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How and when do teachers shift their ways of thinking about learning?

From transmissive teaching to a playful approach to learning and teaching

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To my daughter Emilia and to all the girls and boys who believe that school is not their place

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How and when do teachers shift their ways of thinking about learning?

From transmissive teaching to a playful approach to learning and teaching

Abstract

How and when teachers shift their ways of thinking about learning, moving from a more traditional, transmissive perspective toward a playful approach to learning and teaching is the main research question of this work. Exploring new accesses to learning is a necessary exercise to support the development of didactics and educational offers favoring creativity, collaboration and thinking skills considered as key competences of the XXI century (Resnick, 2017; Zosh et al, 2017; OECD, 2019).

During the school year 2021-2022, two classes from a Reggio Emilia state primary school attended their school time at the Centro Internazionale Malaguzzi as part of the Reggio Emilia municipal project “Scuola diffusa”¹. In particular, besides being assigned a classroom inside the center, children and teachers had the possibility to weekly experiment new ways of learning at scintillae², the research project and physical lab created by Fondazione Reggio Children and The LEGO Foundation.

¹ Scuola diffusa is a project and an approach to education developed by the City of Reggio Emilia. The approach is nurtured by relationships, exchanges among different stakeholders and professionals to research around quality educational contexts, opportunities to learn and participate for children, families, teachers and the territory.

² scintillae is a research project and a physical space based at the Centro Internazionale Loris Malaguzzi in Reggio Emilia, Italy. It has the goal to offer contexts where the expressive potential of play and digital tools generate ideas, connections and new knowledge. The project is based on the assumption that the playful dimension is part of everyday learning and that children actively build, through reciprocity and sharing, a model of the world through play. In the digital age, scintillae represents a learning context characterized by a natural and playful approach to digital technology, where the physical and digital worlds interact, creating unexpected and unusual encounters for learning, designing and building knowledge and images together (www.scintillae.org).

A team composed of teachers, educators³, researchers, atelierista (Vecchi, 2010, p.4), pedagogista (Moss, 2016, p.154) co-designed a set of activities and proposals offering to children the possibility to actively experience playfulness while learning in a non-formal context. Scintillae is organized as a flexible inter- and multidisciplinary environment empowering the physical world with digital tools, making use of natural and artificial materials, interweaving real and virtual experiences. This non-formal learning environment and the multi-professional team of adults constituted a context for children during school time. Children were at the centre of it, activating it through the mutual relationships with peers, adults, materials and tools, and with the space surrounding them.

The research has a qualitative nature and starts from the assumption that teachers should be an active part of the research process, that is conducted with them and not on them. Relying on a socio-constructivist epistemological perspective, I combined the use of participatory action research approach (Sorzio, 2016; Amsteus, 2014; Teram et al., 2005) with pedagogical documentation, in combination with an approach inspired to grounded theory to identify the contents of the interviews' questions (Ghirotto, 2021; Tarozzi, 2016; Charmaz, 2006; Glaser&Strauss, 1967).

The research setting was developed considering the participatory action research approach (Mortari & Ghirotto 2019; Trincherro & Robasto 2019) and combined my participation as researcher and scintillae project's coordinator to the co-design phase, with a direct involvement in supporting children's activities, and the following joint reflection as a multiprofessional team.

Starting from a review of the major scholars who researched the relationship between play and learning, and an introduction to what brought to the construction of a playful approach to learning, I described the approach with the support of some excerpts from the documentation of the work with the two classes. Finally, I reported teachers' reflections on the collaboration. The texts of the interviews were analysed through a coded categorisation including three code groups: *environment/context*, *playful attitude/atmosphere*, *research strategy*; and five more categories, three related to *states of mind*, one for *recurring definitions* and one for *learning as individual and as a group*.

³ In this context educators are education professionals as established by the Italian Law n. 205/2017

The most evident outcome, resulting from direct observations and from the feedback received by the teachers, is a renewed awareness of their own role. For all teachers this collaboration was life changing in terms of professional expectations.

In an effort to balance what they perceived to be their role with their willingness to bring more playfulness into their work with children, teachers were constantly considering what they found intriguing and practical about the suggested approach and how they ought to organise the contents and roles. According to what they shared, the primary elements that they would keep in a revisited playful approach would be the work in small groups valuing peer to peer exchanges, the use of open-ended questions to meet with children's curiosity and creativity, the active listening to increase children's motivation and engagement during classes.

keywords: playfulness, teachers mind shift, documentation, active listening, peer to peer

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After collaborating for some months I interviewed teachers, in order to understand when adults come to the awareness that learning can happen through a playful approach with mutual benefits for children and adults.

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Introduction

The theoretical principle that serves as the foundation for this research is centered in the strong connection between play and learning: they are not to be considered as separate, but deeply connected and essential to each other in order to generate meaningful learning experiences⁴. The research work developed within the *scintillae* project⁵, launched in 2019 by Fondazione Reggio Children-Centro Loris Malaguzzi⁶ and The LEGO Foundation⁷, brought to framing the playful approach to learning that is at the core of this work⁸.

In particular, this research has the goal to answer the question of how and when teachers/educators shift their way of thinking about learning and value a playful approach as a beneficial strategy in the educational relationship between adults and children.

The focus on the role of adults is necessary because they have a key responsibility to guide the educational context in creating the best conditions for children to thrive.

The motivations behind the identification of this topic are to be found, on one side, in the growing international interest on education and the central role it is taking in governmental policies globally, on the other side in personal experiences.

Quality education as a global priority

In 2015, 193 UN Member States signed up the Agenda 2030 for Sustainable Development which identified 17 sustainable development goals, among them SDG4 aims to “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all” (UN General Assembly, 2015).

⁴ See the *butterfly metaphor* in chapter 2

⁵ For a presentation of the research project *scintillae* - play and learning in the digital age see chapter 2

⁶ Fondazione Reggio Children-Centro Loris Malaguzzi was created in 2011 and originates from the educational philosophy developed in Reggio Emilia since the 1960's. It is an Italian non profit organisation with the goal to promote quality education through research and solidarity.

⁷ The LEGO Foundation is a Danish corporate foundation. Its primary goal is to promote learning through play for systemic change around the world, through research and international cooperation actions.

⁸ see chapter 4

In these international contexts, education is mainly intended as the right and competence to learn, from early childhood to lifelong learning in a structured and organised way. Sometimes education and learning are used as synonymous, but education is more related to schooling and formal learning, while learning is a wider concept: it is an ongoing process that occurs throughout life, it is not always formalised but it comes from self-motivation and it is related to the social context (Bruner, 1990). Learning can happen everywhere at any time.

In more recent times, the paper *The state of the global education crisis: a path to recovery* was issued jointly by UNESCO, UNICEF and The World Bank in 2021. It analyses the learning crisis caused by the COVID-19 pandemic and shows that even before 2020 there was a global learning crisis. Despite efforts put in place to achieve the Sustainable Development Goal 4 by 2030, according to the official data, between 2015 and 2019, there was no reduction of global learning poverty, 258 million primary - and secondary - school children and youth were out of school, and children enrolled in schools were learning very little: 53% of all ten-year-old children were unable to read and understand an age-appropriate text. This phenomenon was so massive to request the conceptualization of *Learning poverty*, whose indicators are focused on reading as fundamental competence for learning other subjects and as an easily understood learning measure.

The learning crisis was already distributed unequally as it affected mostly vulnerable children from low income countries (UNESCO et al., 2021).

Education has also been a key topic for the recent UN *Transforming Education Summit* held in September 2022 on the occasion of the Annual UN General Assembly. World leaders together with youth organisations, teachers' associations, civil society, business people and philanthropists gathered to commit themselves to collaborate in order to offer access to quality life-long education, to focus on the role of teachers, to make schools safe and healthy places, to enhance the digital revolution in schools, to urge all Countries to fund education systems for better learning outcomes (UN General Assembly, 2022).

Education and Play are Human Rights

Since the first UN papers regarding childhood were issued, Education and Play have been considered as Human Rights.

The 7th principle of the Declaration of the Rights of the Child, firstly approved by the United Nations on November 20th, 1959, states:

The child is entitled to receive education, which shall be free and compulsory, at least in the elementary stages. He shall be given an education which will promote his general culture and enable him, on a basis of equal opportunity, to develop his abilities, his individual judgement, and his sense of moral and social responsibility, and to become a useful member of society.

The best interests of the child shall be the guiding principle of those responsible for his education and guidance; that responsibility lies in the first place with his parents.

The child shall have full opportunity for play and recreation, which should be directed to the same purposes as education; society and the public authorities shall endeavour to promote the enjoyment of this right (UN General Assembly, 1959).

In this Declaration's principle, education and play are recognized as Human Rights, and play as a right, is indicated here to have the same purpose of education.

Thirty years later, the Declaration was followed by the Convention on the Rights of the Child, ratified by the UN General Assembly in 1989. In the Convention, Article 28 -paragraph 1 - recognizes the right to education: "States Parties recognize the right of the child to education, and with a view to achieving this right progressively and on the basis of equal opportunity ..." and article 31 - paragraph 1 - defines the right to play "States Parties recognize the right of the child to rest and leisure, to engage in play and recreational activities appropriate to the age of the child and to participate freely in cultural life and the arts" (UN General assembly, 1989).

The convention describes the right to education and the right to play in two different articles, on one side confirming both of them as essential human rights but operating a separation that was already present in the Universal Declaration of Human Rights.

The importance of play for the healthy and harmonious growth of children is recognized at the point to make it a human right, but its value is still far from being

acknowledged where children spend most of their time, at school and sometimes even by their families.

My personal experience

The inspiration for this subject also stems from my personal background as a student and as a mother of a young girl.

Taking a leap into the past I still remember the eight-year old me standing beside the teacher's desk struggling to answer her questions about the multiplication tables. My family was about to move to a different area of the town where we lived and they also decided to transfer me to a closer school.

My primary school teacher said that I had to perform well with my new teacher, so that she could be considered a good teacher. Every day I was questioned on the multiplication tables and I wasn't able to answer most of the questions mnemonically, so I was sent back to my desk with a sense of frustration and failure. I cried a lot in that period, at school and at home. The outcome of this daily penance was that I never managed to memorise the multiplication tables: to get the final result of operations, I have always reasoned by subtracting or adding numbers. This has always caused me some troubles at school but particularly gave me the sense that numbers and mathematics in general were to be feared and I tried to avoid them in my whole academic path. If I think about my life at school, I could report so many other moments where adults were keen to humiliate the students they had in front of them. But what strikes me most today is the fact that it was normal, this was how school had to be, a place of sacrifice, suffering and sometimes fear. However, there were some exceptions, in high school, like the professor of Latin and ancient Greek that explained the literature and classics as it was a tale of our days, or the professor of Catholic religion, a theologian and a philosopher, who gave us the only good advice I took with me forever from high school: "You are not garbage bags, don't let people fill you with any nonsense".

Fast forward, in the present, as a mother of a young girl I experienced great embarrassment and a real crisis when my eight years old daughter, in her third year of elementary school, said that she wanted to leave school because she did not like it. When asked what she did not like, she replied that for the 8 hours and half they spent at school from Monday to Friday they only could

leave their seats during breaks, mostly inside the classroom - the school was surrounded by a beautiful park - and that she was tired of coming back home at five to start doing her homework for the following day. She was attending a state school, and she seemed very happy to spend time with her schoolmates, but the pressure on them was really strong. We, as parents, in agreement with other parents who were having the same experience, tried to talk to teachers. We had a meeting with the school principal and vice principal but this resulted in an even stricter interpretation of the role of the school and more homework for children. The focus was more on final results, on good performances, how to achieve them was not so important. It was hard to establish an open dialogue between families and school.

The research

In school today, forty years later, the idea of learning as suffering, as sacrifice, has been maintained. Certainly studying requires effort and commitment, but this should not exclude the idea that learning at school can be enjoyable as described by Seymour Papert when he talks about *hard fun*⁹. And that this could have an effect on children and adults in terms of well-being seems a still distant possibility, sometimes even for those who try to play the role of teacher in an innovative way.

What I tried to do through my research work is to understand if there is a way to revert this trend, working side by side with teachers, both in my role of researcher and coordinator of the scintillae project, between formal and non-formal educational contexts, immersed in a playful approach to learning. The goal was to make visible to teachers how a different way of working could be of some advantages for children and for themselves and, from my side, to observe what could make it easier for them to change their approach to learning and teaching.

In the following chapters, after an excursus among the major scholars who investigated the relationship between play and learning, and an introduction to what brought to the construction of a playful approach to learning, the last three chapters report the way the research

⁹ Papert explains how the expression “hard fun” was born in relation to learning at school: “...Way back in the mid-eighties a first grader gave me a nugget of language that helps. The Gardner Academy (an elementary school in an under-privileged neighbourhood of San Jose, California) was one of the first schools to own enough computers for students to spend significant time with them every day. Their introduction, for all grades, was learning to program, in the computer language Logo, at an appropriate level. A teacher heard one child using these words to describe the computer work: “It’s fun. It’s hard. It’s Logo.” I have no doubt that this kid called the work fun because it was hard rather than in spite of being hard.” (Papert, 2002)

developed in collaboration with some classes of a state primary school based in Reggio Emilia, Italy.

Chapter 1

Why do schools often separate play and learning, and why it is so difficult talking about play at compulsory school?

In the first chapter I introduce some of the main scholars, researchers and thinkers in Western Countries that in the psycho-pedagogical field identified a clear relationship between play and learning and some considerations about the role of play in formal education.

Traditionally in educational systems, especially when we talk about formal education, there is still a clear division between the concepts of play and learning.

Often play is perceived as something non purposeful, out of adult's control, and useless for the curricular content standards.

When adults talk about play they usually think about something that is the opposite of work, study, commitment, seriousness. And while it is hard to define what play is, it seems easy to state what play is not.

To say it with J. Bruner's words:

Who would dare study play? In fact, there have been many ways in which serious men have tried to grasp this antic topic— historical, literary, clinical, introspective, anthropological, sociological, linguistic, ethological and via controlled experimental methods of the behavioural sciences (Bruner et al.,1976)

The relationship between play and learning has been defined in many different ways that changed over time, according to different contexts and functions. There are many variables contributing to determining it.

From the pedagogical point of view, play started to assume an educational meaning in the Nineteenth century.

Friedrich Fröbel

Friedrich Fröbel (1782-1852) was the first, after Rousseau, to organically redefine the image of childhood and to theorize the organization of school. The main aspects of Fröbel educational thinking are the concept of childhood, the organization of kindergarten, and the didactics for early childhood education (Cambi, 2003; Lucentini, 1919).

Fröbel approached human education from both a biological and a spiritual perspective. His concept of childhood starts from the assumption that nature is good as it is part of God's creation and this is much more true when thinking of its most genuine manifestation as it is childhood. For this reason the task of education is to let children be immersed in nature, to learn about the world through their creativity. The specific activity of children is play that is also the highest degree of development of the human spirit. Fröbel contested the view that play was trivial and lacked seriousness. This is because he thought that play ensured the development of children, allowing them to understand how to be in relationship with others and with the world (Brehony, 2013).

Fröbel also promoted the idea of kindergarten as spaces created for the transition from family to school, where children are nurtured and nourished as plants by their teacher-gardeners. It is a way to introduce children gradually to a different dimension. Kindertagens, that were meant to be open to every child from different economic, religious and social backgrounds, were organized for different activities such as dancing, singing, gardening, and at the core of these activities there was play. He considered play as a biological imperative to discover how things work, as a pleasurable activity, but biologically purposeful. Fröbel's idea of play was strictly linked with work, for him the second was a continuation of the first. Work is not intended by him as labor but as the possibility for children to work on simple tasks that make them feel in charge and develop autonomy (Cera, 2016).

The fröbelian method also devised a system of toys and other educational materials known as the Gifts and Occupations. Fröbel's gifts can be considered as the first educational toys. They were named gifts because they were both given to the child and also function as tools for adults to observe the innate human *gifts* each child possesses from birth.

These gifts were intended to help the thought go from concrete to abstract and to focus a child's play energy on specific activities designed to lead them to create meaning from their experiences (Cambi, 2003).

Fröbel's theory of play and kindergarten's concept started to be known and discussed internationally, and many other educational experiences took inspiration from it.

John Dewey

In the US, John Dewey (1859-1952) promoted a "theory of experience" (Dewey, 1938) indicating quality experiences as the core of a new idea of education. The key elements of this theory are the principle of *experiential continuum* as every experience is shaped by previous experiences (both enacted by the individual subjects and collectivity) and can influence future experiences, and the principle of *interaction* intended as an exchange between an individual and its environment, which is made of the environmental objective conditions interacting with the needs, desires, purposes and capacities of who is creating the experience along its development.

The development and control of experience is possible through men and their creative intelligence with the use of logic. Dewey defined it as a theory of inquiry as it is characterized by the scientific method and its principles of experimentation, generalization, hypothesis and analysis of results. In his book "How we think" (Dewey, 1933), after agreeing with Plato's and Fröbel's view of how play is the main way children learn, he underlines the difference between playfulness and play. The first is "an attitude of mind", while play is "a passing outward manifestation of this attitude". He suggests to educators that play should gradually be transformed into an attitude to work in order to avoid children to stray too far from existing things.

The learning process activated by experiences is considered by Dewey a lifelong process.

He also developed the idea of the democratic function of education and the value of the "scientific method" for a democratic education. And most importantly Dewey underlined the necessity to review the widely shared idea that children are empty vessels to be filled. In a democratic education the aim is to teach children to use their own intelligence and develop as thinking members of society, in essence, "to teach the child how to think, not what to think" (Simpson & Stack, 2010, p.17).

Dewey can be considered as one of the greatest thinkers of the twentieth century, as a coherent theorist of a new model of pedagogy, a critical experimenter of the new education, and sensitive to the political role of pedagogy and education, considered as the cornerstones of a democratic society (Cambi, 2003).

His thought continues to influence educational theories and practices globally still today.

In the second half of XIX century in Italy, there was a great fervor in the educational field, and almost contemporarily flourished the experiences of Maria Montessori and of Agazzi sisters.

Maria Montessori

Maria Montessori (1870-1952) has been an unconventional woman from many points of view. She decided to become a doctor against the will of her family and had to fight against prejudices and the academia to be enrolled at the Faculty of Medicine at the Università La Sapienza in Rome. She became one of the first female doctors to practice in Italy. The care and observation of young patients helped her to understand that her true interest was the field of education. Along the years she elaborated a pedagogical method that is still known with her name and widely applied all over the world.

She is one of the main representatives of active pedagogy in Italy. The Montessori method promoted a new way of educating children. All the choices made in a Montessori environment have the goal to help children develop as independent beings. The design of the classroom space, with low shelves, custom furnishing, areas organized according to specific focusses, the possibility to freely chose the activity to be engaged in, the way interactions are encouraged with adults and peers through kindness, trust and respect, the small tasks to be accomplished according to children's age, all are meant to contribute to the growth of autonomous, curious, well-educated children. Teachers design the space and the activities, but they have the role of observers, limiting their own interference as much as possible, putting aside any preconceptions and observing with the utmost attention, exactly as scientists do while researching on a specific topic.

According to Montessori, children are endowed with an *absorbent mind* capable of assimilation, communication and participation. A very creative mind that expresses its creativity through play (Montessori, 1952/2013)

Montessori does not give particular value to play in itself, but to play as “focussed and engaging”, very close to work. In her conception toys and playful materials should be designed according to the constructive and organizational needs of children.

Curiously Montessori and Dewey crossed their paths in 1913, when the Italian educator visited the United States for the first time and John Dewey introduced her conference at the Carnegie Hall in New York. Nevertheless, after this first welcome, Dewey, and particularly his collaborators and followers sharply criticized Montessori’s work, mostly misinterpreting some of her method’s features, but their influence was so strong that in the USA after 1920 there were essentially no Montessori schools left. After the 1950's thanks to Nancy McCormick Rambusch it started a renewed interest in Maria Montessori’s work and today the American Montessori Society is the largest organization in the world dedicated to the Montessori method (Thayer-Bacon, 2012).

Agazzi sisters

Almost in the same period as Maria Montessori developed her method in Italy, following Fröbel kindergarten’s concept but blending it with other models and giving life to what was called “scuola materna” (nursery school) Agazzi sisters, Rosa (1866-1951) and Carolina (1870-1945), tried to offer a wider vision of play. According to them, play does not only encourage learning, but it favors autonomy, cooperation and enhances sociality. They did not think of play as opposed to work, because play and work coexist. Their educational method was for children from zero to six years old, and was mainly based on respect for children’s freedom, spontaneity, and autonomy. Their idea was to offer children a welcoming and tidy environment providing emotional support and closeness, as similar to a family environment as possible.

In their experience children express their uniqueness, their creativity through play (Valentini & Troiano, 2017); choosing the kind of materials to use, and how, they show their attitudes and personality. The free interaction with the environment allows educators to understand the level of sensory and cognitive maturation of children. Instead of Fröbel’s gifts which were designed for a precise purpose, they promoted the use of everyday materials such as clothing, containers, trinkets, objects and utensils that were familiar to children (Cambi, 2003).

In the following decades, the research around the way cognitive processes are activated gave an important contribution to knowledge of learning.

Jean Piaget

Jean Piaget (1896-1980), father of genetic epistemology, considered children as active “organisms”, as subjects that can adapt to the surrounding environment and are able to learn through the process of assimilation and accommodation. Assimilation involves the embodiment of the external data, of experience in the mental structure. According to Piaget the cognitive assimilation is very similar to the biological assimilation because the data given by the experience are transformed and assimilated by the subject’s mental structure. Accommodation instead is the complementary process to assimilation. The data given by the experience are embedded in the subject’s mental structure and they modify it. Accommodation represents the productivity of the meeting between mental structure and the new opportunities offered by the external world. Piaget’s theory of cognitive development assumes that learning develops as a progressive reorganization of mental processes as a result of biological maturation and environmental experience and he identified four stages:

sensory motor 0-2, preoperational 2-7, concrete operational 7-11, formal operational 11-15

According to Piaget, children engage in types of play that reflect their level of cognitive development. Children construct an understanding of the world around them, then experience discrepancies between what they already know and what they discover in their environment (Valentini&Tallandini, 1998).

He recognized that play has a fundamental role for the cognitive, emotional and social development of children. He identified play as a systematic process of learning from birth to adulthood. A lifelong process of enjoyment and exploration. Piaget gave life to a new idea of the child’s mind and its structures of thought, essential elements to set up education of thought according to the actual linguistic and logical abilities of children (Piaget, 1973).

Lev Vygotskij

Lev Vygotskij (1896-1934), followed Piaget’s research, partly building on it but also partly moving away from it. Vygotskij gave particular emphasis to the emotional aspects of play. He started to be widely known outside of his country long after his death because his works, as the work of many other Soviet psychologists, were censored by the Stalinist regime. Even if he

also considered the cognitive development stages, his perspective is different from Piaget's because he gave more value to the environment as a key variable in learning processes. According to Vygotskij, children's development is influenced by their family culture and by the fabric of social relationships. The goal of learning processes should be the identification of the actual and potential learning level, the zone of proximal development, in order to support, favour and strengthen learning (Veggetti, 2021).

Vygotskij underlined the centrality of creativity. Play already increases invention and imagination, that is why, also at school, according to him, it is necessary to give space to play. The school time must become creative, thus stimulating the potential development of children for an enlargement of their intellectual capacities (Cambi, 2003)

He was particularly interested in the emotional implications of play. Besides opening a zone of proximal development, play is an act of mediation between one's own needs and desires and the others', and it is a liberatory context where children can separate the meaning from the real object and consolidate learning with the use of language.

Jerome Bruner

A great scholar of Piaget and Vygotskij, Jerome Bruner (1915-2016) tried to combine the two perspectives (Groppo et al., 1998). On one hand Bruner, as Piaget, considered learning as an active and constructive process, and as Vygotskij believed that learning is interactive and it is influenced by culture. He also developed the key concept of learning to learn as fundamental to enhance the learning process. In learning processes motivation, knowledge and respect of learning times and cognitive styles of each child should vary according to the developmental stage. His position was that children must be motivated to learn, and adults must create the right conditions and situations for it. For Bruner learning is collaborative because he considers intelligence as distributed among the subjects interacting. According to him, Intelligence is in the historical and cultural context and it is not only found in the interpersonal relationships but also in objects surrounding the subject, such as symbolic and technological tools and instruments, that he called cultural amplifiers.

Bruner also investigated the relationship between play and learning strategies. From his research emerged that structured playful activities favor the development of analysis skills, critical thinking and argumentative abilities while less structured playful activities favor the

development and strengthening of social competencies. Play is where experiences of relation and communication are created (Cera, 2009).

Reggio Emilia approach

After the Second World War in Italy there was a flourishing of educational experiences born with the intent to contribute to the reconstruction of the Country through education. In particular, in Emilia Romagna, this educational ferment led to the birth of what is now globally known as the Reggio Emilia Approach. This educational philosophy, developed in the town of Reggio Emilia, has its origin and vital force in the municipal infant toddler centres and preschools, their history and their present. It was born from a bottom up movement, of common people and especially women who wanted a school for their children, not just a safe place for them while parents were working, but a place that could offer healthy meals and quality educational activities (Barazzoni, 2018).

At the core of this approach there is the idea that children and human beings are competent in learning and full of potential. The role of teachers is to create the best conditions for children to learn and grow. Adults have the task to organize the educational environment, in terms of spatial arrangements, choice of available materials and tools and the kind of experiences proposed. They should be a conscious part of the context that includes, besides the environment, also all the relationships: among peers, among children and adults (not only teachers, but the whole school staff and parents), and among people and materials, objects, tools and space (Strozzi, 2009). There is a strong emphasis on what children can experience through play, painting, creating and building with their hands and thoughts, and adults and children themselves are involved in the reflection on their learning processes through documentation: a way to consolidate and continue to construct on their own learning. Play is conceived as the best ground for learning, when it is free, fertile, if it takes into account different perspectives.

... if the human species does not continue to play with the unforeseen, with chance, with probability and improbability, if it stopped improvising (...), then it would be a very poor, much poorer, species. I do not know if we would even continue to exist (Malaguzzi, 1990).

Co-design, co-research, collaboration and participation are at the core of the concept of democratic education promoted by the experience of Reggio Emilia, where children are considered citizens from birth and all interested citizens are invited to take part into the school councils even without being parents or related to anyone in the schools.

The other fundamental value of this approach lies in the concept of the 100 languages, a metaphor for the many accesses that children have to learning and expressing themselves, to their cognitive and creative processes. Thus the choice to have in each school an atelierista, who has an artistic background and collaborates with all other teachers in the school, in order to multiply the occasions of research and creativity for children, using different expressive materials and tools. (Vecchi, 2010)

When it comes to the experience of Reggio Emilia it is necessary to mention the work of Loris Malaguzzi (1920-1994), and his fundamental role in elaborating the educational philosophy of Reggio Emilia. He worked directly for the city of Reggio Emilia for more than 20 years, at first as a consultant, after as Director of the schools. Even if the experience of Reggio Emilia was developed by an educating community, including women's and workers' movements, educators, public administrators, families, common citizens, Loris Malaguzzi has been for many years its most influential interpreter and representative. And to him we owe what can be considered as the synthesis of the Reggio Emilia approach, the poem "No way, the hundred is there", where he strongly affirmed the need for children to learn with all their body and senses using all possible languages/accesses to learning to discover what it is still unknown while school and culture, on the other hand, impose children to learning what it is already known, proposing a world made of dichotomies, separating play from work, reality from fantasy, science from imagination, sky from earth, reason from dream (Malaguzzi, 2019).

Seymour Papert

The idea of developing playful learning opportunities at school related to the use of new technologies is constantly present in the work and life-long research of Seymour Papert (1928-2016), mathematician and pedagogista, who was very influenced by the constructivist theory of Jean Piaget, with whom he collaborated for some years.

Rethinking the constructivist perspective brought by Piaget, Papert developed a constructionist theory. Both shared the idea that children construct their learning of the world through

experience which led them to their own theories. But while Piaget is more focussed on commonalities among children in their developmental phases, he does not give particular emphasis to different peculiarities and does not consider properly the role of context, culture and media. Papert instead promoted the idea that learning is grounded in contexts and it may be expanded in the relationship among humans (children and adults), tools and media. He developed his research around the use of digital media and computer based technology (Ackerman, 2001).

As he explained, his theory of constructionism was opposed to “instructionism” (Papert, 1991). In particular, he considered computers as extraordinary tools for learning to learn, as he imagined children should actively use them and he did not think of computers as a mean to instruct children.

... The child programs the computer. And in teaching the computer how to think, children embark on an exploration about how they themselves think. The experience can be heady: thinking about thinking turns the child into an epistemologist, an experience not even shared by most adults. (Papert, 1993, p. 19)

And he similarly considered Artificial Intelligence as a tool to explore human intelligence, and not as an end in itself. Different tools give life to different ways of learning, while we, as humans, advance in the development of new technologies, we can also understand more about ourselves.

The idea of learning as a playful activity pervaded all of Papert’s research. He came up with the concept of hard fun, which is related to passion and motivation. If they like what they are doing, children can have fun even if it is a particularly challenging activity, in a kind of challenge to themselves (Papert, 2002). Also, Papert considered programming as one of the best ways to actively learn, as children become protagonists of their learning, because they have a purpose and interest. They have the freedom of making mistakes, the process of programming itself implies mistakes (bugs), and when they realize it, they can go back, review the process and fix what did not work before. In computer science this process is referred to as debugging.

Traditional education versus a playful approach

This partial overview of scholars, researchers and educators that along two centuries of psychological and pedagogical studies have theorized and experimented the relationship between play and learning shows the importance of such a topic for those involved in education. This research heritage should have been an encouragement for teachers, educators, parents, policy makers and governments to shift from a traditional idea of transmissive education to a more up to date idea of learning. However, there is a strong resistance to consider the importance of play in relation to learning, particularly after early childhood. And in the last decades, preschool education also registered a trend towards early formalized learning experiences. In many countries introducing academic education for children of four and five years old has been an objective pursued with the intent of improving the scholastic performance of children, often from underprivileged families, in the following school grades (e.g. No child left behind (Bush, 2001) and Common Core State Standards in the USA, Early years learning framework in Australia, and many others). And even if the intentions of legislators were good, research conducted in different parts of the world shows that, in the long run, early childhood play-based education is equally, if not more, effective also in terms of the academic performance in the higher grades. (Marcon, 2002; Barblett et al., 2016; Hirsh-Pasek et al., 2009). In some cases the early introduction of academic learning resulted in children in anxiety, negative attitudes toward school, even less creativity (Chafel, 1991).

In Italy, if we consider compulsory school education, primary school, which is attended by children aged 6 to 10, continues to mark the transit from a dimension where play and learning are still combined and mixed, to a clear separation also in terms of everyday schedule. Play is usually confined to the daily school breaks. In most cases, during school hours, children are sitting in a classroom at their own small desks, all facing the teacher's desk. In the past two years, due to COVID19 pandemic, they were also isolated from each other. They had no freedom to move around, and very few opportunities of exchange.

Play during school time is a far-away concept for middle school and high school as well. Apart from some isolated experiences, play, in this case, has a negative connotation, it is something to avoid. And this is also true from the perspective of students themselves, as they consider play as something for the little ones, they feel "too old" to explicitly declare that they play.

The reason behind the difficulty to consider play as a way to learn at school, probably lies in the idea that school is for work, and play and work/study are often thought as opposite. In fact, while, at different levels, many scholars agree upon the idea that play is a way of learning, in general most people think that play and work/study, in and out of school, are two separate and very different activities.

Play and work

In the attempt to define the difference between play and work, the scientists reunited for the conference coordinated by Gregory Bateson and organized in Princeton (New Jersey) by the Macy Foundation in 1955, reported in the book *The message "This is play"*, explored this topic, offering examples from the various domains they belonged to: psychology, anthropology, sociology, biology and ethology.

In the book there are many scientific contributions from various domains to the idea that play is learning: anthropologists for example consider play as key to understanding the evolution of humanity, since studies show that for many living beings playing is a way to learn how to deal with different situations in life. Play fighting between puppies makes them learn how to face real fights, and even if among animals often play seems a kind of exercise, it is also proved that there are times when play is not related to survival but to the pleasure of playing. A young living being replaying a recently learned activity does not mean to prepare for adulthood, it is having fun in the exercise itself of a newly acquired function. This happens also to human beings.

Given the fact that every activity can be considered in a certain way or another according to the context and the way it is acted, there are many circumstances where it is shown that there is an overlap of play and work. We may mention a couple of cases among those brought up during the discussion. The first case is the one of the Eskimo boy who received a whip toy made by his father. In their culture being able to manage a whip is important for sleds' leading. The boy can play the whole day cracking the whip toy, but for him there is not an immediate purpose, he is not preparing for his future life, he is doing it for fun. Another case is that of the professor who spends his weekends chopping wood. The countryman would find it weird as a fun activity since chopping wood is one of his tasks to earn a salary, but for the professor it is just a hobby. Both the Eskimo boy and the professor play, since these functions do not satisfy any vital need for them. At the same time, in a different situation and context, these same

activities can be considered as work. On the contrary there are also situations when work can be perceived as playful. It may happen when a very accurate work involves the whole personality, when there is a full involvement and the elements of pleasure and fun overcome the effort and the obligation. (Bateson, 1996)

In some ways, along with Dewey, play and work may be considered as a continuum. It seems too sectorial keeping them separated, given that the nature of human beings is a complex mix of several aspects, at the same time, when thinking about education, play and work may be seen as the two sides of the same coin.

Between pure work and pure play is what we might call *play~work* where the individual is fully invested, has a purpose or a problem to solve, and that purpose coincides with a culturally sanctioned activity. (Goodman, 1994)

Yet if we think about our times, play is now shaping our lives more than ever.

The digital revolution has brought the idea that play can be part of our daily life with all the new tools and apps that have been invented to facilitate our approach to technology and are based on play. Many tasks, such as shopping, cinema or theatre tickets purchasing, even booking medical appointments, have been reduced to enjoyable video game-like opportunities. Of course the ethical side of these new opportunities should be carefully considered, what is playful for the user, can be differently perceived by workers, e.g. delivery riders who are considered “part of the game” but are often working with miserable work conditions.

From play to playfulness

In this context play is not just a specific category or activity, it is more an aspect of each activity, an attitude.

I've been particularly inspired by John Dewey, who shifted the focus from play (the activity) to playfulness (the attitude). He explained: “Playfulness is a more important consideration than play. The former is an attitude of mind; the latter is a passing outward manifestation of this attitude”. In my visit to the Anne Frank House, it was Anne's playfulness (not particularly play activities) that made the biggest impression on me. When I think about Anne Frank, I certainly don't think

about fun and games – but I do think about her playful way of engaging with the world (Resnick, 2017).

When writing about his visit to Anne Frank’s House in Amsterdam, Mitchel Resnick, LEGO Papert Professor of Learning Research at the MIT Media Lab and leader of the Lifelong Kindergarten research team, echoing the words of John Dewey, underlined the difference between play and playfulness, choosing the second one to describe the spirit of Anne Frank even during confinement. The spirit that allowed her to keep hoping in such a difficult situation. Playfulness as a way to face the new and unexpected, it becomes an attitude of mind, the essence of play itself.

The Italian semiologist Umberto Eco, in the introductory essay to 1973 Italian edition of the book *Homo Ludens: a study of the play element in culture* by Johan Huizinga highlighted the change of perspective brought by the author to the idea of playfulness as the hallmark of classical cultures, instead of being the reason, as many detractors claimed, for the degeneration of contemporary culture.

In his book, Johan Huizinga (1872-1945), a Dutch history professor and linguist, once identified the characteristics of play, assumed that the features of play coincide with the features of culture, and that, therefore, culture has manifested itself as play since ancient times (Huizinga, 1946). He considered play as a central element in human culture and analysed the role of play in law, war, science, poetry, philosophy and art. According to Huizinga, humans can build culture on playfulness in an interpersonal dimension, while the commonly shared idea was that culture determined different playful activities. (Cera,2009).

In this case, with reference to a formal educational context, it seems suitable to adopt the concept of playfulness as more coherent when we talk about the relationship between play and learning and consider the “distinctions” between play and work.

Playfulness can be pervasive in every action and activity and it may help to overcome the suspicion provoked by the idea to introduce some more play at school (Farnè,2022). A reaction not only of adults, teachers and parents, but also of children who have absorbed the preconception that play does not belong to school context.

Forcing play into the curriculum may imply that its nature is distorted, as using play to increase academic content standards would make play something else, deviating it from its natural

function to become an enforced activity with no utility for children who would not perceive it as play anymore. It would lose its spontaneity as it would not be interest driven (Kuschner,2012).

As can be inferred in part from what has been written, and will be better explained later, there are many reasons to move forward in the research and experimentation of a playful approach to learning in schools, such as enhancing motivation, supporting children's natural curiosity, making learning more pleasant, favouring children and educators wellbeing, encouraging creativity and divergent thinking, put relationships at the centre of the educational process, so that one day associating play and learning at school would no longer be a contradiction in terms.

Chapter 2

What do we mean by a playful approach to learning?

In this chapter I explain what is intended as scintillae's playful approach to learning and the key inspirations for it.

When thinking about the present world and the kind of school and learning desirable for today's children one could, as it has been till now, reduce this issue to labour market's need for creative and innovative people, considering schools as a breeding ground for the adults of tomorrow, or to address the issue with a broader perspective thinking of the present of children, not just their future.

But the necessary questions are wider than that, they are about what are the goals of education, which are the set of non-negotiable values, what is the type of world people want for their children and themselves to live in.

The topic is huge, as it involves the foundational reasons of educational institutions itself, and the debate around them. The development of formal education has historically been connected to industrialization and the need for literate workers. In particular, the increase of mass schooling can be placed between the beginning of the Industrial revolution and World War I. (Carl, 2009) For this reason when talking about school the main idea is that formal education must prepare students for their future jobs. In December 2022 the Italian Ministry of Education (Ministero dell'Istruzione e del Merito) issued the Guidelines for educational guidance (Linee guida per l'orientamento scolastico) with the goal of reducing school dropout and guide the students in the choice of an educational path in accordance with their competences and the requests from the labour market (MIR, 2022).

In Italy formal education is a constitutionally guaranteed right and the established role of schools is to educate children to become accomplished individuals and conscious citizens together with making them learn the essential competencies to ensure development processes in order to contribute to the community they belong to.

From the school of transmission to the school of learning

Over the centuries the idea of school developed in different directions but what remained constant is the fact that the main goal of education is to prepare children for their future. John Dewey gives voice to a different perspective, as, on the contrary, he thought that using the present as a preparation for the future is contradictory. In fact, people live in their own time, and only if they understand the full meaning of every experience, they prepare themselves to do the same in the future. (Dewey, 1938)

According to John Dewey, the function of education should be to entice children to develop the “desire to go on learning” (Dewey, 1938) in the idea that learning is a continuous process to be nurtured with curiosity, motivation and passion. He proposed quality experience as the main strategy for learning, thus developing the concept of progressive education and transforming the school itself into a big laboratory. Dewey thought of schools as democratic spaces where participation and collaboration were promoted, since formal education for him was not just about developing literacy and numeracy skills.

Some decades later, the Reggio Emilia approach, also inspired by Dewey’s perspective, added to the idea of an experiential democratic school the concept of school as a place for the well-being of children, teachers and families, as part of the learning process. As Loris Malaguzzi underlined “Our goal is to create an amiable school - that is, a school that is active, inventive, liveable, documentable, and communicative.” (Malaguzzi,1993). A school and a kind of education that values the pleasure of learning and not the suffering derived by rote learning and useless repetitions, and where meaning making in relationship with others is at the core of the learning experience. A school that proposes experiential and engaging ways to learn, that is not boring, because, even if challenging, it is motivating, insisting on the interests and passions of students. A school that gives value to the process instead of the product, and to the level of commitment even if not completely succeeding. An educational context that is respectful of every child, every person as a unique individual, different from everyone else with their own competencies, intelligences and peculiarities. A school where group learning is promoted and collaboration is regarded over competition.

According to many studies, schools’ systems are very resistant to change. And there are many reasons for it, which are partly related to the kind of organization, that has to be regarded specifically and not as the dominant perspectives are considering them: bureaucratic

organizations, market systems, while the best way to define them is like communities (Sergiovanni,2005). Another reason for it is partly the fact that policy makers who are responsible for shaping educational systems often address the symptoms and not the cause of problems, due to the urge to answer to public pressure. And this can be disruptive for people working in the schools if they do not understand which is the addressed issue. Besides it, cultural change is always complex, when people face something new that does not convince them, they tend to go back to what they know (Bauer&Balzano 2016).

In recent years the Italian Ministry of Education issued some indications for teachers and families recalling the need to change the traditional way of teaching to a new way of teaching/learning. “School staff must be equipped for all the changes required by modernity, and must be enabled to live and not endure innovation... We must shift from the school of transmission to that of learning.” (MIUR, 2015).

There may be many different ways to address this idea of creating a new “school of learning”, and one of them is to consider a playful approach to learning.

Researchers and scholars in the educational field, when interested in play, have always written about it in connection with learning. (see chapter one)

This idea has been developed through various perspectives that have identified and underlined some sides of play or others. One example for it is the phenomenon of gamification which has been codified as a teaching/learning modality in which activities are designed as game in non-game contexts (Sailer&Hommer,2020). Gamification and gamified learning, although different, have similar effects in terms of cognitive development. The goal is to promote active engagement in cognitive processes, and this is sought in games when they create occasions for constructive competition, collaborative gameplay. On the other hand, sometimes these ways of learning favour the instructional side of games and do not leave much space for creativity and imagination. But in order to foster creative thinkers and lifelong learners, it is essential to rely on intrinsic motivation rather than relying on gamification and propose extrinsic rewards (Resnick, 2017, p. 72-76)

While playing, children explore the set of possibilities and the different relational dimensions that the contexts offer. During free play, cognitive and imaginative faculties are activated, thus

opening up to something else with respect to the contextual dimension of the experience itself and its perception, causing that pleasure linked to the construction of meaning that is typical of learning processes.

As in play, "the learning processes are interconnected and dynamic (Zosh et al., 2017): the cognitive act of playing can thus be understood as "a creative act that involves the assumption of responsibility, autonomy and freedom", in a dimension of "solidarity between play and learning" (Rinaldi, 2006).

This conceptualization of play, understood therefore in a design sense, allows us to go beyond and remove the meaning of the separation that, even today, often leads to glimpses of a clear distinction between playful activities and formalization of knowledge.

Play is a central area of experience, and playfulness is an attitude towards oneself and towards the community through which children actively construct their idea of the world, a construction that is carried out through reciprocity and sharing within a dimension that renounces the contraposition between those who learn and those who teach. Playfulness is in the constant tension towards experimenting, taking risks, testing boundaries (Resnick, 2017). By creating new meanings, in play children give life to authentic cognitive processes based on the relationship that is established as part of the contexts.

Reggio Emilia approach to learning

The pedagogical philosophy and practice developed in Reggio Emilia since more than 60 years ago were defined *Reggio Emilia approach*, where, *Reggio Emilia* indicates not just the name of the city where it was born and it is still developing but a whole educating community: all citizens, children and adults who participate in the local educational system and are involved in the public open debate around education. Citizenship is guaranteed by a continuous permanent learning process inside the community.

On the other hand, the concept of *approach* was identified instead of method, because the Reggio Emilia experience is developed around some values and not around defined principles or standards to be replicated.

The word approach (it. *approccio*) comes from French *approcher*, derived from Late Latin *adpropriare* that means “go nearer to”.

And in this sense the Reggio Emilia approach is offered as a possibility that has to be interpreted by those who chose to be inspired by it, according to their own context.

The values of Reggio Emilia pedagogical philosophy can be synthesized as follow:

- the image of the child: the idea that children are citizens since birth, competent in learning and full of potential to be developed, they are considered as active protagonists in their growing processes (Rinaldi, 2006)
- the value of listening that is mutual, active, multisensorial, it is what connects us to others, and it is at the base of any learning relationship. Listening is a necessary act among peers and crossing generations (Rinaldi, 2006)
- learning as a process of construction subjective and in groups, that is more effective when happening in small groups where dialogue and negotiation are at the base of the shared construction of meaning, in an openness to dialogue and according to an aesthetic of knowledge (Giudici et al., 2001)
- the design of quality learning environments, combining numerous possibility of exploration to the pleasantness of space and a feeling of wellbeing, is a fundamental part of every educational contexts (Ceppi & Zini, 1997)
- the value of documentation, which is the reflection on documentary materials collected during school time, as a tool for assessment and self-assessment on learning processes, it is an essential element of pedagogical research (Rinaldi, 2006)
- the key role of adults, teachers and educators who are researchers and learners, and have the task to create the condition for children to flourish as they participate in the co-construction of knowledge (Edwards et al., 2017)
- the hundred languages of children, as a metaphor for the many different ways that children have to learn and to express themselves overcoming the dichotomies so often characterizing some educational environments (Malaguzzi, No way. The hundred is there)

- the concept of participation, as a necessary educational strategy since education is a democratic process that should be co-constructed through dialogue and negotiation (Rinaldi, 2006)
- the presence of the atelier, a privileged space for observation and documentation of children's learning processes where the exploration of various tools, techniques and materials is placed within context of meaning so that equipment and technique become languages (Vecchi, 2010)
- the dimension of research, which allows children to exercise their natural curiosity and can be a strategy and a way for deeper learning (Rinaldi, 2006)

An educational approach has to be in relation to the specific context where it is developed. It must be flexible, modular, and open to diversity. There is not only one way to interpret an educational approach, but multiple possibilities according to all the variables involved.

Therefore, when thinking of the necessity nowadays to recognize more playfulness into both formal and non-formal educational contexts we can consider a playful approach to learning that has the goal to enhance curiosity and creativity for children and adults together.

The choice is also related to the importance of making it clearer that this approach is more about playfulness than play in itself.

Play and playfulness can be considered keys to support the development of dynamic competences and capabilities that are needed to be innovative. Learning should be regarded as an evolutionary process, this is necessary today, more than ever, as new technologies evolve more and more rapidly than in the past. The whole educational system should be rethought offering new access to learning not only for children who are in school, but also in the training of adults who are willing to work in the educational field. New tools and instruments require a different perspective involving research and experimentation, an openness to the unexpected, a shift that should be on one side obvious, and on the other side needed in order to face the new challenges that will be encountered.

The five characteristics of play

In recent years The LEGO Foundation, in collaboration with researchers, teachers, and policymakers has developed a pedagogy of play, identifying five characteristics of play: “We say learning through play happens when the activity is experienced as joyful, helps children find meaning in what they are doing or learning, involves active, engaged, minds-on thinking, as well as iterative thinking (experimentation, hypothesis testing, etc.), and social interaction.” (Zosh et al., 2017)

To provide a more comprehensive description of the elements that contribute to defining the experiences in which learning processes occur through play, the LEGO Foundation has identified five main characteristics:

- joyful - wonder, curiosity, surprise, intuitiveness and positivity are emotions related to learning processes;
- meaningful - during play and learning, connections are made between what is known and what is new, what is observed and what is reworked, to express and increase understanding of ourselves and the surrounding world;
- actively engaging - the concentration and the immersive dimension of the experiences contribute to deepening the learning processes;
- socially interactive - communication and collaboration with others increase the possibilities of creating new synergies, building in-depth knowledge and stronger relationships between participants;
- iterative - a circular way of thinking and doing: formulating hypotheses, proceeding by trial and error, supporting exploration and discovery and generating new questions.

Within the configuration outlined, the resonances between the educational experience of Reggio Emilia and the paradigm of Learning through play are evident: the latter does not in fact aim to formally exhausting the possible declinations and the different meanings that play can assume, but rather to make visible the continuous intertwining that take place in the dance between play and learning.

In the digital age, a playful approach to learning promotes learning contexts that refer to an active, critical and creative approach to digital technology. It proposes and supports an idea of technology, not as an end in itself but as a multiplier of exploratory possibilities of materials, spaces and languages where the physical world interacts with the digital world, creating unexpected and unusual connections and encounters in which children and teenagers can imagine, learn, design and co-construct knowledge.

Learning Creative Learning

In this direction the experience of the Lifelong Kindergarten research team and particularly their work on creative learning is a significant inspiration.

The focus of Learning Creative Learning is on education, its main goal being cultivating creativity in a learning environment. Following the successful experience of the global coding and community platform Scratch, and relying on the lifelong research of Mitchel Resnick on creative learning, Learning Creative Learning was launched in 2017 as an online course and a learning community of educators, designers, technologists, and tinkerers with the goal to explore creative learning around the world. The community is promoted by the Lifelong Kindergarten research team based at the MIT Media Lab in Cambridge (MA), and it gathers thousands of participants to create hands-on projects based on their interests, to learn about new technologies, and to share ideas with peers from different countries.

Based on Resnick's book *Lifelong Kindergarten - Cultivating creativity through Projects, Passion, Peers and Play, Learning Creative Learning*, it develops around four core concepts:

- Projects: To be meaningful, a learning experience should be project-based. This allows children to use their ideas, from imagination, to design and creation, they learn how to organize their thoughts, and through their learning process to shape ideas into projects.

- Passion: To really engage into learning, motivation is the key, and it comes from children's passion and interests for something they really care about. Passion is a really powerful driver for learning. Education should be built on people's passion to be successful.
- Peers: collaboration and sharing are fundamental for creative learning, learning with and from one another contributes to a culture of learning. The exchange of ideas among peers can facilitate the circulation of information and competences.
- Play: There are many different kinds of play, but not all of them are valuable for creative learning experiences. The qualities of play that can support creativity are related to experimentation, exploration, the possibility of pushing boundaries, and risk. A playful attitude sets a fertile ground for meaningful creative learning. (Resnick, 2017)

Scintillae – play and learning in the digital age

In order to identify a shared definition of the relationship between play and learning, The LEGO Foundation engaged a committee of international professionals and researchers in the field of education and culture, from different domains of knowledge, involving Carla Rinaldi and Mitchel Resnick as well.

This is how the “butterfly metaphor” was created: “Play and learning, divided and forced into a duality as strong as the ancient one of mind and body, are re-united in the metaphor of the butterfly; its wings, moving with fractions of a second of difference, independent but dependent, create that balance and dynamism that allow it to fly. Like play and learning, butterfly wings are parts of a single body, of a single organism in motion” (The LEGO Foundation, 2017)

From the combination between the values of Reggio Emilia pedagogical approach, the five characteristics of play, and inspired by Learning Creative Learning, in 2019, Fondazione Reggio Children-Centro Loris Malaguzzi and The LEGO Foundation gave life to the experimental research project “scintillae-play and learning in the digital age”.

scintillae is also a physical space based at the Centro Internazionale Loris Malaguzzi in Reggio Emilia, Italy. It has the goal to offer contexts where the expressive potential of play

and digital tools generate ideas, connections and new knowledge. The project is based on the assumption that the playful dimension is part of everyday learning and that children actively build, through play, reciprocity and sharing, a model of the world. In the digital age, scintillae represents a learning context characterized by a natural and playful approach to digital technology, where the physical and digital worlds interact, creating unexpected and unusual encounters for learning, designing and building knowledge and images together.

(www.scintillae.org)

The design of the physical space and its content take inspiration from the Reggio concept of atelier and the Fab Lab/maker space idea. While ateliers are born more out of the creative possibilities related to the various artistic forms (Vecchi, 2010), fab labs and maker spaces are more related to physical and digital fabrication technologies and tinkering (Martinez&Stager, 2013). Nevertheless, scintillae cannot be considered as a STEAM space, as the inter- and multidisciplinary approach of scintillae goes far beyond this somewhat narrow definition.

scintillae - play and learning in the digital age



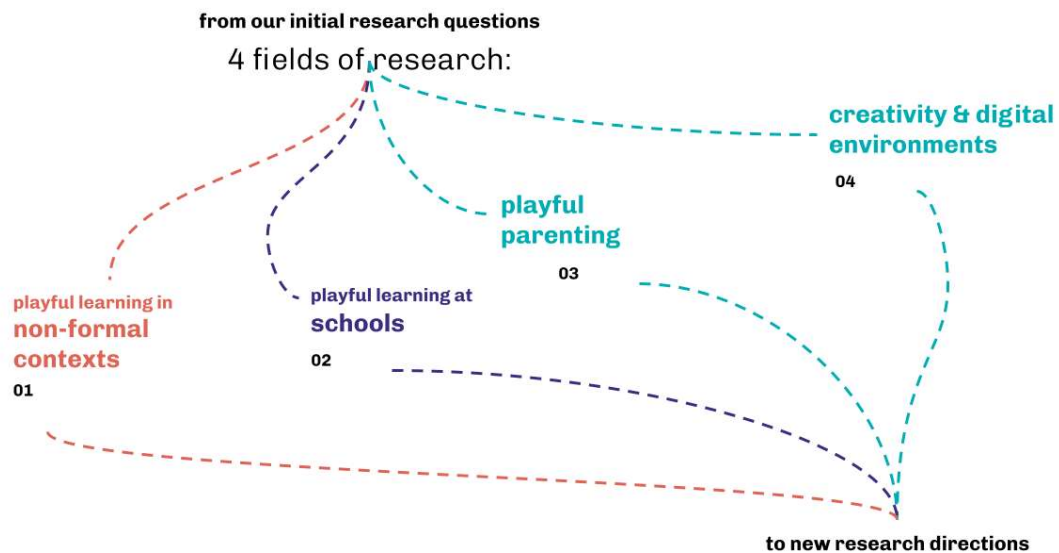
The LEGO Foundation
holistic skills



www.scintillae.org

The core work of scintillae is to research through design in order to support playful learning experiences. Since its opening, the research project has collaborated with local, national and international schools, universities and research centres to co-design proposals for children

and adults constructing playful learning activities with technologies, following four main research fields:



scintillae's guiding research questions for the past two years have had the focus on an active, critical use of technology to be developed side by side with the idea to cultivate empathy and nurture positive intergenerational relationships among people, considering the importance of relationships of humans with tools and materials and how they can influence the learning process.

scintillae's research questions

In what ways can children from 3 to 14 contribute to creating playful learning experiences where **technology** is critically and consciously explored and used?

Considering that hybridization between analog and digital tools and materials activates playful learning processes, what strategies can be developed in families and communities for designing **hybrid contexts** that activate and promote these processes?

What attitudes do adults (teachers, educators, parents, etc) have to cultivate in order to activate **empathic participation** with children?

How do children and adults **approach analog and digital** languages differently?



Chapter 3

How can we make a playful approach to learning visible?

In this chapter I will introduce the research context and describe the methodologies used for my research, introducing the pedagogical documentation and the strategies of observation of a playful approach to learning.

The research context

The research context is related to the collaboration between the scintillae team with the City of Reggio Emilia (Officina Educativa service) and the State primary school “Carlo Collodi”. The collaboration was activated in the framework of the project Scuola Diffusa¹⁰, born in response to the emergency of the pandemic, but continued in the following years due to the great interest of local schools. Scuola diffusa allowed some classes of primary and middle local schools to spend their school time, moving for some months up to a whole school year, from their school building to the seat of local institutions or organizations in different fields in a multi- and interdisciplinary perspective.

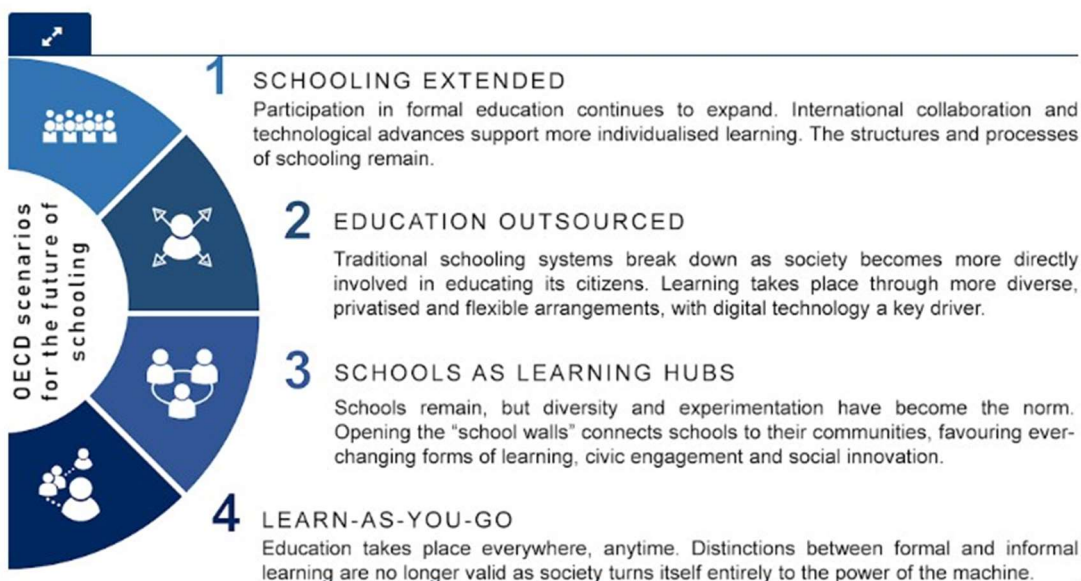
This experience based in Reggio Emilia was recently included in a national research promoted by INDIRE, the Italian national institute for documentation and education research, where they considered learning spaces, didactics and the collaboration among different professionals as key elements for the positive outcome of the project Scuola diffusa (Cannella et al., 2023).

¹⁰ **Scuola diffusa is a project and an approach to education developed by the City of Reggio Emilia.** The approach is nurtured by relationships, exchanges among different stakeholders and professionals, to research around quality educational contexts, opportunities to learn and participate for children, families, teachers and the territory.

Some figures: During the school year 2020-2021, the Municipality of Reggio Emilia activated the project Scuola Diffusa, involving 11 Istituti comprensivi (including under one administrative structure one or more preschools, primary schools and middle schools); 19 schools; 49 classes; 1.150 children; In the school year 2021-2022, Scuola Diffusa has involved : 10 Istituti comprensivi; 15 schools; 37 classes; 925 children; From 2020 to 2022 in Reggio Emilia 12 Community educational pacts were established, one for each Istituto Comprensivo, according to the National Plan for the restart of face to face teaching (s.y. 2020-2021)
<https://www.comune.re.it/argomenti/scuola/progetti/scuola-diffusa>

The concept of school out of school was already proposed and experimented in Italy in the Seventies through the idea of school labs that should have an extension outside the school, in a vision of an “expanded education system” and the right to education as a collective, community good (De Bartolomeis, 2018). In 2017 professor Paolo Mottana, with the architect Giuseppe Campagnoli, launched a Manifesto for widespread education (*educazione diffusa*) with the intent to overcome the traditional idea of making school inside the school buildings and encouraging children and young people to find places, opportunities and activities to learn in the neighborhood, in the area and in the city where they live, in order to actively participate and offer their contribution to society (Mottana&Campagnoli, 2017). It is about creating a system of experiences, which certainly needs structures, operators and a general organization but which leaves behind the idea of the central building, its classrooms and its disciplines. And in this direction, also the study entitled: *Back to the future of education: Four OECD scenarios for schooling*, recognizing the need for innovation and change in formal education, identifies four possible scenarios for the future of education and one of them, “education outsourced” describes how it is possible that, in the future, traditional schooling systems can leave space to a more direct involvement of society in educating its citizens. According to the idea that learning occurs through increasingly varied, individualized and adaptable structures, with digital technologies playing a pivotal role (OECD, 2020).

The four OECD Scenarios for the Future of Schooling



At different levels and in various contexts, also the experience of outdoor education, with the goal to give value to the external natural environment as a learning space, highlighting its peculiar qualities and specificity, has been a strategy to promote different ways to interpret the idea of school out of school. This approach aims at designing learning contexts to enhance the relationship with nature and to redefine educational relationships in more ecological, sustainable settings (Farnè, 2018; Guerra, 2017; Remmen and Iversen, 2023; Mann, 2022).

The Scuola diffusa project has promoted various experimentation, and the collaboration with scintillae and the Collodi school was one of them.

The school is located in the Santa Croce district, two blocks away from the Loris Malaguzzi International Centre, in the Northern area of Reggio Emilia.

This area, inhabited by a high percentage of migrant people, is actually undergoing a municipal regeneration plan in order to avoid marginalization and favour inclusiveness. In the past, thanks to the railway station on the Milan-Bologna line and the Reggiane industrial complex, this district was considered Reggio Emilia's historic workshop and driving force for more than 50 years, eventually employing more than 1.,000 workers. The gradual

abandonment of the industrial area after World War II contributed to make it a "marginalized neighbourhood": it has the highest percentage of citizens of migrant origin (more than 32 percent, while the municipal average is 17 percent) and people and families with annual incomes that tend to be much lower than the average urban income (€19.000 vs. €26.000)¹¹.

The collaboration developed along the whole school year 2021-2022 with two classes of the same school, one in the third year of primary school, with 20 children of 8-9 years old, the other in the fifth and last year of primary school, with 28 children of 10-11 years old.

The identification of the classes to be involved in the experimentation, and therefore the choice of teachers, was made by the school management team. The teachers were asked about their availability to be part of the Scuola diffusa project and while some of them accepted the proposal with curiosity and interest, others were not so keen, since it would have added complexity to their already demanding workload.

The adults research team, or community of inquiry (Sorzio, 2016), was composed of a multiprofessional team of 6 teachers, two for one class and four for the other, 5 municipal educators, 1 municipal pedagista and the scintillae team.

The scintillae team was composed of two people: 1 atelierista¹² and myself in the role of researcher and project coordinator, also leading the activities at scintillae with children. Since the beginning of the joint work the scintillae team tried to develop a relationship of trust and mutual understanding with teachers and educators. This was made taking time to discuss the issues and worries emerging especially from teachers both during official meetings and in private conversation that were requested by the teachers themselves. The mutual listening was useful to clarify doubts, set the ground for a sincere and open dialogue and to create trust among adults, and subsequently among adults and children. At the beginning of the collaboration the scintillae staff introduced their research and the proposal of exploring together a playful approach to learning with teachers and children. This introductory work among adults was previously made to set the ground for the work with children.

¹¹ source: "Neighborhood Atlas" of the Municipality of Reggio Emilia
https://space.comune.re.it/documenti/quartieri/Atlante_C.pdf

¹² The atelierista is a professional with art background that works closely with teachers and educators in and out of school to introduce an "aesthetic dimension" or "poetic languages" into the learning process (Vecchi, 2010)

Table n. 1

Clas s	Number of Teachers	Number of educators[*]	Number of children	Number of co-design and documentation sharing meetings among adults	Number of meetings with children	Total Teachers interviews	Percentage of children with at least one parent of foreign origin	Total hours of observation
3rd year	2	5	20	6	12	1	90%	18
5 th year	4	5	28	13	21	3	92%	32

[*] Educators took turns, and they were two for each meeting with children

There were two types of ongoing research. On one side, adults were trying to understand how to engage in a playful approach to teaching/learning, on the other side children and adults explored the relationship between play and learning in accordance with the school curriculum.

The work among adults was organized through co-design meetings, mostly in presence and sometimes online.

Two meetings for teachers and families of the Collodi school were organized to present the proposal of collaboration within the “Scuola diffusa” project and to visit the Centro Internazionale Malaguzzi and the scintillae space before the beginning of the school year.

The first meeting was addressed to teachers only. This was an occasion to get to know each other and share about scintillae and the research on a playful approach to learning.

The second meeting was for all families with children and teachers. This meeting was planned and organized in agreement with the school principal and teachers, in order to give parents the opportunity to be informed about the project, visit the building, get acquainted with the new “school location” where they should have accompanied and picked up their children for a given time.

The following meetings as multiprofessional team, developed along the whole school year and they were necessary to co-design the proposals for children and to identify the research questions with teachers and educators deciding which should be the main topics, according to their school curriculum - this was an important step to understand how a different approach could be of some help to formal education -, to revise and reflect on documentation, to share ideas on how different teachers (who in Italy have specific subjects assigned) could contribute to the experience. The collaboration developed during the first months of the school year, from September to December 2021, with the class in the third year of primary school, and from January to June 2022 with the other class in the fifth year of primary school. In total the meetings intended for co-design and documentation were 19 between September 2021 and June 2022, in addition to one introductory meeting held in July 2021.

Since both classes had many children, the adult’s team agreed to split them into smaller groups in order to collaborate and to be able to get to know and work with each of them. In the first case we created 4 groups of 5 children each, in the second case we created 4 groups of 7 children each, asking teachers to decide the group composition, according to what they knew about them, and trying to balance genders in the groups.

Another agreement was about the idea of documenting the whole work, with notes, photos, videos, audio recording, this was asked to everyone but it was more the role of the atelierista and educators who took turns in the various meetings.

Everyone was invited to take notes, both adults and children. In particular, adults used an observation grid, while children had their own “taccuino” (notebook).

Every meeting with children and teachers, was designed as a workshop time. The structure included the first 15/20 minutes of general assembly. This was the time to greet each other and chat freely, to reconnect with the researcher, atelierista and educators recollecting ideas and memories from the previous meeting. It was also the time to decide how to continue the work

together. After the assembly, for about 50 minutes/1 hour, children in smaller groups continued their research on the chosen topic through the tools, media, strategies and modalities they decided for. The last 20/15 minutes were a time to get back together as one bigger group to share what happened during the previous hour and discuss about it with their schoolmates and with the involved adults.

While at the beginning and at the end of every meeting the whole research group, composed by children and adults together reunited, during the work in smaller groups one or two adults followed a specific group of children. In this way they could collaborate more easily and document the ongoing processes.

Research methodology

This research develops around the idea that learners should be at the centre of their learning process and when learners are children, adults have the key responsibility to work in order to construct for them the best possible ground, a context where children's competences and potential can flourish. For this reason, the research focus is the role of adults and the main research question lies on: How and when do teachers shift their ways of thinking about learning? From transmissive teaching to a playful approach to learning and teaching.

The research has a qualitative nature and starts from the assumption that teachers and educators should be an active part of the research process, that is conducted with them and not on them. Relying on a socio-constructivist epistemological perspective, I combined the use of participatory action research approach (Sorzio, 2016; Amsteus, 2014; Teram et al., 2005) with pedagogical documentation, in combination with an approach inspired to grounded theory to identify the contents of the interviews' questions (Ghirotto, 2021; Tarozzi, 2016; Charmaz, 2006; Glaser&Strauss, 1967).

Participatory action research is characterized by a system that provides a relationship of reciprocity between the researchers and the subjects involved in the research (Kindon et al., 2007). Including participants in the research process requires an attitude to openness and listening, where participants who have experienced the situations being researched can share with researchers the information they know related to the research topic, from the perspective of someone who experienced them. In this sense the research process itself can be defined as co-constructive, and it gives the possibility to include multiple perspectives (Mardell et al., 2023, p.206-207).

The outcome of this kind of participatory research will therefore not only concern the research team and the knowledge related to the research topic but will also have an impact on the group of participants, who can identify possible generative changes in their daily activity. This exchange creates a mechanism of circularity and dynamism that is the key feature of a participatory approach.

In this research project the involvement of teachers had the goal to listen and integrate their point of view in the co-design and development phases of the project.

Pedagogical documentation was used more for the research with children. Documentation, as applied in the research, was born and conceptualized in Reggio Emilia's preschools through the work of teachers, atelieristas and pedagogistas. Documentation can be considered both a research and an assessment and self-assessment tool. The documenter always starts their observation with a question, since the goal of the documentation must be previously shared with the other participants. What should I document? Documentation is not just a collection of written or visual materials: it is the joint reflection on those materials, the meta reading of what happened, the analysis of what's behind some interactions, decisions and outcomes (Rinaldi, 2006, Krechensky, 2015).

During every meeting with children, adults collected data, through written notes, photos, audio recordings, videos and subsequently reflected on them, with other adults on a daily basis and with children at the beginning of every new meeting. Documentation had the function to keep track of learning processes, to build on them day by day, and offered a platform of observation and reflection to the adults' research team in order to get a better idea of how a playful approach to learning can shape children's learning processes.

Theorized in the late 60's by Glaser and Strauss (1967) during their social science research in hospitals on death awareness, grounded theory opened a new path to the development of qualitative research in social sciences. The great innovation it brought was in the critical position towards the research used only to test hypotheses contrasting it with the research that could generate them starting from data. Researchers approach the subject of inquiry in an inductive way, bringing out from below the important issues that underlie the subjective interactions. Later on Glaser and Strauss academic paths diverged, as they disagree on how to apply grounded theory. Glaser supported the emergent conceptual design and criticized the

approach advocated by Strauss and Corbin which overly emphasized a set of particular rules and procedures rather than theory generation (Kenny&Fourie, 2014; Chong & Yeo, 2015).

Grounded theory continued to be at the centre of a heated debate among researchers and along the years three dominant grounded theory designs emerged: the systematic design, the emergent design, and the constructivist design.

The systematic design widely used in educational research (Creswell, 2012), it is composed by three series of coding, to be used in sequence to finally bringing to the theory generation. The emergent design developed by Glaser supports the idea that the generated theories should be guided from the collected data itself and they are more valuable as compared to the operation on a set of pre-set categories. The constructivist design aims at preserving the complexity of social life and emphasizes the values and beliefs of the researchers. The ongoing interaction between researchers and participants and this on-going interaction will continue contributing to data construction. (Chong&Yeo, 2015).

In this specific research the grounded theory was used to formulate the interviews' questions. Furthermore, in order to analyse the information from the interviews, some categories were created according to features of the playful approach to learning and combining them with the emergent data coming from exchanges with teachers. Quotations from the interviews transcription were then coded using the ATLAS.ti software in its web version (see chapter 5).

Data collection

Data sources include:

- Observations and pedagogical documentation

The working group agreed on collecting data through observation and pedagogical documentation.

Overt observation: As researcher and scintillae's coordinator, along with the other adults involved, I shared with children my role, explaining the purpose of the research and consequently agreeing with them that we would observe them during our work together.

We showed, described and in some cases shared the observation tools: the notebook with the observation grid, the voice recorder, the camera, tablets and smartphones for recording videos

and taking photos. Children never showed that they were intimidated by the observation, but they were curious and eager to observe and document in turn.

Due to my direct involvement in the experimentations' design and activities' lead, the observation is mostly to be considered as direct participant observation (Ciesielska et al., 2018). I was not an external observer but I was an integral part of the participants group, this allowed me to be perceived as part of the group and not as an external addition, and it was important for other adults and children to continue their activity without feeling the presence of an intruder, to behave naturally. This was extremely useful because it created a sense of trust and of mutual knowledge and the opportunity to collect first-hand information and data. The direct onsite presence was also fundamental in case it was necessary to shift the focus of observation, should an unexpected event occur (Cooper and Schindler, 2014). The conversations and exchanges among children were recorded and noted also by educators, the documentation was the result of the collaboration among all the adults involved.

In order to observe a playful approach to learning, the adults' working group agreed to use an observation grid (*strumento di osservazione*), which was previously developed and tested by the *scintillae* team for similar collaborations with schools, to structure the observation and documentation of play/playful attitudes in educational contexts.

The observer could use the grid to take notes, throughout the experience, of the most relevant elements regarding the learning processes that occur during observation.

The grid is composed of two sections, useful to collect all necessary information, also for a subsequent reflection. The first section refers to the design phase, and it requests some information concerning the situation and the context where the observation is taking place, for example the name of the school the number and age of children, the educational contexts where the activity is developed (which space, a description, ...) a short description of the proposal offered to children and its length. The second section is divided into three parts, related to the time when the activity develops: before, during and after the activity.

The first part refers to the preparation of the educational contexts by adults, where the specific context, any tools used, the organization of activity (if individual, in couple, group can be described). The second part concerns the time of the experience itself, and it requires the direct observation of actions in the context: what strategies children adopt, which are their recurring words and actions. The third part is for the post-observation phase, with the possibility to note down the interpretations of what happened during children's explorations, the fields of

knowledge explored (in terms of formal knowledge expressed and used to actively experiment in the context), and finally about the competences developed along the experience.

The use of the grid from the observer often presented some challenges, as it was not always suited to the needs of the moment, for this reason educators decided to adopt a different “simplified” grid (see appendix), called observation and planning sheet, that they already used during their daily activities with children. This sheet is composed of two parts. The first part to contextualize the activity describing it, the context and documentation tools, the name of educators and working group of children and adults, observation focus. The second part to write down the main events and dialogues of the day, and a side space for any notes.

The observation grid

<h2>Strumento di osservazione</h2> <p>giocare in contesti educativi: focus sui processi di apprendimento (progetto di ricerca scintillae)</p>		<p>Questo strumento di ricerca ha lo scopo di strutturare l'osservazione e la documentazione sul gioco e atteggiamenti playful in contesti educativi. L'osservatore dovrebbe annotare, nel corso dell'esperienza, gli elementi più rilevanti per quanto riguarda i processi di apprendimento che si verificano durante l'osservazione.</p> <p>Se possibile, l'osservazione dovrebbe essere effettuata da qualcuno non direttamente coinvolto nella proposta.</p>
Data ↓	Tempo di osservazione ↓	
Nome dell'osservatore ↓	Domande sulla ricerca/osservazione: ↓	
Ruolo/funzione (ad es. insegnante, ricercatore, atelierista,...) ↓		
Nome della scuola ↓		
Età dei bambini/classe ↓	Descrivere brevemente la proposta: ↓	
Numero di bambini coinvolti ↓		
Numero di adulti coinvolti/ruolo(i) ↓		
Contesto educativo (es. aula, altro spazio, ...) ↓		

I asked for the possibility to interview all six teachers, only four of them agreed to. The other two teachers were unable, one due to health reasons, the other had finished her mandate at school and moved to a different place.

Following the text of the interview¹³:

Introduction

As part of the diffuse school project, Fondazione Reggio Children Foundation, through the scintillae - play and learning in the digital age project, has activated a collaboration with the Officina educativa and the Collodi state primary school for the school year 2021-2022.

The continuous presence of a class at the Loris Malaguzzi International Centre, a 3rd class from September to December and a 5th class from January to June 2022 has allowed the launch of a joint research on a playful approach to learning proposed to children of the two classes.

In this context, adults are identified as the key players for the transition from a more traditional teaching to a new form of teaching that is transformative, active, inclusive and respectful of the times and ways of learning of each individual, through a playful approach supporting the work of adults and children together.

These interviews aim to bring out the point of view of the adults who took part in the project, in particular teachers of the Carlo Collodi state primary school in Reggio Emilia.

How is the interview structured?

First part: profiling

Second part: the experience of adults

Third part: the experience of children (from teachers' perspective)

First part

Role of interviewee: teacher (tenured, special rights, other), educator, other

Age group 20-30 30-40 40-50 over 50

Academic and professional background:

Years of service in the role

Years of service in the same city

¹³ For the original text of the interview see Attachment 1

Years of service in the same school

Second part

1. Since our first meeting, the scintillae research team declared its interest in exploring the possibilities of collaboration on a playful approach to education. What did you think when you heard about it during the preliminary meetings for the collaboration? Have you ever heard of the ongoing research on the relationship between play and learning before? If so, what did you think?

2. How do you consider the collaboration that has been established between adults (teachers, educators, scintillae teams)? What could have been done differently?

3. During the first meetings we often perceived a certain insecurity regarding the necessary competences of children and adults for a path like this. What led you to think this? Would you have the same fear today in approaching an experience of this type?

4. During the collaboration, the teachers were asked to be engaged in the collection of documentation materials, how did you experience this request? What is the documentation of learning processes for you?

5. Have you ever felt distressed or in a difficult position during activities? For what reason?

6. Do you remember when you felt more at ease instead ?

7. We have identified some parameters in the measurement scale of a playful approach to learning. In your opinion, what were the three most important in the experience we shared?:

- learning in a small group

- peer to peer exchange (education among peers)

- cooperation over competition

- the organization of environment

- the role of the adult

- the possibility to use multiple languages (100 languages)

- the relationship with materials and objects (how being able to use some materials instead of others, the possibility of free choice, has changed experiences)

- time in terms of continuity and time devoted to activities

- the challenge to overcome everyone's limits (not a competition to bring out the best but try to challenge yourself and your limits)

- mutual trust, in the competences and potential of children and other adults

- freedom to make mistakes and try again to find another way, a different solution

Are there any others that we could add in your opinion?

7 Do you think to adopt some of this strategies and possibilities in your work with children in the future ?

Third part

8 Let's try to reflect together on what happened in the months of collaboration. How do you think children faced this experience?

9 In the overall assessment of the school experience of children for this school year, did you also take into account what you observed during our collaboration?

Chapter 4

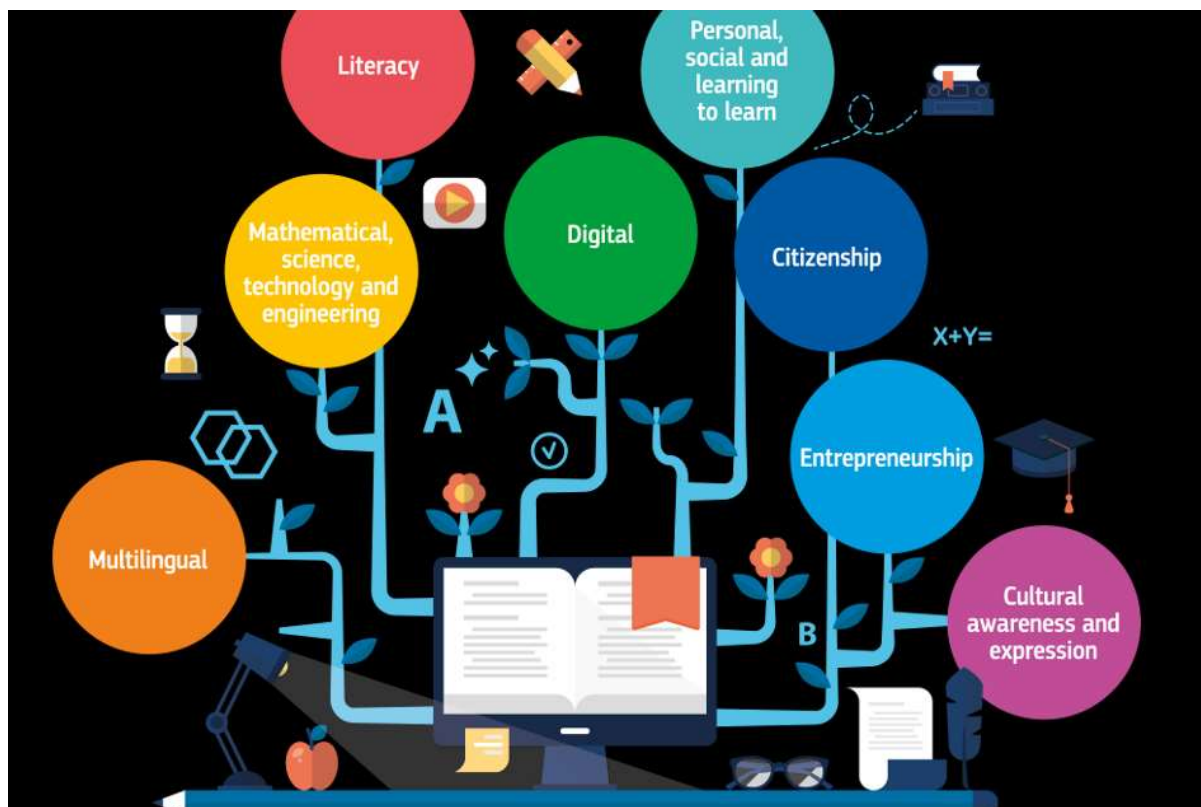
How does a playful approach to learning at school may look like?

In this chapter I share the approach and learning strategies adopted with children and adults in the non-formal setting of scintillae, including some excerpt from documentations of children's explorations.

In 2012, the Italian Ministry of Education, University and Research issued the *Indicazioni nazionali per il curricolo della scuola dell'infanzia e del primo ciclo d'istruzione* (National indications for preschool and first cycle of education curriculum). The document, integrated in 2018 by a following document edited by the Comitato Scientifico Nazionale per le Indicazioni Nazionali (National Scientific Committee for the national indications), outlines school in the contemporary cultural, social and economic context.

The indications reaffirm the role of school as the place for the harmonious development of people in the framework of the Italian National Constitution, and the European cultural traditions, through the promotion of knowledge, and in the respect and enhancement of individualities with the active involvement of students and families.

The indications set the general goals in terms of learning and the related skills development, and take as a reference the framework of key competences for lifelong learning defined by the European Parliament and the Council of European Union.



Cover of: European Commission, Directorate-General for Education, Youth, Sport and Culture, (2019). *Key competences for lifelong learning*, Publications Office.

<https://data.europa.eu/doi/10.2766/569540>

The indications give space to a series of emergent topics affecting society and therefore schools that must be taken into consideration for the role that they can play in terms of citizenship and participation, inclusion, use of new technology, and lifelong learning.

The document considers the last decades' increase of immigrant population's presence throughout Italy. This phenomenon has created local microcosms reproducing at a smaller scale global opportunities, interactions, tensions, and coexistence, and it deeply involves the role of schools to support everyone to develop their own conscious and open identity, also by understanding other cultures and connecting them with their own culture.

In addition to it, the national indications underline and recognize that the spread of information and communication technology gives access to new ways of learning and being informed. This is a central topic for schools that must address and navigate changes by giving value to the empowering opportunities by technology instead of its passive and uncritical use (MIUR, 2012; MIUR, 2018).

The indications intend to set the general, learning objectives and the related goals for the development of children's competences for each discipline or field of experience.

Thus promoting a "didattica per competenze" (teaching by competences) where the concept of competence is inspired by the definition given by the Recommendation of the European Parliament and of the Council of 23rd April on the establishment of the European Qualifications Framework for Lifelong Learning:

'competence' means the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development. In the context of the European Qualifications Framework competence is described in terms of responsibility and autonomy.

According to the Indications, each school institute designs its own curriculum that teachers will implement, identifying the most effective learning strategies with care for the integration among disciplines and their possible aggregation in areas.

The collaboration with the school

Following the school curriculum, the co-design team of adults identified the subject areas of possible collaboration. Teachers guided this process, according to the goals they set in their annual work programme. From the research point of view, it was key to give this role to teachers. In order to experiment a playful approach to learning that was completely new to them, it was necessary to establish a clear connection between the new approach and the curriculum learning goals.

For the class in the third year the guiding focus was the exploration of living beings, for the class in the fifth year the guiding focus was storytelling to enhance children's language skills. The agreement was to explore these focuses from multiple perspectives with an inter and multidisciplinary approach.

Another shared key point was the idea that children should be active co-researchers in everyday activities, thus giving them the agency to advance according to what was interesting for them and building the work proposals week by week following their research questions.

On the other side, the role of adults, teachers included, was to research with children supporting and encouraging their explorations, to offer them a rich learning environment open to the use of different languages, both as ways of learning and expressing themselves, to observe and interpret the processes, to be learners in turn. (Rinaldi, 2021).

The idea to be co-researchers and advance side by side in the daily hypothesis, explorations and subsequent theories in a continuous spiral, going from practice to theory and then back to practice was the strategy to build a sort of informal tailored curriculum that, without ignoring the official school curriculum, was closer to children's interests and motivations.

Thus, according to the concept of playful approach to learning developed by scintillae, the research developed meeting after meeting, week after week.

In order to make it possible for all children to be involved in the project in small groups, the collaboration was scheduled with one or two meetings per day, where the scintillae team remained unchanged, but teachers and educators alternated from time to time. Each meeting lasted about one hour and half.

The first meeting with teachers, before starting the co-design phase, was an occasion for them to express all their concerns about the collaboration. At the beginning of the school year, the school principal, when inviting teachers to join the Scuola diffusa project, asked for their agreement, without imposing their participation. They agreed to be involved with their classes but also they clearly stated their doubts about the idea that their students were up to the proposal, because of their various cultural backgrounds, learning difficulties (in each class there was a certain number of children with medium, light certified learning issues), and they themselves shared to feel inadequate because even if they agreed to join the Scuola Diffusa project, they did not really know what to expect. This uncertainty was partially overcome thanks to co-design meetings but it reappeared from time to time for the first period of collaboration during the activities with children.

A change of “landscape”

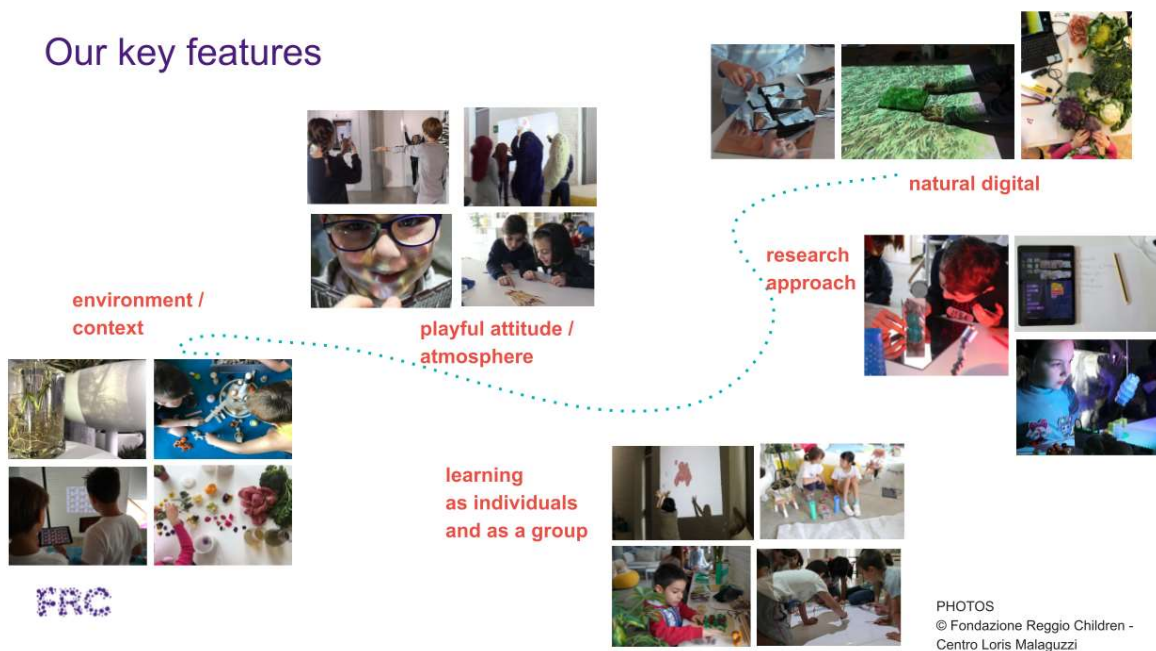
The change of landscape was huge for them, they moved from their school, two blocks away, in a building as the Malaguzzi International Centre which is organized in a completely different way from a school. They had their own “classroom”, a big space that was reorganized for the class. From a traditional way of teaching and organizing the classroom, they moved to a classroom without a teacher's desk, without single tables for children as they were organized in big tables for 4 children each, and without a blackboard nor multimedia interactive whiteboard. They had a white surface on the back of movable shelves to write on and a projector to be used with the computer for projections. And the possibility to move freely in the whole International Centre using it as an enlarged “classroom”.

The collaboration with the scintillae team developed in the scintillae space most of the time, but also in classroom, both at the International Centre, and at the Collodi school (during the collaboration, because of a technical issue with the heating system, they had to return at the Collodi school for some weeks).

A playful approach to learning

The collaboration with the two classes was co-designed based on the features of the playful approach to learning, developed by the scintillae team during its first two years of activity. The approach was shared with the adults’ research team during the co-design meetings.

Our key features



Following four years of work, hundreds of hours of research and design and a wide range of workshops and activities, developed with children and adults (educators, parents, researchers and professionals from different domains) scintillae has developed its own playful approach to learning that can be synthesized in five key dimensions that have been partially shared in previous articles: the importance of environment/context; the playful attitude/atmosphere; learning as individuals and as a group; the research approach as a strategy; the conceptualization of natural digital. (Manera et al. 2021; Donnici et al., 2021)

Environment/context

The way an educational context is designed deeply influences the learning experience. The context includes the learning environment, which can be physical and/or digital, and the social connections developing in it.

The environment defined by Loris Malaguzzi “the third educator”, is the physical, digital and cultural space deeply influencing the learning process, a space that is inclusive. The quality of environment deeply influences the quality of learning and it is strictly linked to the relationships

that can be developed in it. To offer the opportunity of quality learning experiences, the environment has to be rich in materials, analogue and digital tools and devices of different kinds, be flexible and open to interactions to realize a network of pedagogical encounters (Fenwick & Edwards, 2010).

The context should be seen as an integral part of the learning process, where children and adults are in a continuous dialogue and exchange among themselves and with materials and technology. (Strozzi, MLV, 2001). These interactions can shape and reshape not only the processes but those involved in them (Barreiro & Driussi, 2018).

scintillae can be considered as a non-formal learning context with the goal to be an epistemological bridge between a traditional way of teaching to a playful approach to learning, between formal education and family contexts, at many different levels. Time and continuity are crucial variables: taking time and giving time to experience, creating occasions for continuity, expanding the time for learning is a strategy to focus on the process, not the performance or the product.

A quality experience needs an expanded, dilated timeframe, which can give space to all the phases necessary to elaborate and develop thoughts: time for exploration, time for experimentation, time for reflection but also for bewilderment, time to encounter other people's ideas and negotiate.

The environment/context feature can be developed through some key elements: building trust and reciprocity, active listening, the 100 languages.

In the research project the constant exercise to construct a positive context was based on some necessary conditions that created occasions to open up and express themselves for children and adults.

- Building trust and reciprocity

Trust and reciprocity are at the base of the construction of positive relationships among people. Trust can be declined in many different ways, including self-reliance, interpersonal trust, trust in certain institutions, and systemic trust. And the school is the place where trust should be

nurtured since it is there that children build the self- confidence that will accompany them for the rest of their life (Cavalli, 2009). Trust is increasingly recognized as an essential element in school because it is at the base of cooperative behaviour (Kochanek,2005). While on one side, creating trusting bonds is necessary to collaborate, at the same time they open up to vulnerability. A welcoming context is built on trust and reciprocity among peers and across generations.

- Active listening

Since very early in life, human beings are social beings that know how to listen and want to be listened to. An active, mutual listening is fundamental to build trust and to encourage children and adults to work side by side showing care and interest in what others think and feel. Listening can act as a connecting structure operated not just with ears but with a multisensory approach. It is a learning strategy where the whole body is involved and people felt recognized and visible to others (Rinaldi, 2021).

- The 100 languages

The other key element for a playful learning context is offering to children many possible languages,” the 100 languages” to learn, communicate and express themselves. The possibility to have many different opportunities and ways to be in relationship with others is always very precious, as everyone has their own peculiarities, and favourite ways of expression. This can be particularly important in contexts where children have different cultural and linguistic backgrounds.

Playful attitude/atmosphere

A playful approach to learning obviously needs to be immersed in what can be called a playful attitude, atmosphere. This is more related to playfulness than play and it is the natural attitude developed when what people do is born from their own curiosity, passions and motivations. The pleasure that comes from doing something that interests them, and it is deeply meaningful

for them, is the leverage for engagement (Masek & Stenros, 2021). To add more playfulness to learning, especially in formal contexts, the team of scintillae, during previous experiences, identified some strategies that were offered to the teachers and children involved in the research.

For this purpose, it is key to adopt a strategy of listening that allows the learners to build up on open-ended questions, with no predetermined answers, to be open to visions and intuitions. It is necessary to give to the learning group and individuals the freedom and time to try, creating the conditions to encourage them to bring their contribution and to exercise their right to error, making the generative side of errors visible.

Creativity is nurtured and cared for, and at the base of a playful attitude there is a great trust in the potential of human beings while supporting them in the creative process with a genuine attitude of openness and careful observation.

The pleasantness of being in one place is a necessary condition for any experience of community and learning. A joyful, inclusive atmosphere that encourages the search for new intergenerational collaboration and communication strategies, combined with the care that can be perceived when entering an environment designed with attention and dedication, are the basis for building a quality experience.

- Generative mistakes

“It is necessary to admit that we can all be wrong; it is a fact of life, so admitting it is a great step towards progress” (Montessori, 1970)

For a long time and in many fields there have been studies around the concept of error. The human attitude is one of exploration and creativity, it loses this characteristic when it is removed from real situations or when it is not solicited adequately (Mollo, 1986). If it is true that one can learn by making mistakes, then schools must encourage children to make and recognize mistakes (Antiseri, 1985).

The idea of generative mistakes, that are not to be corrected by adults but they should be further explored by children and can be the opportunity for divergent solutions and innovation, is

particularly important to promote a playful attitude. Freeing themselves from the fear of making mistakes and being scolded, or even punished for this, opens up great freedom for children, a space of expression for their intuitiveness and imagination where creativity can flourish. The possibility to make mistakes and even playing with them, e.g. as Gianni Rodari¹⁴ did with his literary work where the misspelling of a word or a double meaning of a linguistic expression changed the course of a tale or gave birth to hilarious nursery rhymes, is often denied at school where errors are to be avoided. In a transmissive mode, where knowledge is to be memorized by rote learning, errors have the connotation of a non-adaptation to the defined system; instead in a mode that allows children to face the problems and organize answers, errors become a possibility of improvement because they favour the comparison of different solutions (Mollo, 1986).

- Non-judgmental attitude

One of the worst fears of children in school is that of making mistakes. The role of teachers should be to provide them the means to learn and understand critically what surrounds them. To make it possible, children should be aware that no one is infallible or perfect and that it is always possible to improve human knowledge starting from their own knowledge, what they can learn and share with others.

This idea opens up to some uncertainty, and helps to reshape the educational relationship (Perkinson, 1983). Children and adults become learners together, in respect of different roles and perspectives, they are co-researchers and co-authors of new knowledge.

This results in a new attitude, where teachers and adults in general have the role to support children to improve and not to control or judge them.

Being in a context where there is no judgment but the possibility to discuss, understand together, compare each other's views, which are equally important, produces a sense of wellbeing and provides the foundation for a playful relaxed atmosphere where learning is a natural process.

¹⁴ *La Grammatica della Fantasia* (1973) by Gianni Rodari is dedicated to Reggio Emilia where he had the occasion to spend some time and work with the local teachers.

- Agency to children

When play is guided by children, they are able and happy to lead the game, their competence in playing is high and when they encounter an obstacle they always look for possible ways to overcome it. When they feel in charge their engagement is at its peak. In the educational relationship between adults and children, usually adults lead, take all the important decisions, and leave to children the role of listeners and executors.

The image of the child proposed by the educational experience of Reggio Emilia, and adopted as a key component of a playful approach to learning, is that of a child full of potential, competent in learning individually and in relationship with others, and a citizen since their birth. Children, as the first and best expression of humanity, are not to be seen as fragile and needy, but as people that from an early age can give a contribution to the community (Gandini, 2008; Gandini, 2012).

Research strategy

The research strategy is a key element of any playful learning experience, where you contemplate multiple responses and multiple points of view. A strategy to engage in dialogue with the whole group, sharing open goals to leave no one and no ideas behind. A welcoming attitude.

A research experience must contemplate unexpected and unforeseen events, because they are always generators of discoveries. The human being is an explorer, a researcher by nature; immersed in a new, challenging context, each subject, helped by the group, will act in their own way to find strategies, producing ideas, theories, sparks of change.

The research strategy is made possible through some conditions: the formulation of open-ended questions, the idea of an emergent curriculum built on children's curiosity and interests, and documentation.

- Open-ended questions

In order to learn more about children's interests it is important to approach them with open ended, generative questions. These are the kind of questions that researchers often use in the first stage of their work, when they are starting a new research and do not have already clearly defined their focus. These questions are wide, open and do not imply predetermined answers, there are of course assumptions about the possible outcome but all is still to be determined. They can generate hypotheses and new questions that step by step, through experiencing and experimenting, may bring to what is to be explored from children's perspective.

This is an exercise that is still unusual in schools. The immediate purpose of learning in school is to be able to get a good grade and pass the tests, to comply with the established educational goals (Robinson, 2016). This implies close-ended questions with multiple choices but only one right answer. This is because at school there is not often the idea to build on children's competences, but to teach them what others have studied and determined for them. As Loris Malaguzzi beautifully expressed in his poem "No way, the hundred is there": They tell the child: to discover the world already there and of the hundred (languages) they steal ninety-nine

15.

¹⁵ The school and the culture
separate the head from the body.

They tell the child:

to think without hands

to do without head

to listen and not to speak

to understand without joy

to love and to marvel

only at Easter and Christmas.

They tell the child:

to discover the world already there

and of the hundred

they steal ninety-nine.

...

(Excerpt from Loris Malaguzzi's poem: No way. The hundred is there)

- Emergent curriculum

The opportunity offered by this kind of approach is of true and effective inclusion. The playful approach is open to building a new curriculum based on the specific interests of children and also to meet the growing request for tailored curricular strategies that can accommodate the full diversity of students and teachers within the education system (Savia, 2015). Children and teachers co-design new possibilities of inquiry to include in the curriculum some aspects of real life, building on everyday experiences and explorations. Thus contributing to new cultures of identity and classroom citizenship (Wien, 2015). The emerging curriculum is not intended to substitute the school curriculum but it can improve and enrich it making it suitable for those particular children instead than standard for any children.

- Documentation

Documentation is a strategy and a tool at the same time. It makes a playful approach to learning visible, and allows to reread, revisit and assess learning processes turning them into shared knowledge. It can work as a link to connect teachers' professional development and children's right to learn in participation (De Sousa, 2019).

Documentation is a fundamental part of the educational theories and practices and gives them structure. "It is a narrative form, both intrapersonal and interpersonal communication, because it offers those who document and those who read the documentation an opportunity for reflection and learning" (Rinaldi, 2006). It does not only have the function to show what happened, but it is a very useful tool to build the next steps (Krechevsky et al., 2013).

Learning as individuals and as a group

In presence, as at a distance, it is fundamental to keep children at the centre of the experience. Starting from their subjectivity means taking into account their world, their ways of interacting with others, their learning times, their past experiences. It means recognizing the diversity of competences, intelligences and languages that each individual approaches and practices in different ways.

The strength of the group is the intertwining of subjectivities, that is not their sum, and it gives life to something new. Through collaboration, peer to peer exchanges, reasoning, hypotheses, negotiation, design, the group collectively construct new shared knowledge.

Being in a group enhances learning dynamics, in which it is possible to promote the transversality of competences, the inter- and multidisciplinary where the scientific thought interweaves the logical-mathematical, visual-spatial, narrative: an ecological thinking.

Play has often a very important role in creating social connections, as it creates enjoyable opportunities for people's interaction. At the same time people themselves are the most effective resource for fostering learning (Mardell et al., 2023).

According to Lev Vigotsky, learning is a social process and collaboration is a useful context for the advancement of competences and skills. Learning with others has the value of being in contact with new points of view and different ways of thinking, thus resulting in a rich possibility of exchange and growth (Vegetti, 2021). Also Jerome Bruner developed the idea that child development cannot be an exclusively individual process, but must be social since only in an interactive relationship the child is able to appropriate the techniques and tools of their culture of reference (Anolli, 2021).

The group's strength comes from the subjectivities entwining, not as the sum of individualities but as something new, where everyone can count on their own background, personal social interactions, prior experiences and on those of others.

Individual learning is offered to the work group and contributes to the construction of group learning (Giudici, Rinaldi, 2001).

Learning as a group can be further declined as collaboration over competition

- Collaboration over competition

There are different kinds of play and many of them imply competition. In its playful approach to learning the scintillae team decided to prefer a collaborative approach. There are many reasons behind it, and they are all interconnected. An approach that is based on active listening, reciprocity and learning in small groups is naturally more addressed towards

collaboration. According to social interdependence theory (Johnson & Johnson, 2005), higher achievement and more positive peer relationships are associated with cooperative rather than competitive or individualistic goal structures (Roseth et al., 2008).

Collaboration shows how crucial social connection is to human nature. It includes everything we do to coexist with others and restrain our unreasonable impulses. Building communities and promoting various cultures are made possible via collaboration (Hirsh-Pasek, 2020).

Natural digital

Through a playful approach, which admits trial and error, borrowing and exchanges of knowledge, regards collaboration over competition, it is possible to promote a natural digital culture. A relationship with digital technology which is acted and not suffered, which contributes and does not oppose human nature, which enhances and empowers a complex and systemic vision of the world.

A natural digital vision that is empathetic and inclusive, that is aware of the multisensory essence of learning to better shape the future of relationships among humans and between humans and machines.

The digital dimension is intended as a place for the construction of differences and cultural complexity, where to challenge the one way of thinking, to rethink the idea of knowledge in a wider systemic, epistemological space - made of 100 languages - where learning is a collective process that respects and promotes diversity and differences.

Digital tools already support the use of different languages; a natural digital vision means to enhance cross languages experiences, also exploring and using different new media.

According to scintillae subtitle: play and learning in the digital age, a special role is played by digital media, constituting some of the main places of experience. In the symbolic dimension that defines it, imagination and intellect play freely with the concepts and experiential perceptions opening new imaginaries in children and adults, showing their relational nature. Digital technology is interpreted through an ecological approach as a connector of knowledge and multidisciplinary explorations, a system that intertwines to analogical languages (Bonilauri

& Tedeschi, 2019). In this sense it can be interpreted in tune with the spontaneous and intuitive learning modalities of children and adults. The idea is to create immersive environments, where digital is among the opportunities offered to explore and research, with the possibility of modifications and interactions, to promote an active use of digital technologies.

An important element as well is to recognize the human nature of computational thinking and digital media and to cultivate empathy among humans but also between humans and machines. According to Seymour Papert the relationship of children with the computer goes already in this natural digital direction: “children use the computer to write, draw, communicate, get information, some use it to meet people, some to isolate themselves... This love relationship does not only imply the desire to do many different things with the computer, but it also has an element of possessiveness, and above all they use it to reaffirm their cultural identity. Often it has been observed that children are more at ease with machines than with their parents or teachers” (Papert, 1993).

Excerpts from documentation

The documentation issued during the collaboration comes from the work of the adults’ team (researcher, atelierista, teachers and educators). It was the result of shared work and reflections around voice recording and transcriptions, notes, photos, children’s artifacts, drawings and notes. The materials collected during each meeting was analysed and reorganized according to meta-reflections processes and then shared with children in order to give continuity to thoughts and explorations from one meeting to the other.

Every child had access to scintillae in small groups, therefore the documentation involved all of them. The total number of children, considering both classes, was 48. On the other side, not all teachers did take part directly in the experimentations at scintillae, but they were indirectly engaged by children, eager to share their experiences with them.

The following excerpts are not exhaustive of all activities and explorations, but they recall some significant incidents happened during the joint work.

Of course the opportunity to collaborate and observe children during the activities was really meaningful in terms of understanding. But, it was not possible to elaborate data from everything that happened:

some children's thoughts are protruding thoughts: these are all those data which, due to their richness and depth of content, cannot be codified. Codifying them, in fact, would inevitably lead to reducing their expressive significance, which manifests itself through strongly intertwined meanings. (Mortari,2019)

Doc. 1 What does it mean to research?

Dialogue among children during their first visit at scintillae.

During meetings with children, before starting explorations and activities there is a time, about 15/20 minutes for an assembly. Everyone sits in a big circle to talk about the possible activities to do together at scintillae. The adults ask a first question, children then start a discussion about it and together they decide what to do.

Every first meeting we had with children, 4 with the first class (they were divided in 4 groups of 5 children each), 4 with the other class (they were divided in 4 groups of 5 to 7 children each, considering their frequent absences), after explaining that scintillae is a research project working on the relationship between play and learning, we asked children the same two questions:

1) What does it mean to research?

100% of children at first gave the same answers: research is something you do on the Internet and related online research possibilities. Their knowledge of different online research options according to what they were looking for was often accurate, most of them could describe where, which research engine or app are more useful, to look for general information, or for a song, a video, or where to find an online game. They did not have many alternative imaginaries if they were not invited to reflect. For them, thinking of a world without computers or the Internet required a real effort in terms of imagination. Another recurring element in initial conversation was children's idea that if they do not know something, they should ask to someone, possibly an adult. They must be encouraged and

invited to reflect before they realize that they can search for what they do not know by themselves.

Conversation 1 – 24th January 2022

Adult: What does it mean to research for you?

Kate: it's like you don't find what you want and then you research to find more information ...

Adult: You mean that if we do not know something we look for it? And where shall we look for it?

on the internet...
on google...
on youtube...
through chrome
on wikipedia...
on bing... (many different voices)

Adult: And do you research at school?

Kate: Yes!

Adult: How do you do it?

Beth: with the laptop of our teacher...

Adult: What if we do not have a laptop? Before computers were invented, how did people do research?

Kate: We go all over the world to search...

Teacher: Who could give you information?...

Kate: Imagination...

Andrea: Our head ...

Kate: Who does science...

Mia: Scientists ...

Adult: Why the head?

Andrea: Because it thinks...

Adult: When do we make a research?

Kate: When we do not know something...

Adult: Would we ask ourselves a question?

Kate: We can look for the person who did what we don't know, we can ask them ...

Adult: What if we do not know that person?

Mia: we must imagine, we must think ...

2) Do you think that when you play you learn and that you can learn playfully?

The second question we asked to every group in their first visit, received more uncertain answers. While the majority replied saying that of course when you play you learn, many of them were unsure of the contrary and replied differently. For example, one of the boys in the third year replied that he knew you can learn through play because he had a board game on mathematics. But when asked if this game was fun and he enjoyed it, he replied that no, it was not fun at all, and he did not like it. Many others were skeptical, they did not think that they could learn playfully at school. They outlined that at school they could only play during breaks and the rest of their time was only to study and learn.

Doc. 2 The co-researcher strategy: involving teachers, adults and children in research, explorations and experimentations

To give the concrete sign that everyone had a role in the research, the scintillae team distributed researchers' badges to all the people involved in the research: children, teachers, educators and the scintillae team itself.

Every time a group entered at scintillae there was the "ritual" of putting on the badge, and every time the group left, they had to leave the badge at scintillae. With this symbolic gesture of wearing the badge, children felt the transformation, and this is something that also teachers noticed.

They reported to us that the behaviour of children outside and inside scintillae was different. They said children at scintillae were more respectful of each other and of the

environment, ready to listen and to give their contribution to the discussion and explorations. One day in particular, one of the children put a special emphasis while wearing the badge. He moved in a very emphatic manner and with a lot of enthusiasm he said it was the time for transformation. He had a passion for superheroes and his way of acting reminded a lot of the moment when Clark Kent decides it is time to become Superman and the transformation happens.

Conversation 2 – 15th March 2022

After receiving the badges and initial welcome

Marco (while wearing his badge): It's time for transformation!

Everybody laughs

Adult: so when you arrive here you change?

Gianni: yes, I suddenly transform myself

Marco: yes, we are researchers

Adult: and who were you before?

Marco: children who want to play ...

Adult: and after? What are you when you go out from here?

Marco: children who want to pla !

Nadir: we are common children ...

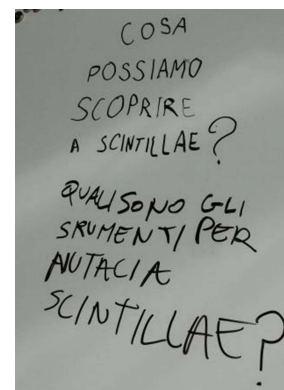
Theo: No, children who came out of a wonderful place that has changed them forever ...

Nadir: (after listening to his schoolmate): we are smart children!

In this case Marco was very involved in what was for him a way of playing, as he declared that before entering and exiting scintillae they were children who wanted to play, and at scintillae they are researchers, another way to play ... Gianni, one of his classmates who had a special rights teacher to support him, was fully convinced of his transformation as well. On

the other hand, Nadir, who was one of the more mature in the class, was a bit sceptical, he thought that they were just common children. Theo, the enthusiast of the group, instead described scintillae as a place that can change people, who experiences it changes, so it is not a momentary transformation, but it is permanent. At this point Nadir, who listened to Theo, turned to the rest of the group and with lighted eyes acknowledged that yes, they were smart children.

The possibility for children to have a role of co-researchers in the research project, changed their perception of themselves. Of course they were smart children even before going to scintillae or they would have been even without going to scintillae at all. But the real change that is visible is their awareness to play an important role and to be smart. The transformation that happened is in the self-esteem that they gained during the experience with their classmates at scintillae.



Doc.3 What do we research at scintillae?

After the first explorations, building on children's interests, the scintillae environment was organized differently. Among the opportunities offered by scintillae, many children were fascinated by video sensing with Scratch¹⁶. It consists of the possibility, given by the programming language Scratch, to program the interaction of the human body with the computer screen or a projection of the computer screen. The scintillae team created two digital characters, one digital little man made of scrap materials and one digitized green leaf. The computer could follow the movements happening in front of the webcam, so every time

¹⁶ Scratch is a visual programming environment that enables users to learn computer programming while working on personally relevant projects like animated stories and games. Its target audience is mostly young people aged 8 to 16. Supporting self-directed learning through tinkering and peer collaboration is a core design objective of Scratch. (Maloney et al., 2010)

someone was moving in front of the webcam the objects on the screen moved. In order to amplify this effect, there was the projection of the computer screen on a white wall. Children played a lot with it during their first visit at scintillae and they were interested to learn how to recreate a video sensing activity.

Since the adults' research team wanted to take this opportunity to increase children's curiosity around Scratch, the "sounding stools" were added. The working principle was the same of the other video sensing activity, in this case a webcam connected to a laptop, was placed above some stools, and each time people passed under the webcam, in some specific points, the computer would make a sound. At first this surprise effect generated a lot of fun and curiosity to understand where these sounds came from. In fact, stools were arranged in order that the sound started when someone was sitting on them or was nearby. Once the trick was exposed, children started investigating on the computer and found out that there were code strings behind the sounding stools.

The dialogue refers to two visits by Miriam, a little girl attending the school who was still not able to speak Italian. This is something that happens frequently, when a new family with children moves to Italy. In fact, by law, children have the right to attend school and parents have to comply with it. Miriam was with a small group of schoolmates, one of them helping her with the translation from Arabic to Italian. She was really interested in understanding how she could herself invent a video sensing activity.

Conversation 3 - 24th January 2022

Miriam and Gaia notice the video sensing with Scratch

Gaia: She says that this is projecting here, but it's not here

Adult: It's true, but what is it that you see? Please ask her what she sees ...

Gaia: She says that she sees these and these, but not these ones (she indicated the mobiles hanging from above)

Adult: Where do you think it is? Let's try to get closer (they make some trials)

Gaia: She said it is in the laptop

Adult: What's going on?

Gaia: There is a face now!

Adult: Was it there before? What do you think?

Gaia: She says that when we move, it moves as well ...

Adult: And now does it move?

Gaia: She doesn't know. Now I stand still and it doesn't move, now I move and it moves

Adult: So they move with your movement? Do you think it could be a clue? Something that interests you?

Gaia: Yes, a strange thing ... She says there are two different things that follow our moves, and the green thing is the face!

Adult: What does the green thing do?

Gaia: When I move it goes here and also the face!

Adult: Does it follow one of you and the other follows another one, or does it follows both?

Gaia: She said both



When Miriam visited scintillae for the first time, she spent a lot of time on video sensing. She was trying to understand how it worked. Her classmate and friend Gaia translated all the comments Miriam made on her experience. Gaia, as other schoolmates who were Arabic speakers took care of supporting Miriam with the spoken language issues. The second time, when we added the sounding stools as a new possibility, Miriam did not comment. She just stood for a long time behind her schoolmates observing them and trying to figure out how to change the sound programming on the computer.

Conversation 4 – 1st March 2022

Adult: Have you seen this somewhere before?

Marco: Never. But I'm good at computers!

Adult: What's on this screen?

Theo: There is a video, a camera, it sees everything we do and then the camera connected to it transmits the image below ...

Adult: How is it connected?

Theo: Through a wire ... Look! You can also see that it goes down

Marco: There are some dots! [on the screen], I would like to add more but I can't ...

Marco tries to operate on some computer keys but he does not get the desired effect.

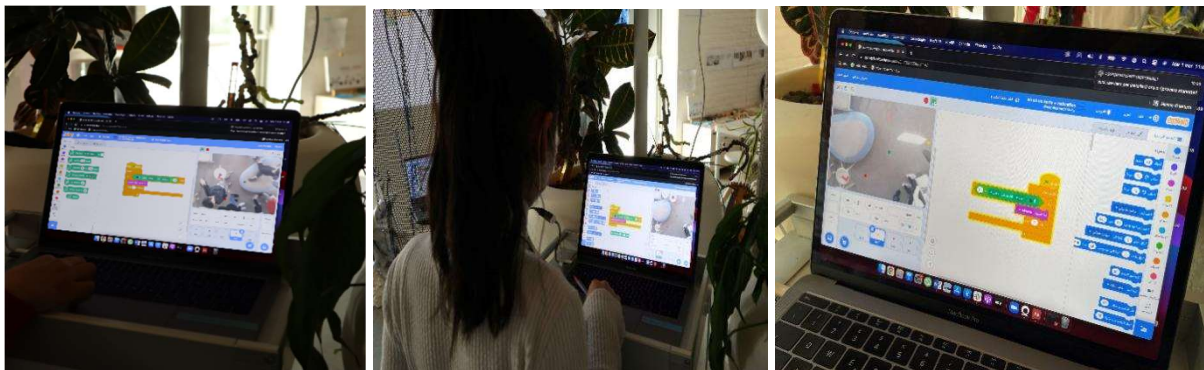
Adult: Is there a relationship between the strings you see and the camera?

Silence

Theo: Here it is MUSIC, that's why! You can change the music: electric piano, let's see what happens [he selects a different sound] ... Guys, I can change the music!

Marco [discouraged]: Well, I don't understand anything ...

When her classmates left, Miriam approached the computer, two adults of the research team were nearby and told her that Scratch had different language options. She immediately looked for Arabic and shifted the code strings from English to Arabic.



She was then invited by her schoolmates to move to another activity, and the sounding stools were silenced in order to avoid too much noise in the space. But once everyone was back for the final assembly at the end of the meeting, something new happened. The video sensing projection of the little man and the leaf was different, as every time someone passed by, little dots, as those present on the sounding stools programming, appeared in the projection. And when children approached the stools they started sounding again. Everyone was very surprised except Miriam.

In fact, when others were busy, she found the way to recreate the dots on the other video sensing activity, and how to restart the sounding stools, but she did not tell anyone, because, after she explained, it was a joke for the rest of the group.

Miriam found her way to express herself without using the verbal language, she wanted to be part of the group and the” contagious” playfulness of others suggested to her the idea to play a little trick for her schoolmates and teachers. Seymour Papert wrote that when teaching the computer how to think, children had the occasion to reflect on their own way of thinking. “Thinking about thinking turns the child into an epistemologist, an experience not even shared by most adults” (Papert, 1993) In the course of her experience at scintillae Miriam continued to lead the group on the use of Scratch. This was a possibility that made her an integral and, sometimes, leading part of the group of peers, an opportunity she did not have before because of the language barrier. The opportunity to observe the experimentations that other children were doing with Scratch gave her the inspiration and the possibility to try new ways, building on their schoolmates’ trials and errors.

What emerged from the documentation of children’s activities

Environment/context: Many questions and long conversations were developed during the meetings with children. Their curiosity and natural interest was awakened by all the materials, tools and plants present at scintillae. At the beginning children explored the space and many of the possibilities it gave to them. They asked questions to the adults and tried to draw their own conclusions. The difference between scintillae’ setting and the school setting questioned them, as they were aware that the work they were doing at scintillae was school as well. The context less formal of that of a classroom allowed children to rapidly have confidence in the new adult people they met, thus making them feel free to express their ideas and hypothesis without the fear of being judged or evaluated negatively.

Learning as individuals and as a group: Children enjoyed particularly the opportunity to work in small groups, they were looking after each other and were often making hypothesis and asking questions on the experiences they were sharing in order to better understand them. The peer to peer exchange was a practice encouraged and happily welcomed: explaining to others what one of them had learnt, in a way to make it understandable, was an opportunity for some

children with more difficulties to feel protagonist and enhance their sense of belonging to the group of peer. They felt appreciated and understood.

Research strategy: The pride to be a researcher, to be directly involved by other children and adults in a research to answer shared questions motivated enormously everyone. Children realized that each of them had something to add to the work of the others, and everyone was entitled to speak. In this sense, the renewed awareness of teachers that started to think to themselves as learners as well and adopted a listening approach, facilitated the transition from a community of teachers/students to a community of learning researchers.

Playful attitude: The freedom to express themselves was new to children. At scintillae they could communicate in different ways, using various languages and deciding the kind of activity they wanted to carry on for the day. The only bond they had was to give continuity and meaning to their work. The possibility to work around topics of their interest fuelled children's motivation and self-awareness. Although some of them still sought adult approval as they felt a little uncomfortable with so much freedom, playfulness pervaded their explorations and experimentations.

Chapter 5

When is that moment, that spark, that motivates teachers and educators to shift their thinking about teaching/learning?

After collaborating for some months I interviewed teachers, in order to understand when adults come to the awareness that learning can happen through a playful approach with mutual benefits for children and adults.

In the past century all over Europe, National Governments worked to guarantee equal rights to education to all children. On one side this was necessary to eradicate illiteracy and to promote the growth of well-educated future generations of workers, on the other side schools had the task to nourish the idea of citizenship, building it since very early in life.

This effort brought to the introduction of centralized curricula and standardized testing, that had to meet set learning standards. This also resulted in the request that teachers should work according to clear learning goals and assessment criteria (Schultz et al., 2022).

In Italy, according to the National Indications, and following their general framework, schools can define their own curricula. Public schools have to ensure that children reach the same set of learning standards and the education system provides standardized tests (INVALSI tests) that are to be carried out at different stages of schooling. This system gives some freedom to the teachers' initiative but at the same time, due to standardized tests, puts a lot of pressure on them (Robinson, 2016; Novara, 2018).

During the months of collaboration and research, teachers had the occasion to work in a different environment and with a different approach. This allowed them to observe children from a new point of view, and in some cases it was as if they saw them for the first time. This is partly understandable as the assumptions that one has on who they know from a certain perspective become their idea of that person. And this is what can prevent teachers from seeing children differently, even in new situations.

The dialogue on the role of adults was very lively in the adults' research team. What often came out of the confrontation was a certain idea of school and the role of teachers very linked to a traditional way of conceiving education and the idea of children.

Since the specific focus of this research was to understand better how and when teachers move from a more traditional, transmissive teaching to a playful way of learning/teaching, at the end of the school year I interviewed the teachers in order to have a better understanding of their thoughts about the experience, and to learn more about their perspectives.

The interviews were organized as semi-structured, and they were composed of three parts: profiling, the experience of adults, the experience of children according to adults.

In total 10 questions including the profiling part.

- Profiling: this part was useful to have a profile of each person interviewed, gender, age, years of service, years of service in the same school;
- The experience of adults: this part was meant to collect first hand impressions, thoughts, reflections on the experience developed in collaboration with the team of scintillae;
- The experience of children according to adults: this part, consisting of two questions, was meant to collect teachers' reflections about children's experiences.

In total, the teachers invited were six, all those involved in the experience.

Two of them were unable to attend (one for health reasons, the other as she left the school soon after its closure).

Each interview was supposed to last one hour, but three of them had so much to share, and were happy to do it so that the interviews lasted longer.

The interviews were conducted in Italian and have been analyzed in Italian. This was a choice in order to keep the original meaning of what teachers shared, in fact, borrowing the metaphor of translation in ANT¹⁷, as explained by John Law (2016, p.144), even if translation

¹⁷ "Actor Network Theory is a methodology developed in the 1980s by scholars working primarily in the sociology of science and technology. It is a novel approach as it attempts to redefine actors not so much as willful or intentional agents but instead as any entity—human or nonhuman—that in some way influences or perturbs the activity of a techno-social system" (Crawford, 2020)

is “making two words equivalent”, the two words are not exactly the same, so to translate may be considered as a “betrayal”, because the translation inevitably changes the original. A translation of the texts in English will be provided anyway to make them understandable to all readers.

In order to protect their privacy, all people involved, children and adults, except those of the scintillae team, have been renamed.

To analyse the emergent information from the interviews, according to the features of the playful approach to learning in combinations with the main concepts emerging from the exchanges with teachers, some categories were identified and coded. Quotations from the interviews transcription were coded using the ATLAS.ti software in its web version.

The categories partially coincide with the key concepts and identified elements outlined in chapter 4 (see table 1), partly differ. In fact, following what emerged from the teachers’ interviews, it was necessary to add some categories related to the states of mind, and recurring definitions.

Table 2

category name	code group
Environment/context	Environment/context
Environment/context 100 languages	Environment/context
Environment/context active listening	Environment/context
Environment/context building trust and reciprocity	Environment/context
Learning as individuals and as a group collaboration	
Playful attitude/atmosphere non judgmental	Playful attitude/atmosphere
Playful attitude/atmosphere agency to children	Playful attitude/atmosphere
Playful attitude/atmosphere generative mistakes	Playful attitude/atmosphere
Research strategy documentation	Research strategy
Research strategy emergent curriculum	Research strategy
Research strategy open-ended questions	Research strategy
state of mind feel inadequate	
state of mind mettersi in gioco	
state of mind uncertainty	
recurring definitions rigid	

Code group: Environment/context; in this code group I have included different elements related to the environment intended as the physical space, materials, objects, analogue and digital tools and to context that is the environment with the social part.

This code group contains four sub-codes related just to environment and context, or in particular to building trust and reciprocity, active listening, and the 100 languages.

Code group: Playful attitude/atmosphere; this code group is more related to aspects specifically connected with the idea of playfulness in formal education contexts. The sub-codes for this group are the concept of generative mistakes, the opportunity to work in a non-judgemental context and the importance of giving agency to children.

Code Group: Research strategy; this code group contains connections with the research strategy adopted by children following adults' invitation, and the idea proposed to adults to be co-researchers. The sub-codes refer to both possibilities and involve the possibility to work and build on open-ended questions, the opportunity to construct an emergent curriculum that is build day by day in the exchange and interactions among and with children, the documentation as a possibility to develop an emergent curriculum and for a meta reading of projects.

Category: Learning as individuals and as a group; this category refers to group learning, peer to peer exchange, the idea of cooperation over competition.

Category states of mind: the answers to the interview questions touched on many personal aspects. The collaboration established by the scintillae team and the teachers was very deep and fruitful, in particular with interviewees 1 and 2 who attended most of the meetings with children at scintillae. The trust developed during the months of collaboration, brought teachers to really open up during the interviews, and they became confidential at times. This is why I have decided to add categories related to state of minds, identifying three in particular:

- to feel inadequate - in the interviews this is the most used definition to express uneasiness, the idea of not being suited for the proposed experience
- uncertainty - the new way of working created a lot of uncertainty as it removed some of the key elements of transmissive teaching to reverse the perspective
- mettersi in gioco - this is an Italian expression that has no literal translation in English, it is usually translated as getting involved, but the translation misses the playfulness that is part of the Italian idiom, as it would literally be getting oneself involved in playing with an emphasis on the risks involved. For this reason, I decided to leave it in Italian.

Category recurring definitions: in the course of interviews there was a definition that all teachers used, as referred to themselves, to colleagues, to children or in general to school: rigid. This was a recurring expression that they used intending to indicate the contrary of flexible, open and relaxed.

For each coded category there are corresponding quotations on both positive and negative aspects experienced by teachers and children during the collaboration.

Environment/context

“... So even space has a great deal of importance in structuring completely different educational activities.”

The influence of a learning environment, as a physical space with all its characteristics and including materials and tools, on educational activities was confirmed by teachers. The opportunity to be at school at the Malaguzzi International Center, with a completely different organizational structure in terms of spaces, was a challenge and a possibility at the same time:

One of the critiques that I heard about this collaboration at Collodi, is that ‘it was impossible to teach in the space they made available, it's not a classroom, it's a corridor, there are no blackboards, it's not possible, there are columns in the middle’.

It wasn't easy for us either, however, in reality, in my opinion, having a completely different space available that doesn't have the characteristics of the classic rectangular classroom represents potential.

In particular teachers found useful the possibility to make children collaborate in small groups and this is something that they tried to replicate at school as well. With the additional difficulty brought by the health distancing rules imposed to avoid the spread of COVID-19

With COVID they had even organized our classroom desk by desk as in the 1800s, so we didn't come from there [the Collodi school] having the children at the table like this and working in this way, after a short time I also began to offer my work to a small group to activate them, to make them help each other

And thinking about when I went back to school, that we put the desks all distant due to COVID, but for example afterwards we transformed these rows into groups

of three by putting two desks together and three chairs, so surely they were looking at each other face, this is an important thing

I have sometimes tried to move tables to create a small group, and join two tables to try to keep together children who have similar characteristics in some situations, and this is much more complicated in a regular school. So even space has a great deal of importance in structuring completely different educational activities.

The scintillae space was offered as an epistemological bridge between the more traditional way of teaching towards a playful approach to learning and teaching, the intention was to give to teachers and children a concrete occasion to experience a different approach to learning. More than one teacher gave me back a feeling of wellbeing and relaxation while at scintillae, and some reflexions, thinking about the possible therapeutic use of scintillae for children with specific learning difficulties:

I think it is due precisely to the predisposition of the materials, to the colours, to the smells, to the silence but also just to your tone of voice, when you speak, I am hypnotized, kind of relaxed, because school in general is very chaotic, no? Then you walked through a corridor and you were in a completely different world. Yes, but in fact, among other things, I believe it could serve as a therapy, I dreamt, sometimes I thought, who knows if a place like this is a little more [welcoming] for children too, you know.

Even those with ADHD, attention deficit disorder, hyperactivity, who knows in a place like this how they would be, it should be experienced.

Environment/context: building trust

The first necessary step to create a collaborative context was to know each other and learn how to work together. There were many people attending the first meetings, as the project included, besides the teachers, the municipal educators and pedagogista, the scintillae team, Reggio children company, since they were all involved in the Scuola diffusa project. After

the first period, upon specific request of the scintillae team, the meetings were organized differently reducing the number of participants to facilitate the exchange:

At the beginning there wasn't this knowledge, so in my opinion it is very difficult or I repeat as we also told Teresa¹⁸, I don't know how much it will be possible, but we meet first, we tell each other things also about children, as we see them

The interlocutors diminished overall and we learned to interact in a different way, that is, with you in a particular way, after the relationship was direct with you [as scintillae team], it was no longer mediated by so many others as it was at the beginning.

The opportunity of a direct interaction without mediation was an important step to get to know each other better and to build trust among the adults and with children. Of course many meetings were necessary to really understand each other but being open and ready to exchange views and suggestions was the base to build on:

Registering means changing something, trying to add something, trying to remove it, [learning] the name of the children but also the type of activity, and how you saw them. Maybe yes, getting to know each other first, getting used to working together which is very, very important.

But in my opinion, as we said before, the issue of getting to know each other a little is fundamental, I immediately saw the opening of you, in the sense that this is certainly the basis, that is, if I see on the other side a person listening to me and that she takes things as I say but she takes them to work on them this is certainly the basis.

Building trust and reciprocity in working groups is not always granted, in two cases teachers shared about some issues they had in their own work team at school, with colleagues. The kind of collaboration developed inside the research project made them

¹⁸ The coordinator of the Scuola diffusa project for the City of Reggio Emilia.

understand that there could be a way to fill the lack of trust with colleagues that was creating distance on many levels, for example in the vision of children and their evaluation, or in the organization of the work in the classroom. Teachers wanted to understand how to create positive conditions in their internal work team, where even if teaching styles were be different, they worked with the same children and families

In my team, as already mentioned, it's no one's fault, but there is a person who finds it more difficult to share with me about children, then when I bring my vision of Tom, of that and of the other, into the co-design of activities there is respect, but a slightly more open exchange is always very difficult.

If you don't pull from the same side, if you don't understand that that material is an added value and not a commitment

The suggestion to trust also children's competencies that teachers observed flourishing during the months of collaboration gave them new hints. The possibility to propose shared experiences to build on together, children and adults, the idea that everyone can contribute to co-construct new knowledge for the class. The opportunity to join competences, visions and forces opening up new possibilities:

Afterwards, when you pass on information, when you pass on content, even when you build a path, knowing that they share the foundations behind this path that you have taken, because they have shared experiences, helps a lot.

Because there is a side to spend in all, yes, and therefore this broadens the horizon of possibilities, certainly a method that gives an edge to learning.

Environment/context: active listening

The main strategy for the research and the collaboration among people who did not know each other before was active listening, the openness to a mutual exchange that implied deep care and relied on others. In this case listening was intended as making everyone at ease and

visible to others, being recognized and appreciated thanks to the unique qualities that everyone possesses. It is a kind of listening that requires practice, it is not automatic, it involves all senses and it implies the suspension of judgment. It is not just listening to what one hears or sees, but also to emotions (Rinaldi, 2006):

In short, it turned out to be a good collaboration for me, for example I appreciated the fact that you didn't expect everything right away, well, in the sense that you also waited for adaptation times in a certain sense so I shared this experience as it progressed.

The risk that not all people involved had the same openness was concrete, especially in the first phase of the collaboration, when many people from different organizations were meeting all together:

Briefly, this aspect in which many of us talked about education and instruction, but each with his own language and with his own priority with the risk, a little bit of the time, of not understanding each other, or of underestimating or overestimating the other's point of view.

But in my opinion, as we said before, the issue of getting to know each other a little is fundamental, I immediately saw the opening of you, in the sense that this is certainly the basis, that is, if I see on the other side a person who he listens to me and that he takes things as I say but I see that he takes them to work on them this is certainly the basis.

The active listening was a strategy to build the relationship among adults and with children as well. It was a way to learn more about each other and to give everyone their visibility in the group. Letting children talk without correcting their grammatical errors was a way to give continuity to the communication flow, not just in terms of content but also creativity (Csikszentmihalyi,2013). Teachers were tempted to correct children, some of them did it, some of them decided to observe and waited to understand more:

At the beginning I saw that you let them talk a lot, you collected a lot and let's say you corrected little and nothing. I'm not saying that I had to correct but maybe I had the instinct to give inputs for, but after that I said okay then nothing. So I'm keeping quiet because this isn't the way, I was like that for a bit.

In a context ready to listen to them, children became more willing to listen in turn, the great enthusiasm around the opportunity to work in small groups was also related to the possibility to get to know each other a little better.

I saw in them a great desire to try in this sense, and there are also some children in the class who are very ready for this type of exchange, very ready to listen to others, to try, so I absolutely see it as a good strategy to pursue just as a way of working, hoping to be able to do it in short.

And, as already underlined, everyone could give their contribution to the group learning, as one teacher said “because there is a side [in terms of competences] to spend in everyone”.

To listen to what children, and adults, could offer, it was important to be open, to be aware that every occasion could be a learning opportunity not to be missed, and that everyone could be the bearer of something interesting for all:

So the important thing is to be a little open about what anything can become, which sometimes even surprises the children, they didn't expect to have done such an interesting thing, but this gives them a reminder that they can do interesting things, or at least things that can be useful, here.

Also in terms of listening to each other, teachers decided to share the issues they had with their colleagues at school, comparing the internal collaboration with the collaboration within the research team, and with interim teachers. The awareness of an alternative way of working has led in some cases to the decision to break off the professional partnerships of many years to look for new directions:

So I felt very supported by them, more than perhaps by Interviewee 3, which in short, in my opinion, we didn't always find ourselves super aligned, we really went through moments of difficulty because I'll tell you in the end, it's a bit like two parents who at that moment they don't get along and they say: sorry, but what are you doing, what came into your mind to change direction.

And on this, since we always have a very frank relationship, Interviewee 3 and I, especially now that classes are ended, we managed to discuss a lot more and we both understood that maybe we needed different things, so much so that next year she will be almost exclusively the specialist of English and I'll do something else.

Environment/context: 100 languages

An important feature of the environment was the possibility to make available different qualities of materials and tools, to be met by children. As they constructed their knowledge of the world starting from their individual or group perspective, they had at their disposal the wider possible range of learning and expressing opportunities. This variety was necessary because, as children are all different, or their learning processes may be, there was not only one language that was right for everyone, but there should have been options so that each child could choose the one, or more than one, language that was suitable for them (Vecchi, 2010).

And I believe that at scintillae everyone really found their space, then it turned into language but not in the strict sense of the term. And this was very important to me, being also a teacher for children with special rights. It is a subject that is very close to my heart actually. Because it is obviously difficult to be able to include so many children with so many different languages in the classroom. Instead, I really noticed here that everyone was able to find his channel and everyone had their own space to express his language. Or maybe being supported by a partner in expressing the partner's language.

This wide choice of languages was a pleasant surprise for children, as it made them think differently, triggering their curiosity and motivation, and they immediately took advantage of the new opportunities.

They were too enthusiastic, I felt that there was just this desire to touch, to do, to look, to wander, that beyond the cognitive possibilities that you have, to be able to experiment, wander, touch. Even objects, if these objects, these games that they don't have at home, when you go looking for them you feel even more like touching and experimenting. They had a chance they might not otherwise have.

In the past, before the collaboration started, some teachers had the idea to create a variety of opportunities at school as well, but she was not supported by her colleagues who thought that adding materials to take care for was an unnecessary addition of responsibility:

Not only the place but also the material, I'll give you an example, I have always, especially with the first graders, brought a lot of material to school, from games to books, mainly this, games and books, I would also have done other things like disguises to encourage role-playing a bit, like this, but in the end I've always found myself a bit hindered by my colleagues, they said no, it's a huge commitment to keep up with all this material.

What emerged from their reflection is that a real possibility of change can only come from collaboration. Teachers are often isolated at school if they are not able to agree on shared strategies with colleagues, even if they are desperately willing to change, this is not something that they can do by themselves.

Learning as individuals and as a group

“I think it is another fundamental thing, really constitutional, to learn to cooperate, to help each other”

One of the interview questions was about the three features of a playful approach to learning that teachers would bring into their classroom after this experience with the scintillae team. They answered in different ways, naming different possibilities. The only feature that was chosen by all four teachers was the idea of group learning (Krechevsky & Mardell, 2001). The reasons behind it depended partly on the restrictions imposed by the sanitary rules due to COVID-19 that prevented for a long time this possibility, partly because group learning is not such a widespread practice. Teachers observed how children with different competences and backgrounds could support each other, in an intertwining of exchanges, reasoning, hypotheses, negotiation, design. In this way groups collectively built on each other's competences and skills to construct new shared knowledge. “I could say cooperation and not competition”

Dividing children in working groups was a strategy pervading all activities children were doing at the Malaguzzi International Centre: in their classroom, with big tables for four children each, and during the activities at scintillae.

Surely the group work that sums up a lot of what, the image I have here of the children, a table shared by four children was a continuous exchange that was certainly not structured because it was also very free.

I saw in them a great desire to try in this sense, and there are also some children in the class who are very ready for this type of exchange, very ready to listen to others, to try, so I absolutely see it as a good strategy to pursue just as a way of working, hoping to be able to do it in short.

This way of working was welcomed by many, but there were also children struggling with it. Especially for children in their third year of primary school, whose school experience started

in the year 2019-2020, and were deeply affected by the lockdown and consequent school closures.

For example, for a very good boy like Arturo, we really saw that it was very difficult to work together.

Precisely because in his head there was no group as a place to discuss, but the group as a place to show what he can do and therefore certainly the size of the group is very important.

Other children instead benefited from this way of working, in particular children with specific learning disabilities, or children who did not speak Italian, or more generally who had troubles writing. Teachers also expressed the idea that exchanging in peer to peer relationships helps children overcome some of their limits:

I really like peer to peer, peer to peer because in my opinion peer to peer really flattens, it's like a sickle that cuts the grass of diversity, and it's something that fascinates me so much that is, among other things, we have always educated them to help each other.

For example, we have seen that Tom works much more in a group, but if he has children next to him who are able to listen to him and therefore motivate him like Mirko, like Elena.

Or maybe being supported by a schoolmate in expressing the schoolmate's language, I don't know if I was clear.

An added value of group learning for such a diverse group of children was identified by teachers in the development of shared experiences that means a shared lexicon, a shared understanding, and the co-construction of knowledge.

Working in groups became a way to build a background for all to draw on, thus making a little easier to cooperate:

Because you manage not to stop every minute to explain what it means, for a whole series of things because children like ours who have few words, little lexicon have that lexicon, the lexicon on Scratch, on plants, or that lexicon ..it helps to grow tremendously.

The continuous exchanges happening in small groups made learning “contagious” as explained by one teacher:

Peer to peer, for example, as you said, I too have observed a lot of this contagious learning, this contagion: learning a little by attraction in short. In my opinion it is something that I have seen a lot in children's relationships with each other and that they also brought back to the classroom afterwards, even in many activities carried out in the classroom.

As they saw the value in group learning, teachers tried to find strategies to make it more effective, with the desire to continue to work in this way, in particular identifying for the groups shared goals, the possibility that in groups each member can have a specific role that can change over time. Or asking groups to prepare some contents for other groups and then exchange them:

I saw that if there was a goal of this kind the group was much more ready, so I would add this aspect to these things, the fact that there is a realistic competence, something they can spend.

Certainly I work in a group but an organized work, where there is a group that manages to work together is also a group where there must be roles, which can then be changed the next time. However it is a very, very important thing, at least for my group it was especially important to learn cooperation.

It was a question of studying or revising, I had some questions prepared and distributed them then table by table they answered and then exposed their classmates even a little to liven up, who asked the questions, who the answers

Research strategy: open ended questions

As part of the research strategy, adults were asked to pay attention to their questions to children. In order to leave children the freedom to express themselves, and to construct their idea of the world, the initial questions for joint conversations were open-ended questions. It was very difficult for teachers to work in this way, as the kind of questions they usually asked to children were aimed at checking if they had assimilated a topic or not. There was a lot of surprise, if not disbelief, when children asked questions and the answers were other questions. The reason for it was to invite children to think, and not to settle for a predetermined answer.

Being with so many children with whom you spend a lot of time, sometimes you even take it for granted, if anything you have to do is to answer, without going around it so much, and therefore I was quite shocked by this thing and I didn't feel up to it

Initially I thought how can you not always give an answer to a question precisely because I was tied to our approach, that is the one for which you have to teach, teach, teach, give immediate answers.

There were some special cases, for example in one of the classes there was a child with learning difficulties and, according to his teacher, he could not work without precise instructions on what to do and how to do it.

Gianni unfortunately, no unfortunately with him, in fact maybe we'll talk about this later, with him it wasn't so appropriate to ask a question without giving answers because maybe it was more difficult than this thing here, he's a child who needs answers, that is, not of answers, to be driven, I call it teaching without error, that is, you have to tell him what he has to do and you also have to help him do it in some cases.

The position of most teachers was to find a balance between this idea of keeping the questions and answers very open and giving more precise answers in some cases. Some children were very frustrated at the beginning, because they were used to ask adults to understand what they had in front of them, but when they met adults that, instead of replying to their question, asked them back about what their thinking was on that particular subject or if they had some hypothesis for it, they replied annoyed or suspicious. They could not figure out how an adult did not know the answer to their question. This seemed too risky to some teachers as they were afraid of appearing less reliable to children.

But even there it is a question of, in my opinion, on the one hand saying, it is always played on a thin line, on the one hand, don't disappoint them, don't say, they are in the hands of someone who does not know, on the other hand, sending the message, surely if you try to find out you don't forget it or it becomes common heritage.

In my opinion this is an important aspect and that is you have a role as an adult, decisive no, because you are never decisive, but an important role that is, on one hand you are a reference for them, on the other, however, you encourage them to ask themselves questions, to understand.

On the other hand, the possibilities opened by this way of working was fascinating because children's theories and visions started to become visible to teachers' eyes and sometimes they were really surprising. Also teachers saw how much reasoning was behind children's processing and the *reflective skills* that could be exercised in this way.

Surprising or in any case at much higher levels than the content that we hope will pay off afterwards, the more one goes on over the years the more they pay off because they are remarkable reflective skills.

It pays off afterwards not to give ready answers right away but to also seek from them what they feel.

Not giving answers and asking more questions and this is also the basis of adult education no. But these are all things that I understood after spending a long time at scintillae, after a few meetings, and how important it was there.

Some teachers decided that this experience was to be valued as something to be further explored in their everyday work with children.

This story of questions fascinates me so, so much. And I think this will be the first thing I want to work on. And then one thing that I will definitely take with me is doing more than doing, that is, doing in the sense of building materials, above all creating freely. That is, we have to do this thing, and how do we do it? I'm not going to give indications.

Then I am deeply convinced today, after that experience, that this way of asking questions without giving the right answer is a very right way that you must have to arrive at that idea of co-construction of knowledge, for which among other things I've studied many books but it's actually a bit difficult to put into practice, but that's exactly how it is.

Research strategy: emergent curriculum

The research strategy was for its nature open to new possibilities. The construction of an emergent curriculum that could meet all children's curiosities thus enhancing their motivation was explored during the research. There was not much flexibility on this aspect of teachers' work. Probably also because the school curriculum was already defined after internal negotiations and it seemed hard to identify clearly this aspect of the work with children. It may be useful anyway to mention some teachers' reflections on cross curricular competencies shown by children or emerged during the collaboration that can be a trace for future work.

The engagement of children as co-researcher made them work very seriously, even the youngest, using the scientific method that they were studying at school of observing a phenomenon, making hypotheses, testing the hypothesis, and comparing the outcomes with classmates. This exercise that they did, involved everyone and implied a big cognitive effort by children:

Because to find how to solve it, you have to make hypotheses, you have to evaluate the possibilities, in my opinion this, I found myself in this, apart from the fact that they answered as you say, even the children with the most difficulty formulated hypotheses anyway.

Formulating a hypothesis means that you take into consideration the data that they have given to you or that you have seen and you have tried to put them together which is a big process from a metacognitive point of view, or in any case cognitive.

Since the beginning of the collaboration there was the search for connections between the work of children at scintillae and the school curriculum, the coding activity offered a possible link to cross disciplinary competences.

In my opinion that is the most important part the winning one in the sense that it helps, because for a certain moment I thought, but where is the hook and initially then I found it in this coding as they call it now, it has always been done, it is the ability to line up actions according to a logical order to pursue an end that then serves you in any situation.

Research strategy: documentation

“Documentation is that strange thing that when you read it again, you understand the importance”

The topic of documentation was a very controversial one. It was something completely new for some teachers, and little explored or understood by others. There was the idea that documentation was a narration of what happened and a possible way to share it. “ I realize that documentation still serves you to resume the discussion and also to give value to what you do because over the years I have done many things.” This was an initial partial vision, more in depth thoughts emerged from teachers' comments about their experience of documentation after our collaboration (Dahlberg, 2017).

Documentation was the main responsibility of municipal educators during the collaboration, but teachers were asked at the same time to document. The first engagement to document was made by the municipal coordinators out of the research meetings. The proposal to document was then repeated during the adults research team meetings.

Teachers' views about documentation differed from the rest of the adults research team, but none of them shared it along the months of collaboration. The importance of documenting was taken for granted from the side of municipal staff and scintillae team, thus creating a gap of communication. In fact teachers reported after that they never thought to openly discuss the value of documentation, as it was presented as an essential part of the experience (Dahlberg,2017). And this can be easily perceived by some expressions they used during the interviews, such as “the ‘holy’ documentation”, or “we don’t believe so much in documentation” as if it was a dogma, something that could not be discussed.

On one side the younger teacher thought it was useless “The first time I saw it, I was a little skeptical, then afterwards, I also thought it was useless, I tell you honestly, and when they asked me [to do it], I did it quietly also because when I was asked I was already shifting my thinking.” More experienced teachers shared that maybe documentation is something for young people “because teachers of a certain age can see it as a waste of time”.

During co-design meetings the adults research team discussed the documentative materials that were made available by the municipal educators: transcriptions of dialogues, photos, short videos. The shared reflections about those materials gave life to documentation of children's learning processes. The documentation resulting from this joint work was a valuable ally to build the work with children on their own learnings and interests. Meeting after meeting, it was clearer and clearer to teachers how documentation could open new opportunities to children and themselves.

I certainly saw more aspects that I would not have seen in other contexts or in any case I would have seen perhaps with more time ahead ...

After that I value documentation, now I am more aware of it, but until then I didn't realize what it meant, why we had to collect all these words, these thoughts or these photos.

But in the end I took something positive from this, as I told you before, as well as the fact that one thing that I really liked about the documentation is that you can go back and re-read these things the children said, which for me are extraordinary things, for me this is very fascinating

Teachers realized as well that *re-reading* what happened, this meta level of reading could be very useful to understand more about children who may have some issues in communicating: "In my opinion, we, as teachers, don't believe so much in documentation, we're not used to it. But we should try harder because it really brings out more things, especially children who have no other channels than drawing or illustration."

And the awareness that they gained from this work was worth sharing with children, in order to raise their self awareness and understand what they can achieve. As meetings with children were organized on a weekly basis, often documentation was shared with them from one meeting to the other in order to remind them of their previous experiences and to discuss their processes together.

So the important thing is to be a little open about what anything can become, which sometimes even surprises the children, they didn't expect to have done such an interesting thing, but this is a remainder for them that they can do interesting things, or at least things that can be useful, here

I say this because for us teachers, how to say, as Interviewee 1 said, unfortunately, it is very difficult. However we really need to find a way to, because when we have the opportunity to look at it even with children, it also gives a lot to them.

Documentation allows you to work ... to put the child at the centre as the thousands of university books said, because you know a little about this idea, the Montessori idea. Because when you read it [documentation] again, you really understand where you can get thanks to their contribution.

From this awareness arose the need to understand how to document and how to incorporate documentation in teachers' already busy schedule: “ On this, I think that we, as teachers, would need to do some training, not only on how to document, but also on why”.

Documentation is not a formalized practice in state schools, so teachers first thought that it had to be recognized. In order to become part of their work it should be included in their work schedule and there should be time to dedicate to this practice: “in my opinion, the time that the documentation process requires is a time that has to be planned, structured and in some way, even recognized to teachers”.

Hence the idea of thinking about a form of *sustainable documentation*, as the attempt to imagine some possible modalities: “a sustainable documentation, that is a documentation that or even replaces the children's notebooks, which become precisely a trace left by the children where they can”.

Since time was described by teachers as one of their main concerns, one of them started thinking on possible strategies allowing her to document without spending too much time on it:

Some things that a teacher can choose to do that can help you document: it can be an interview, a couple of words that everyone can share, because you have very little time, with a voice message which is very quick, and it can be the drawing that you keep afterwards, you can take a photo of it and show it later. It can be writing, or writing about the drawing ...

Or it can also be asking, as we do after group work, how it was, what worked and what didn't work, why ... perhaps making a list of sustainable documentation, that you, teacher, can do and then take back, can be useful.

Documentation had a key role in making visible to teachers the way children processes developed during the collaboration, this was for them a very first approach to documentation. They saw the possibilities but they thought it difficult to develop as an everyday practice. During the last meeting there was the proposal to continue the collaboration focusing on documentation, as they found it very useful to understand and to see more of what was often difficult to observe during the shared activities.

Playful attitude/atmosphere: generative mistakes

A key feature of a playful attitude is the possibility to make mistakes, that sometimes can give life to something new. Since the collaboration in the project was with a school, there was the concern that teachers could not be so open to this topic. On the contrary they were very sensitive to it

In other words, being able to make mistakes, which maybe isn't on the list of soft skills, but the fact of being able to make mistakes and being able to try again in another way is a very important thing, but also to be able to accept the mistake, which many children among other, because of so many other variables, they don't accept, they get very desperate, like, I'm not saying it, but this thing is terrible, it scares me, so much, it scares me so much, and this is a fundamental thing.

Making mistakes at school is not usually allowed as it gives negative feedback on your commitment and academic performance. At the same time teachers shared that children overreacted to mistakes, because of all the pressure they feel, even at a very young age, and the need to work on it.

Surely, however, you can't be wrong at school, that is, you really can't afford to make mistakes, you [teacher] stand there with the red pen saying: no, you can't. Instead here this is possible and I think it is also an important thing as for the other thing we said before for your personal development, beyond teaching, knowledge.

Teachers shared some of their strategies to welcome mistakes, through disciplines, they had different proposals. Mistakes could be analyzed in order to understand why one did them and to avoid them the next time, or explore the possibility to try different ways to get to the final result.

The freedom to make mistakes and try again on that, however I talk about it very often even if I lecture, so let's say I have it as a habit. In the sense that doing mathematics, problems, there are different ways to reach the goal, the shortest one, the longest one, you could try again.

We did it in English, on the expression *keep calm*, precisely had come out and so we called it *keep calm and make mistakes*, you made a mistake but look what happened, try to understand, when it happened to you how were you, a whole series of reflections and then yes, this certainly gives you the opportunity to make mistakes, which you almost never allow yourself.

The strategies offered still implied the negative idea of mistakes, the idea of generative mistake is still very far from a traditional way of thinking.

The freedom to make mistakes for sure, this is another crucial point of the school.

This kind of error is a very interesting topic especially if we think of school, i.e. formal learning, because the error is not admitted or in any case it is seen as something very bad.

Playful attitude/atmosphere: non judgemental

As teachers shared, the fear of making mistakes was something hugely influencing children in their choices, “and above all for very good children, the error is something that paralyzes, paralyzes.”. In order for them to enjoy learning and be freed by the fear of mistakes, scintillae was offered as a non judgmental context.

Children have certainly experienced this possibility to get involved to a greater extent, they experienced what was interesting for them, the great freedom that comes from not being judged, and also get used to spending themselves personally by coming out, because for better or worse, everyone had to do something.

The importance of group learning was once again underlined by teachers, that saw in the peer to peer exchange a possibility of growth for children without the pressure of being judged

Then the peer to peer makes you feel so much at ease compared to being with the teacher who always insists on the same spot, who is there to insist

This was particularly meaningful for children who had a strong sense of responsibility and learnt how to behave according to adults’ expectations sometimes neglecting sociability or other important aspects of children’s life:

I also saw a child in difficulty like Arturo and I saw how important it is for him to cultivate other aspects more, which he does, but he doesn't show them at school, because he thinks I only want to see those aspects there. Perhaps I make him

believe it too eh, there's also that to say, in the sense that I as a teacher, if anything, let this pass, but in the general assessment of a child I also look at those aspects there.

A playful approach to learning, keeping open this possibility of now being judged, gave more freedom also to teachers, as they could imagine to have a different approach to children that had positive outcomes for everyone involved in the educational process:

On the other hand, keeping it in another way, finding another modality frees up a lot of energy, yours, as a person who you can therefore use to see the class better and also for the children, you relieve them of that high expectation and then they release more energy according to myself.

playful attitude/atmosphere: agency to children

“But afterwards they started off, they warmed up too, that is, I saw that they went ahead in terms of knowledge, in solving problems, in carrying forward their stories, their work.”

Among the features identified for the development of a playful attitude/atmosphere, one of the most important is the idea that children can lead their learning processes. This concept is far away from the traditional idea of education in formal contexts and this is proved by the difficulty that teachers had in accepting this way of working.

The youngest interviewee shared her idea about it very clearly, saying that often at school, children are considered as passive learners: “If we want to talk about pedagogy, in reality the school is still very based on the idea that the child is a black box in which to put notions and that’s it.”

Children welcomed the opportunity to follow their interests and curiosities as a pleasant news and were very engaged and committed to the explorations they chose. Being at school in a new environment and with a different educational approach enlightened their interest. Even if

their teachers had a hard time at the beginning, most of the children immediately plunged into the new opportunity.

Children have certainly experienced this possibility to get involved to a greater extent, they experienced what was interesting for them, the great freedom that comes from not being judged, and also get used to spending themselves personally by coming out, because for better or worse, everyone had to do something.

And so they felt strong there and the protagonists. And so, consequently, when you are the protagonist you are enthusiastic about facing this experience and yesterday we were talking about learning styles ... Perhaps this is not an experience for everyone, but it certainly was for those who are more addressed on doing rather than sitting there studying on big books.

Being the protagonist of their own learning was not an easy task anyway, it required a big effort from everyone, as all of them had to activate themselves, one of the teachers recognized that this part of the work was particularly challenging for them. Even children who were used to being left alone, because there were no high expectations on what they could do, were invited to contribute to the work in the small groups. Everyone was treated equally, also because there were no assumptions about what they were able to do or their possible learning issues, also because for privacy reasons teachers could not share too much specific information on children.

The challenge to overcome their own limits, the challenge to themselves, which implies a self-evaluation, a small goal, the search to overcome difficulties to achieve this goal, in my opinion it is a very important focal point especially when working in a reality as heterogeneous as ours, where each child has a different challenge to carry on, this makes me very excited”

Teachers who were a bit skeptical at the beginning, changed their mind when they observed how children came out differently from whom they were used to know:

And then someone said well, now we can get up, like, we now want to go to work, in short, after we have done a lot of theory ...

So in my opinion we should use more, I started with an idea that was confirmed, but maybe I would use more of the things that they [children] too choose, that they see as beautiful, that catch their attention to make them go on some paths because, a path shared by the whole class makes everyone grow so much.

Teachers started to make connections with the formal learning activity, which was something that was encouraged since the beginning, but that seemed difficult from their side, as they continued to think about separate disciplines that could not be assimilated out of traditional teaching.

Speaking of INVALSI as far as mathematics is concerned, now I don't know the Italian tests, but they often ask you for logic and in any case to get out of certain closures, and this type of work, this approach, even playful, however stimulates you to look for personal solutions, let's say active and this is in line with what is then also required.

Of course what children experienced was just the beginning of what they could possibly develop if the same approach had a continuity in the classroom activity, but they at least had more awareness of a different way to learn:

Then the next step is to understand how you did it, in order to be able to do it again, it is something that comes later, but in the meantime you tried to put things together and you didn't wait for someone to tell you, do it like this, why, no, no, absolutely.

According to one teacher, giving agency to children, making them feel in charge, changed their behaviour also in terms of focus and discipline.

They feel a bit grown up. As far as their behaviour is concerned, I haven't reached the end of fifth year so relaxed from the point of view of managing the class group in years.

After witnessing the changes children went through, teachers were convinced that the experience from children's perspective were to last also in the future.

“These children have really fully entered into that atmosphere, I really think it's an indelible mark in their formation.”

State of mind: feeling inadequate

“Yes, then I had these fears because I think that this is very much the result of both the training that each of us has, and the fact that no one has taught us to do it differently.”

What emerged from the interviews was the great responsibility that teachers feel towards their work and their fear of not being able to respond to expectations. This was not only related to the work we did together, but involved their role and their work in general. Teachers must report about their work to many different actors: children and their families, colleagues, the school principal and their employer, the State. They work sometimes in extreme conditions, e.g. the second class we worked with had 28 students, from 16 different cultural and linguistic backgrounds, children with special rights, families with important legal issues to face, irregular residents, children with very different fluency in Italian, in this particular case two children did not speak Italian at all. This is an enormous heritage in cultural terms but a huge complexity to manage in everyday school life.

In particular, since teachers had different academic backgrounds and they were of different generations, their perspectives were sometimes distant. When asked about their difficulties in this collaboration, one of them shared that at the beginning of her career she felt inadequate in her role. This was because she did not have a traditional academic background as teacher, anyway her studies in social sciences were enormously important for her to understand children, but this made her feel different and a bit out of place:

I started as a class teacher and immediately the first times were very hard, I didn't feel adequate.

I didn't recognize these skills which, on the other hand, were very important for me in the transformation that took place, but what I immediately saw was that I didn't know how to teach my little lesson as a teacher and this made me feel a little yes, I felt a little inadequate.

This feeling of inadequacy was instead very openly shared by her colleagues when talking about the beginning of the collaboration. At first, some meetings were organized by the municipal staff in charge of the Scuola diffusa project, and there were also meetings with the research team. But the feeling of uneasiness, the fear not to be up to was really strong at the beginning:

At the time the impact was very strong, not in a positive sense, in a negative sense, I didn't feel adequate for this role, above all because it wasn't clear at the beginning, because I think that scintillae is a place that must be experienced, it cannot be told. If not in the form of major training.

As for our relationship as teachers with the scintillae team, in my opinion it was a very good relationship, let's say that we tiptoed in with many fears right in the face of an approach that was completely new and completely unknown to us, and we had difficulty figuring out where to put our feet, because it was a new exploration for us, and we, as teachers, were perhaps more frightened than the children themselves, who perhaps find themselves more at ease in contexts, new contents, less structured than what we are used to.

Teacher managed complexity everyday at school, but what triggered their insecurity was not knowing what to expect. On one hand, everything was very new to them, on the other side the quantity of opportunities opening in front of them was too much to handle from their point of view:

So, for example, what had put me in particular difficulty was the plurality of stimulations, not only of materials but also of tools, I remember the very first times I entered [at scintillae] amazed but at the same time a little discouraged.

“There was a plurality and perhaps even a complexity of instruments that put me in a bit of difficulty.”

Some of them experienced very bad times:

Before starting, precisely in order not to create these moments of panic that I experienced, anxious and also Interviewee 1, she actually doesn't sleep at night because of these things. So yes, training for me would have been very important.

The most difficult time for me was when the children explored freely, in the sense that they were able to have curiosities or activate behaviors that I, as an adult, was amazed in the sense that I was unable to accept all the provocations that they took from that place and therefore I felt a bit silly.

What was very different in the proposal of a playful approach to learning was the role of teachers, which was more of support and encouragement than of powerful leadership. Teachers were invited to be learners with the whole research team, so they should not have all the answers as they used to at school. Children were guiding their own learning and teachers were invited to support them:

There at the beginning I saw that you let children talk a lot, you collected a lot and let's say you corrected little and nothing. I'm not saying that I had to correct but maybe I had the instinct to give inputs for, but after that I said okay then nothing. So I'm keeping quiet because this isn't the way, I was like that for a bit.

Teachers had to give up some of their educational power:

“For me as a teacher it was also a different way of being in the classroom, I am one who has always kept the class fairly, in an authoritative if not sometimes authoritarian way.”

What was very hard for them as well was asking questions that had to be open to every possible answer, which was very different than asking children for the only right answer that was in their school book:

When you spend a lot of time with so many children, sometimes you even take it for granted, if all you have to do is answer, without going around it so much, and therefore I was quite shocked by this thing and I didn't feel up to it.

The moments of discomfort as I have already said were particularly those in which I asked a question, I don't know if I asked it correctly, or with respect to the documentation, with respect to the lack of pedagogical training I had with respect to this approach.

“Oh my God, if they ask me a question, am I up to answering”

It was a feeling of uneasiness, as they were requested to leave the usual way of teaching. And this feeling continued even if in a different way, after the collaboration was over, because when teachers had to do children's final evaluation, they felt that something did not work, because they did not do it in the usual way:

I did the assessments of the children and I had the impression of having been less incisive on what could have been the somewhat more traditional school learning.

I could have worked better in my opinion, in the sense that I'm not referring so much to you but to what we, as teachers, perhaps a little older, a little more accustomed to working in certain ways, in short, has often involved spending energy and concerns in one direction rather than another.

During the first meeting with teachers some perplexities were expressed about children's "adequacy" for an experience such as the collaboration we were proposing. The insecurity of teachers mirrored on children:

"Because I believe that the children themselves have felt a little insecurity on our part because, even if one wants to hide it, when the adult is insecure the child feels it, I'm sure of this"

Working with a playful approach brought to the reinterpretation of the role of teachers, with more empathy towards children and themselves, recognizing that people can change according to the contexts or situations they are in, and there is not only one way of being or no single way of acting. And that teachers are human beings and cannot solve everything by themselves:

But on the other hand, even the thing you give to the other, the reference you give to the other is not a definitive reference: you are doing as usual ..., and this is so much because you give them hope. And it's always like this, even for you it's not that you're always like this, it's that sometimes you are like this.

Because instead, without thinking that there is a solution for everything, but seeing it from different points of view can actually help you, even to feel less inadequate because you cannot solve everything yourself.

State of mind: uncertainty

"We felt a bit like being there doing something at times whose meaning we didn't understand at all."

The new role assigned to adults, teachers included, puzzled them. Even after an introduction to what was going to be, and after the scintillae team and municipal educators reassured teachers that they would not be by themselves, they felt confused and uncertain on what to do

and how to do it. Sharing their leadership role with other adults but mostly with children and the idea of shifting the focus on learning moving from the final goal to observe and follow the process, was difficult to put into practice.

“When we entered scintillae or when you talked about it I said: oh my God, and what are we doing in here?”

“It's a different place. I was very scared of these things here.”

“I had no idea where I was going with this, I have to be honest, so I just observed”

“Because it was very difficult for us teachers to bring all of this back to a kind of planning that was clear, that is, we said: all right, let's leave, but we didn't know where we were going.”

“Having unhinged our way of working so much, it was like entering a situation step by step without being aware of what the final result would have been”

The listening attitude towards children was surprising to them who were used to being the ones you have to listen to. The scintillae team and educators had an active and involved way of listening, documenting what was happening, and also taking notes of what children were saying.

I would have said more but it seemed to me that it was not the right way to carry on because I saw that you listened a lot, you collected so I said ok, maybe it seemed that I did not participate but I did.

Yes, then at the beginning for me it was absurd. The first thought that occurred naturally to me was: are they crazy, what is their job? What is the point of this stuff here, of staying there writing also because I saw Anna, you, the educators always writing and so for me it was a bit strange.

This big change created doubts and uncertainty also for children. In particular those who had the best performances at school did not have the same results in the new contexts. They were not brilliant as expected by their teachers, on the contrary they seemed in trouble, they did not give the meaningful contribution that they usually gave during class lessons:

Two children, Fabio and Joseph, come to my mind, they in my opinion are very, very competent children from the point of view of learning, perhaps they are among the best in the class, but they have never managed to contribute so much during the experiences we had at scintillae, because they were a bit lost in my opinion from this learning method.

But there are also children who, when faced with so much space and so many stimulations, they are more disoriented than when faced with a more structured and slightly simpler situation.

Seeing them and seeing other children, apart from Fabio who has this pedantic way of acting, he must always prove to the world something that he is not, because he shows false security. Barbara, perhaps this is what they ask him too.

As one of the teachers said during her interview, this new approach worked as a “sickle that cuts the grass of diversity”, all roles were questioned, and the best students were a bit *disoriented* as they were not certain on what to do or how to behave, being at school but out of the ordinary school situation. This was because they were used to following a *more structured* and *simpler* scheme, as their teachers said, and the complexity that was offered at scintillae made things more difficult for them. In connection with this concept, an element that is also specifically coded, but that crosses the whole collaboration was the fear of making a mistake. This was a big issue both for adults and for children, out of their certainty, the risk of making a mistake was around every corner.

Being able to accept the mistake, which many children among other things, due to many other variables, do not accept, they despair a lot, like, I'm not saying it, but

this thing is terrible, it scares me, a lot, to me it's so scary, and this is a fundamental thing.

The fear that teachers expressed on the difficulty to accept mistakes seems addressed only to children, even if this same issue is shared by adults, especially in the new contexts where they were all immersed together.

The first part I was in trouble because I didn't quite understand where [we were headed]. After having seen the modality a little, in the second part of the collaboration, I already felt calmer, that is, I then tried to support the children.

Once the new approach was clearer, and the work team spent more time together and knew each other better, teachers were willing to do their part with a new perspective of supporting and guiding children.

State of mind: mettersi in gioco

When asked if they wanted to be involved in the Scuola diffusa projects, the teachers of the Collodi school did not have the same opinion. The project in this case was in collaboration with the Malaguzzi International Centre, the place representing the pedagogical experience of Reggio Emilia to the world, with a specific approach to education.

We could have done like so many teachers who said no, instead I, in fact, at the beginning of the year said to the school principal: if there's a chance to stay there all year round, I'm there too, no problems. I would have gladly been there since the beginning of the year.

Some teachers were worried, some were curious to experience something new

“No, no, it didn't worry me because if I have to face new things, on the other hand, I'm very willing, I like new things”

it was of course an opportunity that involved some risks, but the curiosity towards something new prevailed over fear.

So this represented a huge upheaval for me, but also a way to get involved, otherwise I wouldn't have made the choice I did of trying to get involved in a completely different school experience from the one I come from, if I had not understood its potential and appreciated its modalities.

This state of mind implying the involvement in something unknown and risky can be defined as *mettersi in gioco*, the Italian idiom to express it that also contains a reference to playfulness, since *gioco* means play.

So for me having this attitude of learning playfully is really a complete change and I don't know if I do it but in general I see that when I let myself go and have fun even in class the atmosphere changes.

In the choice to join the projects children were, of course, guided by the teachers, but they seemed very curious to try a new approach to learning and were very easily involved due to their enthusiasm and receptiveness.

Other children, on the other hand, let themselves be completely involved in this experience. I looked for the famous words of Theo and Marco that one day he had been very nice. (see dialogue in chapter 4)

Because in my opinion, even just experiencing certain situations, entering through that door and seeing so many stimulations, as Interviewee 1 said and which you mentioned earlier, they are able to see many things in this, a thousand reasonings, a thousand things they can do.

The multiplicity of possibilities offered to children were the starting point for the first explorations and then to develop the project. Every day was an occasion for children to exercise their curiosity and creativity.

Recurring definition: rigid

Something that was very evident during the interviews with teachers and also analyzing them afterward, was the recurrence of the use of the adjective *rigid* to self-define their own way of being, to describe family background, in general, to talk about the school context. The flexibility required by the playful approach proposed during the collaboration was of course far from the rigidity expressed by teachers, which initially made the experience really hard for them.

“It was very particular for me also because I'm very rigid, you know”

“Because I've always been a bit rigid as a person.”

“I couldn't activate so much because I'm a 55-year-old adult, a bit rigid, with her mental patterns so I was amazed by them [children] who were so active.”

Trying to self-analyze the nature of her own rigidity, one of the teachers described her family background, but also another teacher did a similar analysis for one of the children who came from a *very rigid family*

The first years [of working as a teacher] I had this, after a while I saw that I was too, too rigid, that is, I gave little space to the different aspects. In that period I was very, very rigid, a family of hard workers in my house, farmers, my mother, my father, so we as brothers, we are 4 brothers, we have always seen work as something to be accomplished.

I remember Fadi well that among other things he comes from a very rigid, very rigid family. Coming from such a rigid family, the fact that he discovered that you can learn playfully was a hit in the end.

The school and work colleagues as well are described as *rigid*, that in this case took the nuance of structured, strictly organized and not open to change. Even those who declared to be *rigid* recognized that the school should be more open to become more interesting and pleasant for children and adults.

There are a lot of positions, which I recognize because I too am very rigid, but very rigid on certain "it's like this because it is so", the positive thing is also working in a different way, working in a much more beautiful environment and this counts for a lot, and much more stimulating not only for children but also for us.

And those who were more resistant to change anyway moved to a different perspective, declaring their openness to find a balance between traditional and new approaches, to step away from very rigid positions.

Yes, one cannot go to extremes, or everything or nothing, a balance is needed, recognizing the value of every type of experience, far from certain rigidities, that's for sure.

This balance is considered necessary to meet everyone's needs, so that also children used to a *more rigid learning situation* can feel at ease. This need is related by teachers to the fact that some children already are in a pre-adolescent phase of their life and are more hesitant to get involved in a playful approach to learning. This may be one of the reasons of their lower enthusiasm towards the new approach, but there are many other possible reasons, one for example, as some teachers said during their interview, there is also a lot of pressure on children by their parents, or by teachers themselves that affects their behaviour:

There have been other children whom I have seen perhaps more in difficulty than in a more rigid learning situation; in the sense that they are slightly more pre-adolescent children, where my [the child's] operating must be within modalities, I can't let myself go too much, even if here I see something that I like, it's not good for me to be there transforming myself and being playfully involved.

Teachers observed children from a different point of view and this helped them sometimes to change their opinion on some children, but in general to see them in a broader perspective, understanding more some aspects that were not visible during classroom lessons. And some of them decided to take these new insights into account in the children's final evaluation phase:

In reality, I also took this into account in the evaluation of the super good ones, which you know the typical one you say is really good, in these cases they were more rigid.

The new approach allowed teachers also to see themselves in a new perspective, and showed them that a different way of working could also improve and increase their wellbeing at work, leaving some rigidity in favor of more openness and playfulness:

“So the first important thing that I see is feeling better about myself because if one is less rigid and opens up more possibilities, one feels better.”

Some considerations

The analysis of interviews allowed to give evidence to what was more important to activate a playful approach to learning from the teachers' perspective. The different way of working with children allowed teachers to observe them in a context that offered not only a new environment rich with possibilities, but also an unusual activation of relationships between children and adults. The coded categories that mostly emerged through a careful examination of what was shared by teachers, excluding the state of mind category that deserves a separate analysis, were “research strategy:documentation”, “learning as individuals and as a group: collaboration”, “playful attitude/atmosphere: agency to children”, “environment/context: building trust”.

The first category, related to documentation, was very controversial in the teachers' feedback. Documentation was something that they felt as imposed at the beginning because its function was not immediately clear to them. During the months of collaboration they had

the opportunity to better explore the use of documentation in their everyday work as a tool to give continuity to children's learning processes and, in the long run, as an opportunity to keep memories of what happened and its meaning. They also proposed to develop a collaboration on documentation with the scintillae team, looking for a *sustainable documentation* that can help them to integrate this practice into their work at school.

The second category in terms of shared reflections was “learning as individuals and as a group: collaboration”. This was the most appreciated opportunity of the whole research project: discovering, or rediscovering, after COVID-19, the possibility for children to work in small groups. This was the only category that they all identified as a key feature of a playful approach to learning, and that they chose as their privileged way of working from that time on. Despite the health restrictions (which were still in force in Italy in the school year 2021-2022) and the difficulties caused by the school environment which is not always suitable to favour group work.

The third category identified through the interviews analysis is “playful attitude/atmosphere: agency to children”. When preparing for the collaboration and consequently during the co-design meetings, it was widely shared among adults that in a playful approach to learning children should take a central role in relation to their own learning processes. Nevertheless, teachers were startled by the attention and care of the scintillae team and educators in what children had to share, their curiosities and interests. The reversal of roles, children speaking, adults listening was not understood by teachers at the beginning. What became evident during the collaboration was the enthusiasm of children, the way they seemed differently engaged, the passion and commitment in what they did at scintillae. This is what made teachers change their attitude and reflect on the opportunity for children to take the lead and make visible what they were able to do out of the strict school routine.

The fourth category is “environment/context: building trust”, that gives a central role to relationships as a key factor to build a good learning context. This topic was explored from several points of view, including the relationship among adults, among children, and between children and adults. As the adults and children working group needed to learn to know each other and how to work together, building trust and reciprocity was one of the main commitments of the first period of collaboration. The way the collaboration among adults developed in the research project, for some teachers, initiated the rethinking of the relationships with their colleagues at school and subsequent decisions to find new balance in

their internal dynamics. This was an unexpected outcome that teachers reported as a long deferred step that they were encouraged to take as a result of the work developed together.

This research involved all participants at a very deep level, not just in terms of professional engagement but also from the emotional and human side. The transformative process that everyone went through was deep and challenging in many phases.

For this reason it seemed appropriate to create some “state of mind” categories, in order to code what teachers expressed in terms of feeling inadequate, uncertainty and *mettersi in gioco* (getting involved playfully). The collaboration was in fact very challenging for all teachers and for some children as well. The playful approach to learning proposed by the scintillae team implied some drastic changes of the usual modalities of work at school at many levels, for this reason the initial reactions reflected a strong insecurity and uneasiness besides the uncertainty caused by the offer of complexity, in terms of quality and richness of proposals and materials/tools, instead of structured, more reassuring activities. The ability and desire to get playfully involved, of *mettersi in gioco*, by adults and children were the drivers to overcome the negative states of mind and enjoy the opportunities presented by the playful approach.

Through the collaboration I was trying to understand what was changing for teachers but I did not expect some of the final outcomes in terms of the choices they made. All four of them decided to change something in their way of working, but not just in terms of including some of the possibilities experimented during the research in their everyday practice, but in terms of professional and life choices.

After realizing the kind of context they would like to work in, two of them requested to be transferred to a different school: one left Reggio Emilia, another one decided to move to a different primary school of the same institute, where the Reggio Emilia approach had been experimented for some years. Another one decided to change her teaching subjects, choosing to focus only on one of them (that is teaching the same subjects to more classes instead of more subjects to two classes). And the fourth, who previously had some organizational responsibilities at school besides her teacher’s work, asked her colleagues to release her from other commitments so that she could spend more time working with children instead of in the office. All of them shared that their decisions were influenced by the work we did together.

Conclusions

Despite international Declarations and Conventions, pedagogical Treatises and studies carried out over the years, talking about play and playfulness in formal educational contexts still generates some suspicions.

School is still intended as certainty, predictability, instruction, while play is imagination, experimentation, perspective, uncertainty, choice.

For this reason, proposing a playful approach to learning as a platform of research and collaboration between a school and the non-formal learning context of scintillae did not have obvious results.

However, the collaboration, developed during a whole school year, resulted in some outcomes, that can be summarized as follows:

- **the centrality of relationship:** according to what emerged from teachers' interviews, building trust and collaboration are among the core elements of a playful learning experience, and, we could add, of any learning experience. Teachers experienced what it is like to work in a context where their competences and experience were valued. The continuous exchanges on a daily basis and during the co-design meetings was the key to build trust and reciprocity among the adults research team. The relationship with children, as well, was cultivated through active listening and mutual trust (Rinaldi, 2006), flowing into the opportunity for children to guide their own learning processes, being protagonists and agents of change. In both cases, for children and adults, working in small groups helped them to know each other better and to learn how to positively collaborate, offering their own competencies to contribute to group learning, both through peer and intergenerational exchanges;
- **teachers (and consequently children's) wellbeing:** the three teachers that said to be less acquainted with a playful approach to learning were also those who reported more personal benefits through this approach in terms of wellbeing, feeling more relaxed and less stressed at the end of the collaboration: "... In general I see that when I let myself go and have fun even in class the atmosphere changes"; "... I haven't

reached the end of fifth year so relaxed from the point of view of managing the class group in years". Quitting the role of who had to give all the answers and returning to the side of the learner has changed the self-perception of teachers, who from a *rigid position*, that they declared at the beginning of the collaboration, rediscovered the playful, enjoyable side of their work.

- **the need for professional development:** teachers had a hard time at the beginning of the collaboration. Despite preparatory meetings and conversations, the approach proposed was so distant from their idea of education that all of them thought that a specific professional development activity was needed before starting the collaboration. This is something that emerged only at the end of the research, as they did not mention it along the way. According to teachers this was particularly necessary when working on documentation, on the topic of open-ended questions and all the situations that reversed the roles of adults and children. Teachers also mentioned the need for more formation to reassure children, as their confusion was also perceived by children. From the observer's point of view children were much less surprised and confused than teachers, apart from a few cases, but of course it took them some time to realize that they were asked to be active protagonists of their learning experience and not just good listeners and performers.

For all teachers this collaboration was life changing in terms of professional expectations, especially the three teachers that considered themselves in an advanced phase of their careers, they took some drastic decisions in terms of changing their path and readdressing it in a more motivating direction.

Teachers shared that they are willing to bring more playfulness into their work with children, trying to find a balance with what they feel is their task. There was from their side a continuous back and forth between what they found interesting and useful in the proposed approach and how they should manage contents and roles. According to what they shared, the main features that they will continue to use as playful strategies of work with children are

- **the work in small groups:** Making children work in small groups, partially already a pre-COVID practice for some of them, will be adopted in a revisited way, with more

freedom of expression, allowing the use of different languages and strategies to meet the different intelligences and competences. In particular the possibility of a constant peer to peer exchange was highly valued in terms of how children could support each other in an empathetic, non-judgemental, cooperative context;

- **open-ended questions:** Asking open-ended questions was a completely new way of approaching children. Teachers appreciated this strategy for its generative power. Their observation of children in the process of imagining possible solutions to the questions they met, made them realize how children can be creative, and how their curiosity and intuitiveness play an important role in their learning processes.
- **active listening:** What surprised teachers most, at the beginning of the collaboration, was the time other adults spent listening to children. This was very unusual for them, since in general, at school, children were the listeners instead. This way of working intrigued teachers and they carefully observed to better understand the reasons behind it. They realized that listening to children opened up new directions for explorations and experimentations, and motivated everyone to participate more actively. Teachers noticed a big difference in the attitude of most children, especially those who were hardly engaged at school.

This work was conducted on a small scale as a pilot initiative to add some understanding to how and when teachers shift their thinking about learning.

Teachers shifted moderately their thinking thanks to the trust relationships built among adults and the possibility to work side by side for some months along the whole school year. Both conditions required a good amount of care and time.

The radical need for change in education (OECD, 2019) forces us to reflect on how to encourage this kind of multi-professional collaboration in order to involve wider numbers of teachers and educators in thinking of new approaches to learning that can free the potential of children and make them grow as open, self-confident, empathic human beings. In this specific case the research previously developed by the scintillae team, offered a playful approach to learning as an epistemological bridge between formal and non-formal learning.

Other researchers are studying the importance of bringing more playfulness at school, trying to overcome the barriers of mistrust, suspicion and traditional approaches.

This work is just a small contribution to the work of many in this direction, hopefully to add a little step to continue the research in this field.

Recommendations

The exchanges with teachers within the research led to some new questions aimed at understanding more the potentialities of a playful approach to learning, in particular, teachers' questions concerned the possibility that this kind of approach was not suitable for everyone and the necessity to identify how to develop a *sustainable documentation*. Quoting from their interviews:

“So that's why I asked myself up to what age, it's a question I asked myself too, or with what characteristics does this learning method, with what personality and intelligence characteristics, work?”

“Does this modality meet all learning styles or are there children who need a little more directive learning instead?”

“Yes, but in fact, among other things, I believe it could serve as a therapy, I dreamt, sometimes I thought, who knows if a place like this [scintillae] is a little more [welcoming] for children too, you know.

Even those with ADHD, attention deficit disorder, hyperactivity, who knows in a place like this how they would be, it should be experienced.”

“Or it can also be asking, as we do after group work, how it was, what worked and what didn't work, why ... perhaps making a list of sustainable documentation, that you, teacher, can do and then take back, can be useful.”

Slightly reformulating their questions and doubts, we could leave them for future investigations

- How can we understand if a playful approach to learning is suitable to everyone, or if there may be children who need a more directive approach to learning based on their intelligences, characteristics, and sensibility ?
- How can a playful approach to learning, and the scintillae space, be inclusive of children with ADHD [Attention Deficit Hyperactivity Disorder] considering the sense of wellbeing and activation experienced by their schoolmates ?
- How can we identify a *documentation*'s mode that, keeping its original functions, can be adopted widely by teachers in school contexts ? Which features, strategies and technologies should be identified to make documentation more *sustainable*?

End note

During my PhD experience I had the opportunity to spend some months at the Lifelong Kindergarten of the MIT Media Lab in Cambridge (MA). This gave me the occasion to have frequent exchanges with the LLK research team and staff who were designing and implementing a new app for creative coding, and what I noticed, as it was part of most of our conversation, was the highly ethical aspects of their work. I was so lucky to have one to one conversations with professor Mitchel Resnick about my work and his research, and among all the useful advice that I got, and the reflections we shared, there is one that I cherish most and will continue to carry it with me in all my future educational activities. And this is that how we shape education reflects our idea of the world and of humanity. For this reasons we have to be aware that when we work with children, it is never just about those particular children or teenagers, it is about our future, how we want this world to be, how we can make the world a better place. And, despite educational systems, policy makers and school reforms, this power remains in the hands of teachers and, more in general, of educators.

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Attachment 1

Teachers'interview original text

Premessa

Nell'ambito del progetto Scuola diffusa, FRC attraverso il progetto scintillae play and learning in the digital age, ha attivato una collaborazione con Officina educativa e la Scuola primaria statale Collodi per l'a.s. 2021-2022.

La presenza continuativa di una classe presso il Centro internazionale Loris Malaguzzi, una classe 3a da settembre a dicembre e una classe 5a da gennaio a giugno 2022 ha consentito l'avvio di una ricerca congiunta su un approccio ludico all'apprendimento proposto agli alunni delle due classi.

In questo ambito si inserisce un approfondimento specifico della ricerca che individua negli adulti gli attori chiave per il passaggio da una didattica più tradizionale a una nuova forma di didattica trasformativa, attiva, inclusiva e rispettosa dei tempi e dei modi di apprendere di ogni individuo, attraverso un approccio playful che sostenga il lavoro di adulti e bambini insieme.

Queste interviste hanno lo scopo di far emergere il punto di vista degli adulti che hanno preso parte al progetto, in particolare insegnanti della Scuola primaria statale Carlo Collodi di Reggio Emilia.

Come si struttura l'intervista

Prima parte: profilazione

Seconda parte: l'esperienza degli adulti

Terza parte: i bambini

Ruolo intervistato: insegnante (di ruolo, di sostegno, altro), educatore, altro

Fascia d'età 20-30 30-40 40-50 oltre 50

Formazione:

Anni di servizio nel ruolo

Anni di servizio nella stessa città

Anni di servizio nella stessa scuola

1. Fin dal nostro primo incontro il team di ricerca di scintillae ha dichiarato il suo interesse ad approfondire delle possibilità di collaborazione su un approccio playful all'educazione, cosa ha pensato quando ne ha sentito parlare nel corso degli incontri preliminari alla collaborazione? Aveva mai sentito parlare prima delle ricerche in atto sulla relazione tra gioco e apprendimento? Se sì, cosa ne pensava?

2. Come considera la collaborazione che si è instaurata tra gli adulti (insegnanti, educatrici, team di scintillae) ? Cosa avremmo potuto fare diversamente?

3. Nei primi incontri spesso abbiamo percepito una certa insicurezza rispetto alle competenze necessarie di bambini e adulti per un percorso come questo. Cosa la portava a pensare questo? Oggi avrebbe lo stesso timore nell'accostarsi a un'esperienza di questo tipo?

4. Nel corso della collaborazione è stato chiesto alle insegnanti di collaborare alla raccolta di materiali per la documentazione, come ha vissuto questa richiesta? Cos'è per lei la documentazione dei processi di apprendimento?

5. Si è mai sentita in difficoltà o in una posizione difficile durante le attività? Per quale ragione?

6. Ci sono stati invece momenti in cui si è sentita maggiormente a proprio agio? Ricorda quando in particolare?

7. Nella scala di misurazione di un approccio playful all'apprendimento abbiamo individuato alcuni parametri. Quali sono stati, secondo lei, nell'esperienza fatta insieme, i tre più importanti?:

- apprendimento a piccolo gruppo
- peer to peer exchange (educazione tra pari)
- cooperazione e non competizione

- l'organizzazione dello spazio
- il ruolo dell'adulto
- la possibilità di utilizzare più linguaggi (100 linguaggi)
- la relazione con materiali e oggetti (in che modo poter usare alcuni materiali invece che altri, la possibilità di libera scelta, ha modificato le esperienze)
- tempo in termini di continuità e di tempo dedicato alle attività
- la sfida per superare i propri limiti (non competizione per fare emergere il più bravo ma provare a sfidare se stessi e i propri limiti)
- fiducia reciproca, nelle competenze e potenzialità dei bambini e degli altri adulti
- libertà di sbagliare e riprovare per cercare un'altra strada, una soluzione diversa
- ce ne sono altri che potremmo aggiungere secondo lei?

7 Pensa di adottare qualcuna di strategie e possibilità nel suo lavoro con i bambini in futuro?

8 Proviamo a riflettere insieme su quanto accaduto nei mesi di collaborazione, come pensa che i bambini abbiano vissuto questa esperienza?

Se risponde che sono apparsi diversi chiedere in che cosa e se possono citare uno o più esempi

9 Nella valutazione complessiva dell'esperienza scolastica dei bambini per quest'anno scolastico ha tenuto presenti anche questi aspetti?