

## Artigo

### **Objects as pedagogical mediators. A proposal for the construction of an ecological design in the kindergarten<sup>1</sup>.**

### **Los objetos como mediadores pedagógicos. Una propuesta para la construcción de un proyecto ecológico en guardería.**

### **Objetos como mediadores pedagógicos. Uma proposta para a construção de um projeto ecológico na pré-escola**

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#### **Abstract**

Starting from the first days of life, the child is placed in the world as a subject intentionally interacting with individuals and with the environment that surrounds them, capable of generating meanings and knowledge through activities of playful and active learning. The kindergarten - the first broader social context that the child attends - is a privileged place for the development of project proposals aimed at the development of learning pathways to support the child in their growth and promote reflections on and participation in the topic of early childhood education at multiple levels. The article gives an account of the experience related to a personal research survey conducted at some public kindergartens (age 0-3) of the city of Rome in order to verify the replicability and effectiveness of a design methodology used in my work as a pedagogical coordinator. The methodology considers the use of elements present in the world of children and adults as mediators in the development of educational proposals that actively involve children, families and professionals that can generate a universe of shared meaning and promote a research-action perspective in educational services. This article also intends to highlight some design aspects of the curriculum (age 0-3) that could encourage the development of the kindergarten as a place that supports the child to be a protagonist of their growth pathways and the environment in which they live and contribute positively to their first experiences of citizenship.

#### **Resumo**

Desde os primeiros dias de vida, a criança se situa no mundo como um sujeito que interage intencionalmente com os indivíduos e com o ambiente ao seu redor, capaz de gerar significado e conhecimento por meio de atividades de aprendizagem lúdicas e ativas. O jardim de infância - o primeiro contexto social ampliado frequentado pela

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<sup>1</sup>The contribution is the result of the collaboration of the authors, however as far as the drafting of the chapters is concerned, introduction and conclusions are to be attributed to Anna Aluffi Pentini while the paragraphs 2, 3 e 4 to Federica Cozzi.

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criança - representa um lugar privilegiado para o desenvolvimento de propostas de projetos orientados para a elaboração de itinerários de aprendizagem destinados a apoiar a criança em sua trajetória de crescimento e a promover a reflexão e a participação sobre o tema da educação infantil em vários níveis. A contribuição apresenta um relato da experiência relacionada à pesquisa pessoal realizada em alguns serviços de 0 a 3 anos do sistema público e privado da cidade de Roma, a fim de verificar a replicabilidade e a eficácia de uma metodologia de projeto usada em meu trabalho como coordenadora pedagógica de escolas maternas. A metodologia considera o uso de elementos presentes no mundo das crianças e dos adultos como objetos mediadores no desenvolvimento de propostas educacionais que envolvem ativamente as crianças, as famílias e os operadores, considerados úteis para gerar um universo compartilhado de significado e promover uma perspectiva de pesquisa-ação nos serviços educacionais. A contribuição também tem o objetivo de destacar alguns aspectos de design do currículo de 0 a 3 anos que poderiam favorecer o desenvolvimento da creche como um local que apoia a criança a ser protagonista de sua trajetória de crescimento e do ambiente em que vive e contribui positivamente para suas primeiras experiências de cidadania.

### Resumen

Desde los primeros días de vida, el niño se sitúa en el mundo como un sujeto que interactúa intencionadamente con los individuos y con el entorno que le rodea, capaz de generar sentido y conocimiento a través de actividades de aprendizaje lúdicas y activas. La guardería -primer contexto social extendido al que asiste el niño- representa un lugar privilegiado para el desarrollo de propuestas de proyectos orientadas al desarrollo de itinerarios de aprendizaje orientados a apoyar al niño en su camino de crecimiento y promover la reflexión y la participación sobre el tema de la educación infantil en diversos niveles. La contribución da cuenta de la experiencia relacionada con la encuesta de investigación personal realizada en algunos servicios 0-3 del sistema público y privado de la ciudad de Roma con el fin de verificar la replicabilidad y eficacia de una metodología de diseño utilizada en mi trabajo como coordinadora pedagógica de guarderías. La metodología considera el uso de elementos presentes en el mundo de niños y adultos como objetos mediadores en el desarrollo de propuestas educativas que involucren activamente a niños, familias y operadores, consideradas útiles para generar un universo de sentido compartido y para promover una perspectiva de investigación-acción en los servicios educativos. La contribución también pretende destacar algunos aspectos de diseño del currículo 0-3 que podrían favorecer el desarrollo de la guardería como un lugar que apoye al niño a ser protagonista de su camino de crecimiento y del entorno en el que vive y contribuya positivamente a sus primeras experiencias de ciudadanía.

**Keywords:** Early Childhood Education, Social Pedagogy, Ecological Approach, Methodology

**Palavras-chave:** Educação Infantil, Pedagogia Social, Enfoque Ecológico, Metodologia

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## 1. Introduction

In the last decade, policy makers, researchers, and experts in the field from various countries of the European Union have been the protagonists of an intense debate on educational policies and early childhood care and education, with the



aim of responding effectively to the educational and social challenges that children's services are facing today (Lazzari, 2016). In particular:

- facilitate the development of key competences from an early age in a life-long learning perspective;
- tackling inequalities and educational poverty;
- fostering social cohesion and inclusion in a diverse society;
- facilitating women's participation in the labour market and reducing gender inequalities.

Starting from these considerations, the various pedagogical and regulatory guidance documents for the qualification of educational services for children published at European and national level<sup>4</sup> offer a series of reflections, and operational tools useful to those who deal with childhood in various capacities. The documents denote an overall vision and a communion of intentions from the point of view of educational policies and pedagogical approach. Relevant to this last aspect:

- the conception of the child as an active, competent and potential-rich subject, capable from the first days of life of interacting in an intentional, active and playful way with adults and with reality, generating meanings and new knowledge (Lazzari, 2016);
- the idea of educational service as an ecosystem in which daily encounters take place between children, families, and professionals and between the different socio-cultural contexts to which they belong (Fortunati A., 2006);
- the image of the kindergarten as an active part in the construction of social networks and educational alliances in the territory in which it is located, in the promotion of educational culture, in the development of an educating community and in active citizenship actions (Linee guida, 2021);
- the vision of services as places promoting processes of innovation, pedagogical experimentation, qualified educational proposals with a view to research-action (Lazzari, 2016; Orientamenti, 2022).

All this represents a real educational challenge that involves the services and those who work there in the construction of systems operating within and for the social reality, capable of promoting meaningful experiences for children and families and active and responsible participation in the social and cultural opportunities of the territory (Cozzi; Aluffi Pentini, 2020).

In line with this vision of an early childhood care and education system (ECEC), a research work has been developed, conducted by the author from

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<sup>4</sup> Among the main ones, in Europe: *"Study on the effective use of early childhood education and care (ECEC) in preventing early school leaving (ESL) – Final report* (European Commission, 2012), *"Proposal for key principles of a Quality Framework for Early Childhood Education and Care"* (European Commission, 2014), *Recommendation of the Council of the European Union on high-quality early childhood systems and care* (2019), *"Key data on early childhood education and care in Europe"* (Eurydice, 2019); In Italy: *Linee pedagogiche per il sistema integrato zero-sei* (D.M. n°334/2021), *Orientamenti nazionali per i servizi educativi per l'infanzia* (D.M. n°43/2022) che fanno seguito al D.lgs. n°65 del 13 aprile 2017 *"Istituzione del sistema integrato di educazione e di istruzione dalla nascita sino a sei anni"*.

2021 to date at some public and private kindergarten in the city of Rome. The research involved children, families, and service operators in order to verify the replicability and effectiveness in different contexts of a design methodology – called '*for expandable objects*' (*per oggetti espandibili*) – used in the work experience of pedagogical coordination of 0-3 services in Rome and considered useful in the construction of an ecological design at the kindergarten. In this sense, the study intends to offer a contribution to the deepening of the social value of the kindergarten and the design aspects that can encourage a conscious and active participation of the child in their growth pathways and in the world in which they live.

In this perspective, the present paper gives an account of the research experience and describes some of the results of the investigation work carried out so far.

## 2. Designing for 'Expandable Objects': Origins

The design methodology for 'expandable objects' was initially developed as part of my experience as pedagogical coordination of educational services for children, especially at the Il Colibrì kindergarten<sup>5</sup> where this way of working was born and consolidated.

During the first years of coordination and life of the kindergarten (2007-2009) the work of observation and evaluation carried out with the educational group had brought out some critical aspects of the educational design and organisational model adopted up to that moment. The main ones were:

- the difficulty of including in the planning of the proposals - based on the model by objectives - new pathways and alternative work pathways derived from children's feedback or by new or unforeseen situations;
- the insufficiency of potential spaces and opportunities for connection and integration of the knowledge and disciplinary skills learned and the children's global experiences;
- the low participation of families in the nursery project beyond formal occasions.

Hence the need to integrate and expand the educational design of the nursery through different approaches and appropriate working tools.

The difficulty in finding methodological and working proposals in the literature for kindergarten schools – at the time focused more on organisational aspects than on design – has shifted the research to the kindergarten range (3-6 years) finding in the Approach for *Integrator Background* (*sfondo integratore*)<sup>6</sup> an

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<sup>5</sup> Il Colibrì is in Rome, on the outskirts of the southern quadrant of the city. The nursery has been open since 2007 and since 2009 it has been in agreement with the Municipality of Rome, i.e., it hosts children whose families have applied through a municipal tender. In this sense, it is part of the public system of kindergartens in Rome while maintaining private management. The kindergarten accommodates children from 3 months to 3 years of age; In the same location there is also a kindergarten section that accommodates children in the next age group, from 3 to 6 years old. The author is the owner and coordinator of the service.

<sup>6</sup> The "integrative background" (*sfondo integratore*) is a programming methodology for kindergartens that have been established in Italy since the 1980s and has become part of the contemporary pedagogical heritage, contributing to the cultural climate that led to the drafting of

initial response to the needs that emerged and were described above. From an ecosystem perspective (Bronfenbrenner, 2002; Bateson, 2000), the integrator background has been developed in two directions. The first is that of institutional background, i.e., a specific organisation of the learning context where spaces, times, material objects are not external "data" to the subjects (children, adults) but variable and situated elements that refer to the relationships in which the subject participates, their life experiences, the context to which they belong, the system of social and cultural values of reference (Zanelli, 2017). The second as a *mediating* work tool that uses the elements of the environment to propose meaningful learning experiences to children that promote connections, relationships, strategies for building knowledge of the world and the development of multiple intelligences (*ibid.*, 2017). In educational practice, this has mainly coincided with the proposal of a real or imaginary theme, declined in narrative form and elaborated together with the children, introducing new elements to those known to promote the integration of disciplinary and transversal skills, communication, and shared knowledge.

Considering the age range of the kindergarten (1-3 years) and the interest shown by the children with respect to the proposed themes, over time the semantic theme-background has been – so to speak – condensed into an object known to the world of children; for example, a drop of water, a box, a wire, a stone. The 'object' mode facilitates inferences and connections in children as it acts as:

- narrative device, i.e., the driving force behind the story from which the events and actions of the plot move;
- A cognitive tool that makes associations, comparisons, classifications, integrations of experiences and concepts through which it is possible to give meaning to things and grasp new knowledge about the world (Egan, 2012);
- an exploratory device that makes it possible to move from the collection of information to the coherent or combinatorial use with other objects, or from the tracing back to known patterns to playful and experimental use (Guerra M., 2019).

In this sense, in practice, the use of a known object can generate a 'potential space' (Winnicott, 2020), A container of backgrounds and contents – actions, reasoning, hypotheses, actions, emotions – which, starting from a common denominator, are declined at several levels by children and adults in a shared educational itinerary (Malaguzzi, 2014). For, to remember Dewey, the object is much more than a mere thing, but is a thing having a meaning defined by the experience attributed to it (Dewey, 2019). Interest, curiosity and individual drive towards a given element support the desire to deepen both emotionally and cognitively the object under investigation, generating a reticular and recursive process (Guerra, 2019). For example, a thread can be the reason for multiple experiences and learning pathways: it can be an opportunity for logical and physical reasoning and knowledge such as shapes, sizes, similarities,

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the 1991 Guidelines for Kindergartens. Historically, it was the first perspective to distance itself from the methodology by objectives and taxonomies, to emphasise the context from a relational and cognitive point of view. The methodology was developed by the pedagogue Paolo Zanelli in the framework of a special pedagogy research group at the University of Bologna (Andrea Canevaro).



differences, causes and effects; it can be a tool for artistic and creative expression or a link for a common project between services and the territory<sup>7</sup>. In short, it can give rise to an educational project that is as varied and unpredictable in form and content as it is coherent (Fabbri; Munari, 2005). From this concept, the naming in "expandable object".

The expandable object as an element of continuity and connection between the reference systems of children and adults has made it possible over the years to develop various proposals that have involved the families of Il Colibrì also in projects articulated at a territorial level and with other services for children in the 0-6 age group, mainly on the themes of environmental and artistic education. The participation found highlighted how the active participation of one's child in the project through the sharing of his experiences and knowledge, generates an emotional and proactive involvement in their growth story and living environment (Cozzi; Aluffi, 2020).

What I have gathered in terms of experience, feedback, and reflections in this more than ten-year process of defining and redefining this design methodology has allowed me to understand its potential as a working tool for nursery operators and kindergarten-territory network constructions.

In this sense, the research work intends to replicate this methodology in different contexts to observe its reception by educational groups and the effects on children and identify criteria and methods of use useful to kindergarten operators.

### 3. Theoretical and methodological assumptions

The European and national pedagogical and normative guidance documents on early childhood care and education, the design for integrative background - and the Institutional Pedagogy approach in which it is placed - as well as the methodology for expandable objects make common reference to the ecological paradigm of Urie Bronfenbrenner and the systemic-relational approach of Gregory Bateson. The theories developed by these scholars have drawn the attention of those involved in education with respect to the influence - positive or negative - determined by the quality and intensity of the relationships between the micro and macro systems to which the individual belongs in his or her experience of learning and growth starting from the first days of life (Bronfenbrenner, 2002; Bateson, 2000). From this point of view, the educational environments experienced by children play a fundamental role as *mediators* capable of promoting meaningful experiences of knowledge, learning, comparison, and self-experience. A thought often expressed by John Dewey with respect to the care and attention in the organisation of the environment where elements generating research, critical thinking and new knowledge should be placed (Dewey, 2019). This concept is transversal to the history of education and has been translated into different interpretations of thought and working methodologies, some of which are briefly described below.

#### ***The use of structured objects designed for learning.***

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<sup>7</sup> The example refers to an object used for design in the coordination work of three kindergartens and two preschools in Rome in the years 2018/2019 and 2019/2020.

In the first half of the 19th century, Friedrich Froebel, founder of the first Kindergarten, created twenty wooden objects, known as "gifts", offered over time to children as a means of discovery and interaction with the surrounding world and the development of logical-mathematical skills. Through them, children could recreate with their eyes and hands the elements of the surrounding reality, discovering symmetries, dimensions, and shapes (Wilhelm, 1871, Lucentini, 1919). Maria Montessori, in the early 1900s, created for the Children's Houses, the "development materials" designed to accompany children in the different stages of cognitive development and satisfying the need for exploration, research and discovery of the first years of life (Montessori, 2022). What was conceived by Froebel and Montessori is now the basis of new methodological proposals such as the Lifelong Kindergarten of MIT directed by M. Resnick and aimed at creating activities for creative learning through robotics objects and digital tools or the approach of C. Alvarez and the French school of Gennevilliers that combines the use of Montessori materials with neuroscience for a natural learning of the child (Resnick, 2018; Alvarez, 2017)

### ***The use of objects, common materials and natural elements as a tool for the construction of knowledge***

In the first half of the 20th century, the Agazzi sisters sensed the potential of children's play with common objects and elements of nature as a device for learning through experience; to this end, they set up the Museum of Junk (*Museo delle Cianfrusaglie*) in their school, a place full of materials and objects that can be used by children and teachers for play, manipulation and teaching (Altea, 2011). Around the 1970s, the architect Simon Nicholson developed the *Loose Parts Theory*, encouraging the design of play places where children could play, experiment, build, act autonomously with the 'variables of the world' or unstructured natural and artificial materials that involve children in open-ended games and compositional, scientific, aesthetic and symbolic (Guerra, 2019).

### ***The use of objects as an expression of oneself and one's knowledge.***

Referring to the socio-constructivist theory developed by Jerome Bruner in the 1970s, objects began to be used in teaching as a means of motivating children to express through the body, dialogues, artistic and creative language, the process of elaboration of learning offered by lived experiences and by comparison with peers or adults (Bruner, 1995). Loris Malaguzzi, founder of the Reggio Children Approach, introduced the Atelier space into Reggio Emilia's children's services, a place open to invention where children and adults investigate concepts and images with different tools and materials, producing ideas that they make visible with all available languages (Edwards et al., 2014). In the same years, Bruno Munari's workshops were also born, designed by the artist to offer materials, objects and tools to stimulate creative thinking and express it through various forms of art. Also significant were the objects created by Munari for this purpose, from sensory books to game kits for free compositions (Munari, 1979).

### ***Using Objects as a Link.***



There are different contributions with respect to the use of real objects or fantastic elements as a tool for connecting knowledge on the level of reality or imagination. In addition to the use of a semantic theme of connection and integration used in the design for the integrating background – described above

the association of objects on the fantastic plane through literary techniques is the basis of Gianni Rodari's works as well as of the related didactic practice he developed to stimulate the literary imagination in children (Rodari, 2010). Finally, the Learning in Depth programme designed by Kieran Egan is now widespread worldwide, which is also being tested for preschool children. In this programme, each child or student receives as a gift a topic identified by an object with the task of researching and knowing as much information as possible related to it throughout the educational cycle and then disseminating what they have learned (Egan, 2011).

Starting from these considerations, I reasoned that the observation of children's creative processes generated by the relationship with the objects of the world can offer indications and declinations to be considered in the construction of an ecological project at the kindergarten or:

- the link between *recreation* and *re-creation* i.e., the fact that children are more inclined to create and build collaboratively when they are involved in playful and imaginative activities close to their interests (Resnick, 2017);
- the similarity between the procedural aspects of children and those related to reflective thinking and the scientific method: Materials and objects (observation of the phenomenon) – Imagination (formulation of the hypothesis) – Play-creation (realisation of an experiment) – Reflection (analysis of results) – Play-creation (repetition of the experiment) (*ibidem*, 2017; Dewey, 2019);
- the interdisciplinary nature of children's research that does not separate the exploration of reality into disciplines but intertwines the dimensions of experience;
- the value of small acts of ordinary creativity or the *little c*, a democratic conception of creativity understood as the ability of each individual to process the information and experiences possessed by recombining them in a new and original way in order to generate and develop meaningful solutions and innovative actions to identified problems; a meta-competence that can be applied to all fields by all. (Gariboldi; Pugnaghi, 2020).

On the basis of these considerations, the proposal of the project idea in the various educational services involved in the research survey has been declined and renegotiated keeping in mind the need to integrate the peculiarities of the educational groups and the organisation of the kindergarten, the characteristics of the socio-cultural context, the skills and experiences of the children, the interest and participation of families.

#### 4. The research experience





The research was developed and conducted as part of the PhD course in Educational Theory and Research at the Department of Education Sciences of the University of Roma Tre.

The research investigation – which is still ongoing – is configured according to a mixed qualitative-experimental model (Mortari; Ghirrotto, 2019)) with particular reference to the methodology and tools of action research with regard to the qualitative approach of research (Lewin et al.). Given the aims of the research, I felt that the use of this model could be the most suitable to satisfy:

- the pragmatic need for research, i.e., the definition of an operational and methodological proposal for kindergarten operators;
- a deep understanding of the pedagogical and socio-cultural aspects underlying the proposed work methodology;
- the need to activate the involvement and active participation of research recipients and collaboration between them and those involved in research.

To conduct the survey, I proceeded with a sequential sampling aimed at obtaining an overview that was as exhaustive and credible as possible.

To this end, I have selected two research samples to which to submit the methodological proposal and I have chosen to work with the two groups in two successive time periods (April 2021-June 2022 and April 2023-June 2024) with the following aims:

- a *first sample*, for the conduct of an initial *preliminary survey* useful for obtaining effective information to define the criteria for the use of the design model developed and the development of the operational and research tools used;
- a *second sample*, currently involved as a result of the preliminary survey and intended as the final recipient of the intervention with the aim of measuring the validity and effectiveness of the proposed methodology.

Both are made up of children between the ages of one and three and operators of the educational groups of the kindergarten, chosen from the 0-3 services of the public and private system of the city of Rome. In 2020, there were about 840 0-3 services operating in Rome, half of which consisted of directly and indirectly managed public kindergartens (agreements, tenders) and the other by privately managed kindergartens. This required an initial skimming work to identify a representative network of services within which to select the research sample – also considering that the willingness to accept the research proposal was burdened by the rules for the reopening of services after the suspension due to the Covid emergency. For this reason, I decided to narrow down the field to networks of kindergartens and coordinators known during my professional experience<sup>8</sup> and, subsequently, choose the kindergartens considered suitable for the two samples.

For both samples, the methodology included the pre-test, intervention, and post-test phases. For the pre-test and post-test, moments of participatory

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<sup>8</sup> I referred to the Onda Gialla Association, which represents the kindergartens affiliated with the Municipality of Rome and of which I am the current President.

observation and data collection through observational protocols and questionnaires were considered. For the intervention, opportunities and tools were identified for the preparation, accompaniment, and restitution of the educational group with respect to the implementation of the methodology proposed during the educational year.

As better described below, the preliminary investigation in the kindergarten of the first sample has made it possible to reformulate, integrate and define in an action research perspective the theoretical hypotheses, methodological criteria and operational tools for the subsequent proposal in the second sample that will verify the validity and effectiveness of the methodology.

The box represented for all the educational groups involved the starting point for the development of the design. The object was arbitrarily assigned for two main reasons: The first of a historical order, i.e., the box, was the first real expandable object used in the proposed design; the second is methodological, since the box, due to its perceptive and expressive qualities, can be considered a particularly performative object, suitable for generating meanings, constraints and possibilities and as such a facilitator with respect to a first design experience through expandable objects.

#### 4.1 The Preliminary Investigation

From April 2021 to June 2022, the research work was focused on carrying out a preliminary investigation aimed at obtaining information and data useful for defining and integrating criteria, procedures and methodological tools of the design for expandable objects to be subsequently submitted to the kindergarten groups of the second sample.

The preliminary survey involved two groups of children aged 1-3 – each consisting of about 25 children – the educators of the groups and the pedagogical coordinators of two kindergartens affiliated with the Municipality of Rome; for the intended purposes, the preliminary investigation did not include control groups.

The kindergartens assigned to this first sample were chosen on the basis of the peculiarities of the service and the working methods and in consideration of the interest shown with respect to the introduction of a new way of working in the design of the service. As better described below, the two kindergartens have clear differences with respect to the socio-cultural context to which they belong and their internal organisation; a requirement that I considered functional and effective for the purposes of the preliminary investigation. Specifically:

**“Vivilasilo” Kindergarten.** The service is in a suburb north of the city – Casal del Marmo - very similar in many respects to the one where the Il Colibrì kindergarten is located: significant presence of foreign families, recent urbanisation, poor public transport connections, widespread situations of economic and social hardship. Significant in this sense is the choice of the owner of the service, as well as educator of the kindergarten, to open the kindergarten – in 2008 – in a neighbouring and residential area of the neighbourhood which, despite the building growth, has safeguarded large green areas and cycle and pedestrian movements. The kindergarten is located on the ground floor of a small building and has an outdoor area equipped for exclusive access by children.

The educational group is made up of permanent staff, the educators are in possession of a qualifying high school diploma while the coordinator of a master's degree in pedagogical sciences. In addition to the 1–3-year-olds involved in the research, the kindergarten also houses a small section of toddlers 3 – 11 months. The spaces of the service denote a Montessori derived matrix regarding materials and play proposals. The planning of the activities related to the educational project prior to the one proposed was based on the model for workshops that provides for small group work, learning by immersion and experimentation, attention to the process rather than to skills, a welcoming and stimulating space, a flexible and shared organisation of times and methods (Restiglian, 2012).

The parents of the children who attended the kindergarten at the time of the beginning of the survey were for the most part employed in the commercial sector or as workers, especially in construction companies; many of the mothers were not working. The kindergarten provided families with moments of formal meeting – presentation of the educational project, section meetings, individual interviews – and sharing of experiences on the Christmas and end-of-year holidays.

**“Il Giardino Fatato” Kindergarten.** The service is in the southern quadrant of Rome, in the residential district Giuliano-Dalmata adjacent to that of the EUR considered the most important financial and tertiary centre of the capital with the presence of banks, public and private offices, museums and cultural centres. The district is served by important arterial roads and public transport. The kindergarten is located in a historic part of the neighbourhood in an eighteenth-century farmhouse used until the nineteenth century for the papal galleys. The farmhouse underwent a major building renovation in function of the opening of the kindergarten in 2011. The kindergarten houses a section of children from 3 to 11 months on the ground floor, and the sections of children from 1 to 3 years old who participated in the project on the first floor. At the beginning of the survey, the educational group had some permanent figures since the opening of the service and others of recent inclusion, all the educators had a three-year degree related to pedagogical subjects, the coordinator of a three-year degree in psychological sciences and techniques. Spaces and materials adhere to the criteria set out in the model of the Rome kindergarten<sup>9</sup>, organised by centres of interest and varied in the recreational and educational offer. The planning of the activities, before the research intervention, saw an articulation referred to the model by objectives, i.e., an organisation of the proposals in sequential and logical phases based on individual teaching units related to the children's areas of competence according to the operational progression: forecasting – programming – intervention – verification (*ibidem*, 2012). The families that attended the kindergarten in the year of the survey were predominantly composed of both parents, mostly working as freelancers and third sector employees. Families were invited to participate in the life of the kindergarten on formal occasions – presentation of the educational project of the service and sections – and on the occasion of events and festivities.

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<sup>9</sup> In 2013, the Department of Education and School Services published the *Modello educativo dei nidi e delle Scuole dell'infanzia di Roma*, a document containing organisational and pedagogical indications of reference for 0-6 services in Rome.

In the months leading up to the start of the 2021-2022 educational year, the educational groups participated in training sessions for the acquisition of the methodological and operational skills necessary to implement the proposal through theoretical insights and experiential workshops. Regular brainstorming meetings followed throughout the year to discuss, exchange and return feedback. In addition to the information and considerations with respect to the development of the proposal with the children and families – which were subsequently examined – the conduct of these meetings led to the introduction and refinement of the operational tools, formalised at the end of the preliminary survey and introduced in the operational protocol for the implementation of the working methodology in the final sample, namely: The Mind Map and the Observation Form.

### ***The Mind Map***

The mind map developed by the cognitivist Tony Buzan (Buzan, 2018) was used in the first training meetings with educational groups to introduce and make graphically visible the concept of expandable object. Following an associationism model, the mind map places at the centre of the scheme a starting element - a topic, a concept, an idea - from which the connections deriving from insights, associations, potential themes related to the central element extend in a radial pattern and in several directions. Each identified focus can in turn generate additional connecting beams. In the first instance, this tool made it possible to clearly explain to everyone the mental process underlying the idea of an expandable object that I had used implicitly over the years. Subsequently, the educational groups deemed the use of the mind map as effective in developing an initial project nucleus and in introducing the pathways of work and in-depth study that emerged from the relaunches and considerations of the children and families. Over time, it was decided to include in the map also the themes and ideas that emerged from the discussion between operators or reported in the observation form. This use made the map a tool for documentation, reflection, and evaluation in addition to the graphical conceptualisation of the design model for which it was initially used. For this reason, I considered it useful to formalise this methodological tool for the intervention on the final sample.

### ***The Observation Form***

Already in the initial phase of elaboration of the design for expandable objects, an observation sheet was created useful for the educator to write down situations, events, unforeseen events, and considerations regarding the proposals made.

The form was designed for a first quick compilation during the activities and then taken up by the educators also in the following days and deepened with the help of the video-photographic documentation generally carried out during the activities. Over the years, the fact form has seen several changes and finally a division into two sections: a general one with respect to the proposed situation and a personal one regarding what emerged during it. In the first instance, the card was used by educational groups in this version. Following the brainstorming

moments carried out, the idea of including a section dedicated to collecting reflections, comparisons and possible connections matured. In this sense, the observation form and the mind map have become two synergistic and methodologically necessary tools.

From October 2021 to June 2022, the educators of the nurseries – and specifically those of children aged 1-3 – implemented the methodology proposed in the various sections. In both services, families were invited to a meeting to present their doctoral research and the specific project of each kindergarten.

The box object aroused immediate interest in the children who at first operated with it "exploratory messing", as Hawkins defines it, i.e., a free reconnaissance of the environment and the material made available by the educators without specific instructions or tasks to be performed. The children investigated and experimented with the boxes in various shapes and sizes and the different contents proposed.

The observations carried out showed a general interest in the functions and possible combinations of the box container for the children of the Vivilasilo kindergarten and, vice versa, in the curiosity and exploration of the contents for the group of the Il Giardino Fatato kindergarten.

Starting from these initial considerations, the development of the proposals inherent to the project has seen a specific and different declination for each of the two services:

The children of the Vivilasilo kindergarten have translated the box mainly as a place or as part of it, using it as a tool for imagining and building worlds: roads, bridges, cities, hiding places, dens, houses. The Vivilasilo kindergarten project – precisely in this sense called Points of Oversight – allowed the children to deepen from an experiential, cognitive and symbolic point of view the different aspects related to the shapes assumed by the box. In addition, considering the desire for continuity in the play shown by the children - especially in the 2–3-year-old section - the educators decided to dedicate specific spaces of the kindergarten to the development of the proposals related to the box; this made it possible, when appropriate, to leave traces of what had been done previously. The box object has been included in the fittings of the kindergarten rooms and sections and the evolution of the project has been documented in various forms of restitution to families – posters and video montages. The families of the kindergarten were involved in the procurement of materials useful for the proposals and in construction workshops together with their children.

At the Giardino Fatato Kindergarten, the box has taken on the function of an object investigated or a tool for investigation, in line with the direction determined by the children's curiosity for the unveiling of the materials of composition of the box object or of the one contained in it; in this sense, the Greek name Pyxis assigned to the project which includes the double meaning of compass and container. Also in this case, the educational group has decided to decorate the rooms of the kindergarten with motifs related to the project and has delegated the reception space to the photographic and narrative documentation of the project. For families, the box was used as a means of playful proposals to be shared with the family; this use was intended to be an opportunity to respond to the need expressed on various occasions by parents to know and use interesting play



materials for children at home. Fun and exploratory initiatives together with their children were also carried out during the year.

The analysis of mind maps and observational protocols outlined two different models of design development using the expandable object used. The Vivilasilo project, which started from the box, articulated the proposals by succession of topics of interest to the children; the Giardino Fatato kindergarten has, on the other hand, developed the experiences using the box object as a starting point for each avenue of work and in-depth study. I have therefore hypothesised to classify these modes of procedure that emerged with inherent images, i.e., respectively "spring expansion" and "accordion expansion".

The collection of information, suggestions, and considerations through the articulated use of questionnaires, interviews, grids, mind maps, photographs, video recordings, brainstorming has made it possible to obtain a triangulation of data that at the same time express the point of view of the different actors of the two services involved: children-families-operators. In addition, the consolidation of collaboration and exchange with operators and the relationship with children and families has fostered constant and up-to-date reflection, an indispensable element of verification and new departure in the circular succession of the different phases of research and action.

The following paragraph presents a summary reflection of what emerged from the first examination of the material collected.

## 5. The experience of children, families, and operators: key themes

The feedback collected has highlighted some common elements of the experience lived by children and adults that offer a key to reading and reflecting on some design and educational aspects underlying the methodological proposal object of the survey carried out. In particular, the following key themes can be highlighted:

- A '*common project*' initiated by the suggestions aroused by the object and intended as a collective and continuous action of rereading and building pathways of knowledge and significant experiences inherent to the contents that emerged from time to time. A relevant example was the process of conscious participation in the play that was activated in different aspects: for adults, as a contribution in the search for useful materials of interest to children, collaboration in making something by playing together and interest in the phases and methods of development of play in early childhood; for children, in the continuation and activation of playful experiences and investigation around the thematic element in moments of spontaneous and symbolic play in groups. Equally significant was the sharing of information and observations in the educational group, which produced collective research initiatives in the field of the issues that emerged, aimed at both the children's experience and personal training.

- '*novelty*' understood as the growth of points of view and the construction of new knowledge. Significant in this sense is the general feedback of the educators who report as elements of novelty in the development of the design work: a more natural predisposition to grasp new elements to enrich the experiences, to

activate original proposals, to integrate the areas of design with those of personal interest or competence and a more frequent and conscious practice of observation, comparison, and evaluation. The theme of novelty also refers to the emotional experience of amazement and curiosity generated by the presentation of ideas, hypotheses, and unpredictable contents at the start of the project and the result of the choices and degree of involvement of children and adults in the process of exploration and expansion of the object.

- '*creative thinking*' considered as a generative and transformative capacity, transversal to every aspect of human life and common to children and adults. The observations and feedback of the activities carried out by children and adults have highlighted the activation of pathways characterised by ideational fluidity, flexibility, originality, productive surprise or by those peculiarities that define the heuristic and creative process: a concrete modification of the various activities in which man is involved that allows us to proceed towards new intuitions (Bruner, 1968). The different lines of work have also shown the overcoming of the combination of creativity and art and focused on the promotion of creative behaviours through the proposal of tools and places suitable for stimulating imagination, invention, and the overcoming of already consolidated models. In this sense, the development of logical, motor, and sensory construction proposals has made it possible to reflect on the potential and multidimensionality of creative thinking. The different declination of the content and the mode of expansion of the object was also representative of the variety of expression of individual and group creative thought.

- '*reflective thinking*' understood as a mental habit that - supported by the use of methodological tools - enhances and supports the design of experiences and the research of children and adults. The co-construction and use of design tools, the experience that emerged in the opportunities for exchange between adults and between adults and children, the questions and hypotheses posed have brought out the maturation of a reflective thought that can favour the design of educational proposals from a research-action perspective.

Based on these considerations, the key themes presented will be a reason for further in-depth analysis and comparison with what will be collected in the final phase of the research, currently underway. In addition, the findings could be further supplemented by the material produced by the two kindergartens of the preliminary survey that in the two years following the proposal continued to autonomously adopt the design for expandable objects.

## 6. The continuation of the investigation

From April 2023 to date, the research work is involving other kindergartens in Rome considered as the final sample of the survey and specifically:

- Municipal kindergarten "Riccio Capriccio": a research group consisting of about 25 children from 1 to 3 years old and an equivalent control group. The service belongs to those managed by the Municipality of Rome and has a total capacity

of 60 children organised in several homogeneous sections. I therefore decided to include the research and control groups in the same service.

- Private Kindergarten “Filobus 75”: a research team of about 25 children from 1 to 3 years old.
- Affiliated Kindergarten “Piccoli e Grandi”: a control group of the same capacity on average. This service is managed and coordinated by the same managers of “Filobus 75”.

The definition of the sample required a revision of the initially planned choice, which postponed the implementation of the proposal and made it necessary to address the intervention to two research groups. Initially, in fact, the final sample was represented only by the municipal kindergarten “Riccio Capriccio” with which the presentation and training meetings were held between September and November 2022 and the timing and methods of implementation of the proposal - scheduled from January to June 2023 - were planned. However, the development and implementation of the project have seen a setback mainly due to:

- a situation of confusion generated by a period of changes in administrative leadership and coordination of children's services in the Municipality of Rome;
- the request of the educational group to suspend participation in the research without the regular presence of a coordinating figure or a contact person.

This led to a renegotiation of the timing and modalities of the proposal. It was deemed necessary to carry out with my supervision a preparatory micro-project with the children of the different sections between April and May 2023 aimed at achieving a gradual autonomy and security of the educational group in the implementation of the proposal, launched in the following educational year. At the same time, in order to ensure stability to the research work, I decided to introduce in the final sample an additional research and control group, defined in the kindergarten “Filobus 75” and “Piccoli e Grandi”. This subsequent configuration finds continuity with that of the sample of the preliminary survey since the two services have not only different organisational characteristics and methodological approach but are representative of two very different socio-cultural contexts. Municipal Kindergarten ‘Riccio Capriccio’ is located in the district of Laurentino 38 – in the southern quadrant of Rome - consisting mainly of social housing buildings with a high population density while ‘Filobus’ and ‘Piccoli e Grandi’ are in the residential district of Monteverde, close to the city centre and in the setting of the Villa Doria Pamphili Park, one of the largest parks in the capital.

Currently, educational groups, children and families are involved in the development of the project, which has included, as in the preliminary investigation, the choice of the *box* as an expandable object. At the end of the educational year, the final data collection is expected.

## 7. Conclusions

The investigative work carried out so far along with what has been achieved by the services involved in the research allow us to identify in the design



for expandable objects a possible proposal to translate and support childcare services ideas and practices that educate children and adults to understand themselves, others and the systems we inhabit "to become fulfilled people and active and compassionate citizens" (Robinson, 2015, p. 22).

The observations, the questions, the experiments, and the pathways that have come to light thanks to an object of the world common to children and adults have designed for each service an organic project. The project has enhanced and allowed the personal, social and cultural contribution of each one to enter into discussions, reduced the generational distance, connected activities and disciplines, brought together different contexts of belonging and promoted continuity. In this perspective, the restitution of the different experiences has shown how the theoretical and operational framework of this design approach can promote the formation of a systemic and creative thinking that is more necessary than ever to respond to those educational and social challenges mentioned in all European and national pedagogical guidance documents.

The personal and collective interest in the construction of a common project for children and adults – understood both as an experience of service and as a new professional practice – has networked knowledge and generated cooperation, also showing the potential of the kindergarten to be a real place to promote culture and educational research and a privileged environment to learn how to build an educating community.

Finally, the overall vision of what has been achieved together with children, families and educational groups highlights the importance of developing curricular and operational proposals for services starting from services to support - with a view to research and action - processes of improvement, innovation and participation starting from the needs and context of those who inhabit the services (Lazzari, 2016). In this sense, in addition to the results achieved, the innovative aspect of this research work could be that of representing a generative reflection tool for further proposals and lines of work – *expandable*, in fact.

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