everybody to broaden their horizons, because we followed webinars of all kinds, of all kinds, and so even those who before Covid were very much into very traditional teaching, obviously distance learning rather than a new way of assessing kids in the Covid era, made sure that there was a lot of interest on something different. Plus we have a new assessment system since last year and our new assessment system compulsorily leads us to assess the process of the children and not so much the response to that goal related to the discipline so it's a process that we are putting in place quite a

few, quite a few people. I don't deny that some are still quite traditional however the steps are being made.

What do you think children think learning is?

Specifically, no. The question so specifically I never asked it and their learning in my opinion they split it a little bit between what are the disciplines. Specifically I have a 5th so I mean they are very structured by those so from that so they learn. ,What they appreciate when you do activities other than the traditional lesson is the realization that you also learn from friends from the group from putting together. But that's a thought that's not automatic in the children just as it's not automatic that one teacher can also teach the other teacher's subject because anyway in some way and they've entered into a pattern so that's the way school is. And the great thing about working in teams within the school is just to show that math, geography, geometry are all a continuum that there are... What we're focusing on a lot is to understand that there's not just the book, that there's not just the teacher, but that in the comparison and in the teamwork the teamwork that however they succeed, they can get some very big results. Usually I'm speaking as a teacher at this time, but within my class the idea is always ask, compare with friends and if you fail "here is the teacher who gives you a hand anyway." Try to see if you can find a solution among yourselves, though. But yes, unhinging what is the traditional concept even of families, of where you learn, you learn in school.

Do you think this topic of learning is relevant in your job as a teacher?

In my opinion yes, just for this reason, that is why. Because the risk is that teachers, we teachers, increase this thinking that in my opinion the children have that what you learn in school and outside you have fun, outside you play sports, outside you do other

things but it's not. And they fail in my opinion always the children to have this this idea that it's all learning.

In your daily activities with children, do you sometimes mention or encounter the topic of what learning is, and does this include discussions of the role of other people for one's learning (in particular how we learn from what other people tell us)?

Yes many teachers very often we also invite outside people anyway because precisely own testimony I think native English speakers with their traditions rather than the beekeeper with his own way of working so they are all experiences that actually help a lot in learning and the also engage children and families on their testimonies and then make synthesis in school afterwards of what the children bring precisely as family testimonies. The foreign family that has different customs and traditions that comes tells, it's all learning, although for the children this is a light moment of school, then we know that that remains and the children, however they don't always consider that moment the moment of learning so on that often we have to intervene in short we have to make them do just the reflection "look we do an activity, it's an important activity" however instinctively it would be we don't do math for an hour.

Prior research has found that children between 4 and 8 years of age differ in how they define learning. Older children define learning as a process, that involves either a source, such as tools (e.g., learning from a book) or from someone in a particular role (e.g., a teacher; parents) or a strategy that allows the acquisition of new knowledge (e.g. "learning means, you know, the teacher tells you something and you learn"; or "Looking at the others' drawings, I thought I had become older, I took the marker, it became a nice thing, I learned how to draw properly"). In contrast, younger children are more likely to define learning as a content (e.g. "it means

learning to read and to write properly") or children simply to use the word "learn" or "learning" to define learning (e.g. "learning means you can, you have to learn").

Based on your experience, how could we (researchers) best explore what children think about learning?

Eh on the on the interview not everybody actually has the tools to be able to actually expose it or at least actually explain it. I'm also talking about the kids a little bit older, it's a difficult concept what is learning, in my opinion it's the observing in the field could be interesting in short, and that work that you usually do after you develop a small project in a team, that reflection that you always do on the after. How did it work what do you have extra what, what would you correct, what would you revise and what did you learn. So that is within a moment like that of reflection of sharing an activity done together, they probably have more tools to be able to give you more precise directions. Although in my opinion even in a traditional lecture moment in short because then there are also those and the asking in the context in my opinion they can, they can give you some things tell you some interesting things.

What, in your opinion, could significantly influence what children think learning is?

Meanwhile emotionally, I mean how they are, I mean how they are, how they experience that moment there, because learning for them is interesting and they like it if they like it, if they like the topic, but if they like the context, also I mean there are kids who, I think when they go to middle school, I mean I left kids who maybe good in math, doing math, I find that the first year they are very good and the second year not at all, they go into crisis, and they are good so: the teachers, the context and the physical development, because sometimes the physical state of the children also affects, and

certainly because they learn, the environment is key, the environment and the approach of the teachers. Then the difficulties are overcome but if the approach is not conducive to the child because then the class of 25 maybe with some, all the teachers with someone great love, someone else stand on theirs, so. The beauty of having so many teachers is that you always find the one you relate to the best anyway. But yes the peaceful environment and motivating them absolutely essential for there to be constructive learning.

Do you think children's thinking about learning undergoes significant change based on different ages, from the last grades of preschool to the first grades of primary school? On different pedagogical approaches?

Yes, yes, it definitely changes. And the risk is just that as they grow up, they connect it more and more to the school subjects and the book and what the teacher says. So it's our job to continue to show them that concretely you learn, that we can do workshops, we can get involved, work together, because if not, the risk is just that initially very concrete, so you work together, you do the construction, the stories all many good things, then instead you write in the notebook and read from the book so. They have that one there and more and more are coming to have it. Now in these last years the internet is still a, is a way of, because they are aware that through the internet they learn. For better or for worse they are still not very clear what is right and what is not right to rely on. But the internet is becoming very very very and is coming overbearingly into their way of learning, and they are aware of the internet. And they use it a lot and they know a lot more things, from the tutorials they see eh, rather than from other sources. So we have to start keeping those that chapter in there that is important as well. Exactly that one they have it, they have it really a lot and it has to be mediated it has to be

mediated and it has to be worked on it is a fact of life. Exactly right however we need to keep it in in all our considerations because we can't do without it.

In our study, we found some differences related to children's age and to particular pedagogical approaches. Based on the children's ages, we noticed that:

- ***Younger children are more likely to define learning as a content (e.g., numbers, letters, skills); in contrast, older children are more likely to define learning as a process (e.g., doing what teachers say).***
- ***Younger children are more likely to provide examples of learned content that refers to skills (e.g., to make a watch with different materials); in contrast, older children are more likely to provide subjects as examples of learned content (e.g., English, numbers, letters).***
- ***Younger children are more likely to mention an informal context and informal help for their learning (e.g., family at home) in contrast with older children who are more likely to mention a formal context (e.g., teachers at school)***

What is your opinion about that?

I confirm, I confirm it comes back, it all comes back because yes actually what we see, I mean when the little ones come in they tell us this I know, this he taught me, this I learned from grandpa, at school, from my sister, I mean they bring those sources of learning. Later instead I read it in the book or however I saw it, I saw the tutorial or however to me they say what they learned from the other teacher and vice versa. I mean we the teachers have 80% for the children, that's it. After that they learn volleyball because there is the volleyball instructor, that is everything, they learn everything, because there is someone who says, I hardly learn, I am learning volleyball because I have a good group I work with. It's because the instructor is teaching us that. So even

outside anyway of the school there is always the reference of a person teaching them so it is difficult to dismantle a little bit this thinking, this thinking them.

What amazed me a bit is that it only takes a few months in elementary school that completely changes this aspect.

Yeah and now you didn't, followed in regular time schools no? Only with us in full-time school and already we are a bit of an exception because anyway we stay in school, in the cafeteria, because anyway we have a lot of time where the children play with each other. So if there is not in a full-time school this perception it means that it is really in short very ingrained because the full-time school allows to confront each other so much, to work differently. Instead if even in full-time school they have this idea that you have encountered we need to think about it a little bit. Because yes we with the fact that we stay 8 hours in school we also have the interschool we call it are those moments that outside the disciplines, however they experience them as moments of play, as moments of leisure, they don't experience them as moments of learning. When on the other hand using all the board games, using materials also that we have available, for us that is a really constructive and educational moment but they don't perceive it as an educational and learning moment, it is their game.

I thought you were mentioning earlier, perhaps, also the expectation of parents, of families, right?

Ah well, definitely. Usually they come to the presentation, when we introduce to the school, the children who say things like "you know then I come to the big school, you know then I come to learn. My brother told me there is a lot of learning here." So they come already before they even start school, usually we the first week of school we tend not to work obviously on the notebooks, but the reception. And every time we start with

a first one, at least one child who tells us "but we did not however write today, we did not learn to read today." So the expectations are there, they are there before we even arrive in short and then yes, parents stop us "how is it going, how is he learning, if he is not learning what can I do to help." So the purpose is just to bring them to read and write for families as well and they are good for families if they learn to read, they are in difficulty if they don't learn to read. And the difficulty we sometimes have with certain parents is just to say let's give the children time. And if we have to be the teachers to say to the parents go slow. Each child has its own time we and we wait for them. But for some parents, though, it is a difficult transition to elementary school, because still they feel that they too are invested with a challenging task.

Based on the schools' approaches, we noticed that:

- ***When asked what learning means, almost 20% of the children interviewed spontaneously provided a definition invoking a learning purpose. Children attending or who had attended PIO VI or PIO X preschools or who did not attend any preschool at all are more likely to refer to the improvement of their skills, with a close-in-time benefit, such as "Learning for sport [Learn for sport]," "To study [For studying]." Children attending or who had attended Agora are more likely to give answers that refer to adult life or to becoming an adult, gaining benefits at some future time, such as "For me learning is learning new things so as adults we know a lot of things [For me learning is learning new things, so as adults we know a lot of things]***

What is your opinion about that?

In my opinion, probably with certain babies you have certain conversations. That is, where babies are used to reasoning about what learning is, what it's for, how we do it. That is, there has to be a whole habit of reasoning about it. It may be that in certain

schools that are organized with a different methodology, a different approach anyway, there is actually a possibility that the children come to different thoughts anyway. The fact that many in one school or in short someone in one school gave a certain kind of response and in another it's different, makes me think that the kind of work that is done with these children is both different. And going back to the parents, also the presence of the parents and the motivation of the parents to learn, rather than in a situation where a parent is not used to doing big reasoning with the children so you live in the immediate, so I learn how to do the constructions because I need that so later afterwards I play and have fun. In other contexts, parents who are more used to having a dialogue with their children, considering them to be big in quotes, that is, thinking that anyway you can have certain talks because they are able to follow so you start early to motivate them to say that learning is not something you need today but you will need it later. This is elementary school talk anyway. I mean in elementary school it's all a, and there we also put the teachers there in short, forward the more you learn the better, the future will serve you in short. These are all things that teachers actually say. I think not so much preschool teachers say that but for preschool there is really a methodological issue, that is a different way, a different approach to situations, to learning contexts. So I think it makes that much of a difference. In school teachers do elementary school, we put a lot of teachers into it.

- ***When asked who helped and supported them in learning, children attending or who had attended PIO VI or PIO X preschools or who did not attend any preschool at all are more likely to mention learning on an individual basis. In contrast, children attending or who had attended Agora are more likely to mention their schoolmates or friends in learning. What is your opinion about that?***

I think it's a methodological problem, just of approach and activity. I, my experience just like that, even with the children we see that come from different schools, you can see, you can see in short a little bit. Then that doesn't make them more advanced than each other, they all have positive characteristics however being used to working together is more of municipal schools than parochial schools or in any case state schools. That there that is just we see it in short, we notice when the children arrive that some are looking for friends anyway, looking around, sharing everything and others instead in their place, doing their own thing alone. We are the ones who have to say work with, I mean we are, we are all together, we share. And that one there you can see quite early and I really think it's a problem of proposals and methodology.

And then you see it decline over the years?

After that yes, very little is enough, after that the teacher afterwards gives his imprinting and so after that they change quite quickly. But yes at first you have to do a bit of an assembly work in short, of putting them back together again. And there afterwards takes over instead precisely the methodology that the teachers propose, because afterwards either they continue to work in groups to share and to understand that friends are allies or you find yourself, instead, situations can happen where a more traditional method of working makes everyone have to work for themselves, because everyone has to learn for themselves. In short, we always put ourselves...

In this study, we also investigated which strategy children think someone should use to learn information that is easy, hard, or impossible to learn on one's own; and whether they rely on information provided by adults or by other people in order to acquire new knowledge. With regard to the different types of information, we noticed that:

- ***For information that is easy to learn on one's own (e.g., How could someone learn that rocks sink in the water, but leaves float?), children are more likely to repeat the question or to provide their own explanation;***
- ***For information that is hard to learn on one's own (e.g., How could someone learn the names of colors?), children are more likely to mention direct experience;***
- ***For information that is impossible to learn on one's own (e.g., How could someone learn that the Earth is round?), children are more likely to mention artifacts or information provided by other people as a reliable source for acquiring new knowledge.***

What is your opinion about that?

So, in my opinion, yes, and easy things they give it, they know it, that is, they know it and they have a hard time reasoning about something, easy learning, because it is instinctive for them. I mean in theirs it's "I know" "how come you know?" "Eh I know, I learned it" and so they know. On the somewhat more complicated things actually direct experience and working concretely can help. On the difficult, I think for everybody in short is that thought "I need something that I can't get to have myself directly," so that one there even in school. I mention dinosaurs that are the thing they love the most, they all come in the first grade already with books with dinosaurs, as well as sometimes the children come with the solar system and the stars because they are things they like a lot, but they don't have a way to touch, so they bring so much material of this kind without however maybe having ever gone to an observatory and and having really observed them anyway. So for some things for what are the very difficult things there is a lack of awareness and there is a lack of perhaps the path made that sometimes you can get there even to this knowledge by direct experience. But of course if we are talking about five-,

six-, seven-year-old children, they have not yet had a chance to have certain experiences that are a bit difficult as well as day and night observation. There are things that are done but we do them a little bit later now. Then maybe in certain schools, stimulated by a child's suggestion, they get to do. After that, however, for the babies this becomes the easy one, because what I looked at I learned, I mean it was easy to know so their perception in my opinion depends on the experiences they have had and how much they have become masters of that concept. Because otherwise, that's their transition.

Regarding the role of information provided by other people, we noticed that preschool children attending Agora are significantly more likely than the other three groups of children to mention other people as a source of knowledge. What is your opinion about that?

Definitely in my opinion the two are precisely, the educational approach within the school, because anyway everybody brings information and everybody contributes to learning. And probably a family style anyway more careful to share with the child that that is a learning moment, so "we went, we go to the museum, so the museum gentleman told us do you remember that we have, that we saw?" So the child knows that he learned through even the museum expert rather than the lifeguard at the beach. That is, however, I think it is also really an approach of families on reflection, on sharing, on making present, not making present, conversing with the children about anything. So for the children afterwards it's normal to consider it also witnessing, because if not it's "the teacher what did she say, the teacher the teacher said that, okay since I learned." But it is an important work in my opinion that is done in everyday life, that is, it is a habit that children have to dwell on things that they don't always have, and

if they don't have it, you have to increase it, because anyway yes, objectively everything is learning. So this maybe also serves us that is. It could be our starting point.

What is your opinion about the topic of this study? Do you have any comments about it?

Right, what I just said. I mean in the sense that you risk even as a teacher to stay inside a role i.e. to be kind of caged in. The syllabus and the timing and 1,000 reasons why sometimes you lose sight that actually they can learn so much even outside of what is the traditional math hour. So having the children work by experience and reflecting on "Did you still learn, how did you learn, more or less than if I had written on the blackboard, etc." These are all reflections that actually can be useful. The babies learn very early what we call the teaching contract, that is, they know right away what the teacher expects, that is, they learn it in 15 days of school they have already learned it more or less so. And we see it even after a little while they arrive, they already do things because they know the teacher is going to ask them and that there is something that would be up to us to take them apart every time. So varying the sequence, varying the approach, every time with a different methodology. It is clear that, I mean it can be done, I mean it is done, but not always. But the one of understanding that even if they have two teachers with one teacher they move one way, and with the other teacher they move another way, it doesn't spend a month in school that they already have it, that they already have it figured out. So, this I don't know in kindergarten how you do it, but I think even kindergarten a little bit have, they understand as well as they understand it in the family with one parent rather than the other. So that could be our stimulus, I mean, to make sure that not yes we don't create roles that always go on those tracks and then they don't have possibilities, they don't give so many possibilities for the children to

broaden their horizons. And so if this, like that, would be shared with the teachers, it's a thought ce can do good, I mean, absolutely can do good, because it helps every now and then to go back with your feet on the ground. But if the children think, they come to think that it's only the teacher who teaches, there's something wrong. I mean, the whole world teaches, so we have to be the ones to spur them to look around and find solutions in the environment, other people, friends, classmates, whoever.