



Essay

# Music and Arts in Early Childhood Education: Paths for Professional Development Towards Social and Human Development

Helena Rodrigues <sup>1,\*</sup>, Ana Isabel Pereira <sup>1</sup> , Paulo Maria Rodrigues <sup>2</sup>, Paulo Ferreira Rodrigues <sup>3</sup> and Angelita Brook <sup>4</sup> 

- <sup>1</sup> Department of Musicology, School of Social Sciences and Humanities, Campus de Berna, CESEM, NOVA University Lisbon, 1069-061 Lisbon, Portugal; anapereira@fcsh.unl.pt
- <sup>2</sup> Department of Communication and Art (DeCA), Universidade de Aveiro, Campus Universitário de Santiago, INET-mD, 3810-193 Aveiro, Portugal; pmrodrigues@ua.pt
- <sup>3</sup> Department of Training and Research in Education and Development, Escola Superior de Educação de Lisboa, Instituto Politécnico de Lisboa, Campus de Benfica do IPL, CESEM, 1549-003 Lisboa, Portugal; paulor@eselx.ipl.pt
- <sup>4</sup> Escola de Música, Universidade Federal de Minas Gerais (UFMG), Campus Pampulha, Belo Horizonte 31270-901, Brazil; angelbrook@gmail.com
- \* Correspondence: helenarodrigues@fcsh.unl.pt

## Abstract

This article examines training itineraries for early childhood education professionals in Portugal, focusing on promoting social and human development through music and the arts for infants. The training models discussed are categorized as short-term and long-term, encompassing both theory and practice through a transdisciplinary approach. Based on initiatives promoted by the Companhia de Música Teatral (CMT) and the Education and Human Development Group of the Centre for the Study of Sociology and Musical Aesthetics (CESEM) at NOVA University Lisbon, the article highlights projects such as: (i) Opus Tutti and GermInArte, developed between 2011 and 2018; (ii) the Postgraduate Course Music in Childhood: Intervention and Research, offered at the University since 2020/21, which integrates art, health, and education, promoting collaborative work between professionals; and (iii) Mil Pássaros (Thousand Birds), developed since 2020, which exemplifies the integration of environmental education and artistic practices. The theoretical basis of these training programs combines neuroscientific and educational evidence, emphasizing the importance of the first years of life for integral development. Studies, such as those by Heckman, reinforce the impact of early investment in children's development. Edwin Gordon's Music Learning Theory and Malloch and Trevarthen's concept of 'communicative musicality' structure the design of these courses, recognizing music as a catalyst for cognitive, emotional, and social skills. The transformative role of music and the arts in educational and social contexts is emphasized, in line with the Sustainable Development Goals of the 2030 Agenda, by proposing approaches that articulate creation, intervention, and research to promote human development from childhood onwards.

**Keywords:** early childhood education; music and arts training; social and human development; transdisciplinary approach; communicative musicality; sustainable development goals



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## 1. Introduction

This paper describes and discusses a long-standing journey of over twenty years dedicated to the qualification and training of human resources involved in early childhood care and education within the authors' academic work in collaboration with Companhia de Música Teatral (CMT), an artistic company based in Portugal ([Companhia de Música Teatral, 2025b](#)). This work encompasses a diverse range of experiences, including artistic creation for infants and music projects for families within the community. This body of work has offered valuable closeness to real-life contexts, which is particularly meaningful when reflecting on educational practice. Beyond artistic exploration itself, direct engagement with babies, children, and families has been a crucial starting point for the training proposals we have developed.

### *1.1. Integrative Approaches to Early Childhood: From Neuroscience to Community Care*

The term “human resources” rather than “professionals” is intentionally used throughout the paper to convey the idea that improving childhood (and perinatal) care should be understood as the mission of a caring community, rather than merely the professional duty of a select few. Accordingly, many of the training initiatives described in this paper embody this integrative vision, in which families and human resources—including educators, teachers, and artists—together form a “caring cluster”. This concept aligns closely with the framework established by James Heckman, particularly his work on the economics of human development and the Heckman Equation ([Heckman, 2013](#)). Heckman's research demonstrates that skills developed early in life—both cognitive and non-cognitive—lay the foundation for future learning and success. Crucially, he argues that early investment in a child's development yields significantly higher returns than remedial interventions later in life, especially for children from disadvantaged backgrounds. In this light, professional development for early childhood educators must extend beyond content delivery to include strategies that foster collaboration among families and community partners. The concept of a “caring cluster” embodies the kind of multidimensional support system Heckman advocates, where the role of human resources is not only instructional but also relational and integrative. When professional development equips them to engage with families and other stakeholders as partners in the child's development, it enhances the effectiveness of teaching practices and strengthens the overall learning environment ([Sanders & Epstein, 2005](#); [Zeichner et al., 2016](#)). The collaborative efforts of a caring cluster ensure that children receive consistent, reinforcing support across different contexts, thereby maximizing developmental outcomes.

Furthermore, the importance of a pedagogy of care and best practices in early childhood settings is supported by extensive research in neuropsychiatry and developmental psychology. This research shows that early childhood experiences play a crucial role in shaping brain development, affecting physical neural architecture, cognitive processing, emotional regulation, and social behavior. For example, early-life stress, such as neglect or abuse, is linked to reduced gray matter volume in key regions, including the prefrontal cortex, hippocampus, and amygdala, as well as changes in functional connectivity within emotion and memory networks ([Ozturk, 2023](#)). The quality of parenting also influences the development of cortico-limbic circuits; children who experience harsh caregiving tend to have increased amygdala reactivity and altered amygdala–prefrontal connectivity, whereas positive parenting promotes healthy emotional regulation ([Hyde et al., 2022](#)). Additionally, childhood adversity is connected with stress system dysregulation and executive control issues, which can heighten the risk of developing psychopathology over time ([Rudd et al., 2021](#)). Research further demonstrates that high-quality caregiver–infant interactions from infancy are strongly linked to positive structural and functional brain outcomes that sup-

port social understanding and emotional regulation well into adolescence (Ilyka et al., 2021). These examples underscore that a child's early environment—including caregiver relationships, stimulation, and stress—can significantly influence their developmental path throughout life. Therefore, training and preparing the workforce working with young children is of critical importance.

### *1.2. The Methodology That Frames the Narrative*

The work described in this paper, comprising a postgraduate course at a university and projects in the field of artistic creation, has been systematically documented and evaluated. Regarding the postgraduate course, feedback from teachers and students is collected through a survey, part of the institution's system of quality and evaluation (standard in all Portuguese institutions). This survey consists of a questionnaire with both closed-ended and open-ended questions. All the assignments elaborated by the students, including artistic performances, are documented in reports, papers, and/or videos. Concerning the projects, data collection has included qualitative observations (logbooks written by participant and/or non-participant observers), qualitative interviews (individual face-to-face and focus groups), visual materials (photographs, video recordings of the whole process, art objects, installations), and qualitative documents (participants are invited to reflect on their journey using a writing model in which, at the end of each day, they resume (R), introspect (I), and add (A) something new to what they have learned and experienced—the RIA model, as described in (Rodrigues et al., 2018). Pereira et al. (2025) present an exploratory study concerning one of the latest projects. Additionally, since the projects received funding from private or public institutions, the documentation also included evaluation reports, several academic and/or pedagogical books (some of which included CDs), video trailers, and documentaries (available in open access through the Vimeo platform).

Nevertheless, the focus of this paper is placed on the rationale, operationalization, and characterization of the involved community in the two complementary paths presented: (i) a postgraduate university program focused on professional development in music and the arts for early childhood within our academic activity; and (ii) “Mil Pássaros” (translation: Thousand Birds) developed within the projects of CMT that emphasizes environmental awareness. This aligns with UNESCO's publication Education for Sustainable Development (UNESCO, 2020), which also highlights the community as a key element in driving transformations toward sustainability. These two paths converge, intersect, and enrich one another. In Section 2, an overview of the rationale that has guided the work to be described is presented, followed by the presentation and discussion of both paths in Section 3. Sections 4 and 5 reflect on the presented ideas and offer some recommendations for future training initiatives.

## **2. Pillars for the Design of Training Pathways Grounded in Music and the Arts for Early Childhood in Portugal**

The interest in music as a field of educational intervention for early childhood has been expanding globally, as shown in several studies (Barrett et al., 2019; Blasco-Magraner et al., 2021). In Portugal, over the past three decades, the ideas of Edwin Gordon, who published his first book on the theory of music learning for newborns and preschool-aged children as early as 1990 (Gordon, 2013), have played a significant role in promoting attention to music learning from birth. His ideas began to spread in Portugal in 1994, following the first author's observation of music orientation sessions for parents and babies at Temple University in the United States. Following that encounter, Edwin Gordon became a charismatic presence in numerous training initiatives held across Portugal between 1995

and 2008, which also influenced some projects in Europe (e.g., AIGAM—Associazione Italiana Gordon per l'Apprendimento Musicale, 2025; Gordon Gesellschaft, 2025). By considering both the initiatives that existed in the country before 1994 and those developed since then—particularly those involving music orientation sessions for parents and babies (e.g., the “Música de Colo” program at the NOVA University of Lisbon—Centre for Music Studies (CESEM) (2025))—we must acknowledge the significant impact of Gordon’s ideas on practices and conceptions related to music in early childhood over the past three decades in Portugal.

By addressing questions such as “How do children learn music?” and “How does the process of acquiring musical vocabulary develop?”, Gordon’s (2001, 2007, 2013) work offers invaluable insights for all professionals working with young children. Gordon’s contributions align with findings in anthropology, psychology, and biology that highlight the universality of musical behavior (e.g., Greenberg et al., 2022; Mehr et al., 2019; Rehfeldt et al., 2021; Savage et al., 2015; Singh & Mehr, 2023), as well as with research demonstrating the remarkable plasticity of communication in the early years (e.g., Gervain, 2015; Martin et al., 2022). We also highlight the concept of “communicative musicality,” introduced by Malloch (1999) and further developed by Malloch and Trevarthen (2009), as part of the human being’s “basic equipment” from birth. Communicative musicality is defined as the innate human capacity to coordinate vocalizations and gestures in early interactions between adults and infants (Malloch & Trevarthen, 2009). This concept is distinguished from the conventional notion of musical talent by emphasizing the rhythmic and expressive features of communication that facilitate intersubjective engagement from birth. These early exchanges, characterized by shared gaze, vocal imitation, and gesture, play a foundational role in the development of communicative competence. Infants actively participate in these interactions, contributing to their cognitive and linguistic development by engaging the physiological mechanisms necessary for speech and singing (Fonseca & Parizzi, 2020; Trevarthen et al., 2019). While Edwin Gordon led us to reflect on the content of musical learning, Colwyn Trevarthen, on the other hand, prompted us to consider the musical nature of human interaction. Both perspectives have shaped our aesthetic and educational choices, guiding the development of the training pathways designed in the Opus Tutti and GermInArte projects, which were funded by the Calouste Gulbenkian Foundation in Lisbon.

Additionally, this work is also grounded in the ideas of intuitive parenting concerning early communicative development (M. Papousek, 1996), biological and cultural origins of early musicality (H. Papousek, 1996), emotional contagion mechanism (Hatfield et al., 1993), which describes the inclination to imitate and align with another person’s expressions, tone of voice, posture, and movements, often resulting in shared emotional experiences, and empathic communication (Rodgers, 1975), which is essential in collaborative environments.

### *2.1. The Opus Tutti Project—Artistic Practices in Creating Social and Educational Roots (2011–2014)*

This project aimed to develop and implement the best practices to enhance care during childhood and early childhood. The project unfolded over four years, metaphorically named Germinar, Enraizar, Crescer, and Frutificar (Germinate, Budding Roots, Growing into Light, and Bearing Fruit) (Nunes & Companhia de Música Teatral, 2011, 2012, 2013, 2014). Drawing from pilot experiences in a nursery and kindergarten, Opus Tutti developed models and materials aimed not only at early childhood but also at engaging broader community segments. Rooted in a systemic approach inspired by UNESCO (1980) and the ethos of the African proverb “It takes a village to raise a child,” the project emphasized the importance of surrounding communities in a child’s development. Its ultimate goal was to enhance childcare by designing artistic initiatives that enrich the cultural and educa-

tional practices of families, educators, and other human resources. To this end, Opus Tutti promoted artistic enjoyment and transdisciplinary interventions using diverse artistic languages, always considering their expressive and communicative potential. The project also facilitated knowledge dissemination and reflective dialog through events such as the International Colloquium for Arts in Childhood and Human and Social Development, whose 15th edition is scheduled for 2025. By incorporating initiatives for adults and older children, the project ensured that its early childhood focus had a lasting and inclusive impact.

The CMT has documented some of the project's outputs into films—*Babelim* (Margas Filmes & Companhia de Música Teatral, 2015a), *Inventário dos Frutos* (Margas Filmes & Companhia de Música Teatral, 2016c) and *Gamelão de Porcelana e Cristal* (Margas Filmes & Companhia de Música Teatral, 2016b)—which exemplify a systemic and transdisciplinary approach to childhood and art, and have proven sustainable beyond the project's conclusion. Two main publications continue to disseminate the project's ideas and results: the book *Ecos de Opus Tutti* (Rodrigues et al., 2016a), which includes four documentaries corresponding to each project year, and the *Manual para a Construção de Jardins Interiores* (Rodrigues et al., 2016b), an eclectic collection of educational proposals supported by accompanying CDs. Both publications are available as open access on the CMT website (Companhia de Música Teatral, 2025b).

## 2.2. *The GermInArte Project—Artistic Transformation of Agents for Social and Human Development from Early Childhood (2015–2018)*

The GermInArte project aimed to qualify human and professional resources for early childhood by designing and implementing training approaches grounded in artistic and musical practices. Adopting a holistic perspective, the project sought to engage elements of the social system that could, directly or indirectly, positively influence how early childhood issues are addressed. Actions targeted at both the general public and specific groups were designed and implemented. A distinctive feature of GermInArte was its focus on working in clusters, both in terms of thematic and artistic content, as well as in relation to the trainees' target audiences. In other words, instead of focusing on individuals in isolation, the approach emphasizes group-based processes that promote collaborative learning and the formation of professional networks. This collective model encourages knowledge exchange, mutual support, and interdisciplinary dialog among participants, fostering a more integrated and sustainable impact on early childhood education. Like the documented benefits of diverse and inclusive classroom environments (Banks, 2007), working in clusters is grounded in the belief that participants' varied cultural, professional, and personal backgrounds enrich the learning process. Research in adult education and professional development emphasizes that diversity within professional learning communities promotes critical thinking, creativity, and empathy—essential skills for working effectively with children and families from diverse backgrounds (Cherrington, 2017; Mezirow, 2000). Thus, by cultivating inclusive and collaborative learning environments, this work model not only strengthens individual competencies but also contributes to a broader culture of shared responsibility for early childhood development, as shown by Liu et al. (2024).

In GermInArte, various training formats were tested, ultimately resulting in two models: immersive training (long-term) and transitive training (short-term). The term immersive training has been used as a working concept by Companhia de Música Teatral since 2006 and is characterized by three main ideas: (1) hands-on learning (Dewey, 1897); (2) the use of non-verbal resources in communication, such as singing and movement, that contribute to activate breathing processes, which, in turn, are linked to emotional states capable of improving well-being (e.g., Bahi et al., 2024) and connect people; (3) a final product of an artistic nature capable of bringing the whole community together, which is the result of the process experienced throughout the week (Rodrigues et al., 2018). The term

transitive training is applied to a set of 2 to 4 three-hour modules that share the immersive training's first two ideas, and have different goals in terms of artistic, didactic, and musical behavioral observation aspects.

In GermInArte, the immersive training model comprised three intensive week-long programs (6 days with 7 h of work), each accommodating about 25 participants: Jardim Interior (Inner Garden; [Margas Filmes & Companhia de Música Teatral, 2015b](#)) in 2015, Caleidoscópico (Kaleidoscope; [Margas Filmes & Companhia de Música Teatral, 2016a](#)) in 2016, and Dabo Domo in 2017 (inspired by the Latin word for home; [Margas Filmes & Companhia de Música Teatral, 2017a](#)). The transitive training model consisted of three-hour modules—Super-Sonics, BebéPlimPlim, and Colos de Música—which reflected pedagogical approaches closely linked to the Manual para a Construção de Jardins Interiores ([Rodrigues et al., 2016b](#)). These transitive training sessions were delivered in over 30 locations across mainland Portugal and the islands of Madeira and the Azores, reaching approximately one thousand professionals nationwide. Some sessions were also conducted in Spain and England. Trailers related to the transitive trainings and each edition of the immersive training programs are available in open access at CMTECA of CMT's website. The documentary Voar da Ponta dos Dedos (Flying from the Fingertips; [Margas Filmes & Companhia de Música Teatral, 2018](#)) is integrated in [Rodrigues et al. \(2018\)](#). It presents the immersive training and documents the training process through the voices of the trainees. The collection of participants' impressions was part of the project's assessment, and the film presents it in a poetic manner.

Other GermInArte output and training resources included Afinação do Olhar (Sight Tuning; [Companhia de Música Teatral, 2025a](#)), a collection of videos gathered over several years from artistic and educational performances by the Companhia de Música Teatral, in partnership with the Laboratory of Music and Communication in Childhood of CESEM. Merging artistic experience with a scientific paradigm (inspired by an ethological approach and video microanalyses), this video set presents a systematization of behaviors observed in babies and young children during musical and artistic performances. It has been utilized in the professional development courses of educators, artists, and researchers with a specific interest in early childhood musical development and art for children. It offers a vocabulary that facilitates the sharing of ideas among those interested in understanding music and art during childhood, as well as for those interested in broader topics related to psychological development, social interaction, and well-being through artistic experiences (e.g., [Barbosa et al., 2023](#))

### **3. Training Paths Grounded in Music and the Arts for Early Childhood: Examples from Academia and Artistic Creation Fields**

In Portugal, as previously mentioned, the field of music for early childhood has been growing over the last thirty years. However, higher education institutions in Portugal offer inadequate training in music for future educators and primary school teachers, and there is a lack of in-depth study of the specific characteristics of these age groups and the development of suitable activities in undergraduate and master's programs related to music. Therefore, structured training aligned with medium- and long-term intervention strategies is necessary. To address these needs, various initiatives were later designed based on the knowledge and experience gained from the projects described above. This section highlights two initiatives, one from the academic sphere and another from the artistic creation context. The postgraduate course aims to support the professional development of enrolled students, while "Mil Pássaros" provides lifelong training initiatives aimed at educators working in nurseries and kindergartens. Both initiatives have complementary goals and share a common objective: to enhance the quality of care for children in early

childhood. Notably, numerous training initiatives exist worldwide in the field of music and the arts for early childhood. Although the purpose of this paper is not to map existing practices, we highlight a few examples at the end of this section that are partly similar to the Portuguese examples that are described, leaving many valuable others out.

### *3.1. The Postgraduate University Program in Music in Early Childhood: Intervention and Research*

The course is offered by NOVA FCSH, conferring a postgraduate diploma and awarding 60 ECTS credits (NOVA FCSH, 2025). It is structured over two semesters. In the first semester, the curricular units—Music Learning Theory for Early Childhood I, Music and Social and Human Development, and Artistic Practices for Early Childhood—aim to provide the pedagogical foundations necessary for effective musical and artistic intervention with children aged 0 to 5 years. These curricular units also aim to consolidate fundamental knowledge about musical development in early childhood, including specific considerations for children with special educational needs. The second semester offers the following curricular units: Music Learning Theory for Early Childhood II; Music, Health and Well-being; Research Lab I: Observation of Behaviors; and Research Lab II: Replication. These courses further consolidate the pedagogical and practical foundations for musical intervention, providing knowledge encompassing, for example, the field of neonatology, as there is a specialist researcher at NOVA FCSH (M. E. Carvalho et al., 2022; M. E. S. Carvalho et al., 2022). Additionally, students are introduced to practical research work, particularly through behavioral observation during artistic practices and the replication of a research study using the microanalysis technique with appropriate software.

This training program is designed for individuals seeking to acquire specialized skills for working in educational and/or artistic contexts with children from birth to five years of age. It also targets professionals seeking to enhance their human interaction with children in this age group using musical resources. The philosophy underpinning the two aforementioned projects resonates throughout this postgraduate program, primarily through the implementation of immersive experiences and the formation of clusters. Aiming to qualify human and professional resources for early childhood broadly conceived, the program welcomes a wide range of candidates, fostering collaborative work across society. Bringing together students from diverse professional backgrounds and including elements of personal development helps establish a foundation for the dialog necessary for network-based interventions within educational and social systems. For instance, in the first edition of the program during the 2020/2021 academic year, the 15 enrolled students came from varied academic and professional backgrounds. Some had years of experience in early childhood education, while others were beginning their careers. Since then, the course has strengthened its online offerings, enabling participation from distant regions within Portugal, including the islands, as well as from Brazil.

Furthermore, by placing Intervention and Research side by side, this postgraduate program establishes a unique working paradigm. Typically, research is conducted in baby-labs, which are exclusively focused on experimental and quasi-experimental investigations. Typically, training for musical initiation occurs solely in educational programs. Thus, this course offers an alternative to traditional models of academic training, aligning with research interests and educational practices in infancy and early childhood.

A key resource supporting this work is the Laboratory of Music and Communication in Infancy (LAMCI), established in 2009 (CESEM, 2025). The facilities at LAMCI have been essential in enabling movement activities, multisensory listening experiences, improvisation through various languages (visual, bodily, musical), and exploratory paths aimed at creating performative works for childhood. Following the idea of pedagogical isomorphism (Niza, 2015), which posits that teachers reproduce the learning environments

and models they experienced during their training rather than what they were told to do, students are engaged in activities and learning environments similar to those they are expected to offer their students. Furthermore, LAMCI provides optimal observation conditions and recording equipment, allowing the study of musical behavior in settings that closely resemble naturalistic environments. For example, the curriculum includes live musical guidance sessions involving parents and children. Some trainees can attend the sessions through the LAMCI observation room, which is separated from the activity room by a two-way mirror. Meanwhile, a small group can lead the sessions from inside the activity room.

Indeed, observation is a crucial component in enhancing pedagogical practices. Discussion and reflection on behavioral dynamics are relevant for determining the most effective musical responses from professionals working with children. Moreover, the systematization of these observations is crucial to inspire research on children's musical development, as advocated by [Benetti and Costa-Giomi \(2023\)](#).

### 3.2. *Mil Pássaros*

Companhia de Música Teatral conceptualizes its practice through the creation of *artistic-educational constellations*—a set of artistic and educational elements organized around a unifying theme or central idea. These may include performances, installations, training programs, workshops, conferences, and publications. The constellation model facilitates diverse forms of engagement with the public or different audiences, as well as interdisciplinary interaction, enabling a multifaceted exploration of core ideas. The example of the “Mil Pássaros” constellation is described, with a particular emphasis on its training dimension. Drawing on a project implemented in the Portuguese city of Coimbra in 2024, this section examines how this constellation promoted the active involvement of educators throughout all phases of the process. The approach is holistic, fostering not only the development of artistic tools for working with babies and young children but also encouraging personal, relational, and ecological awareness. Training is embedded within the broader creative process, with the potential to support deep professional and personal transformation. Such transformation is positioned as a central aim, both within artistic practice and in the education of those engaged with early childhood.

#### 3.2.1. Describing the Mil Pássaros Constellation

The Mil Pássaros constellation draws inspiration from the orizuru, a traditional Japanese paper crane created through the art of origami. This orizuru had been previously featured in Noah ([Margas Filmes & Companhia de Música Teatral, 2017b](#)), another artistic-educational constellation, centered on raising awareness of climate change. In Japanese tradition, folding one thousand orizuru while making a wish is believed to make it come true, making the crane a powerful symbol of happiness. In the aftermath of the Hiroshima bombing, the orizuru further evolved into a global symbol of peace and a symbol of hope for a more harmonious world.

The theme of listening to birds is the central idea in “Mil Pássaros”, which draws inspiration from a variety of literary sources ([Attar, 1984](#); [Carson, 2015](#); [Catchpole & Slater, 2003](#); [Feld, 2012](#); [Frazen, 1018](#); [Prum, 2018](#); [Rothenberg, 2006](#)). Based on the urgent need to care for the planet and to “listen to the birds,” it encompasses artistic creation, community involvement, and experiences that engage families, nurseries, kindergartens, and schools in dialog, thereby fostering awareness of environmental education. This aligns with the Education for Sustainable Development roadmap ([UNESCO, 2020](#)), which highlights the urgent planetary challenges and the need to address them through education. Transformative learning theory emphasizes the importance of reflection and reevaluating

our assumptions to foster both personal growth and social change (Mezirow, 1991). In an age of information saturation and evolving educational roles, educators are positioned as key agents in fostering transitions toward sustainable living (Eriksen, 2013; Samuelsson & Kaga, 2008). However, as stated by UNESCO (2020), to guide others through this process, educators themselves need to undergo their own learning journey. They must develop the knowledge, skills, values, and attitudes necessary to address today's challenges. Supporting and empowering educators in this way is not just helpful—it is essential for creating meaningful and lasting change.

The concept of listening serves as a pivotal point of convergence between environmental awareness, personal growth, and musical development. Activities that focus on listening to the soundscape (Schafer, 1993) with children and families have a profound impact, as the awareness and practice of listening are foundational for building empathy. Listening nurtures both self-awareness and awareness of others and is essential for expressiveness and meaningful communication (Brownell, 2017; Lipari, 2014; Rogers & Farson, 2021; Siegel, 2010). The act of folding orizurus within the project symbolizes all these interconnected ideas.

Depending on the needs of each context, the constellation may take the form of artistic performances, installations, performative lectures, or training sessions. However, usually, its departure point is a training phase aimed at engaging educators and artists in an embodied experience of the expressive and poetic universe that the project enables. Training is not merely technical preparation; for CMT, it is a transformational process—multisensory, multidimensional, and rooted in deep listening. It is about catalyzing change through the integration of artistic languages: voice, movement, sound, and visual expression. This approach dissolves disciplinary boundaries and grounds all creation in core human impulses to play, express, and connect.

Training in “Mil Pássaros” has evolved into three distinct formats, including online and in-person activities, that follow the strands designed initially in the GermInArte project: transitive training and immersive art training for children. The formats are: (1) z.Lab Mil Pássaros (online)—remote training developed during the pandemic, born from successful experiences like PaPI-Opus 8.z (Margas Filmes & Companhia de Música Teatral, 2020) and Poemário Vivo (Companhia de Música Teatral, 2020). The most recent experience was developed within an ERASMUS+ project, partially described in Pereira et al. (2024); (2) t.Lab Mil Pássaros (transitive)—in-person, two-module sessions of three hours each focusing on music/sound and visual/movement, with fluid transitions between these art forms; and (3) i.Lab Mil Pássaros (immersive)—an intensive, in-person residency of 40 h combining training and collective creation, exploring music, movement, bodily expression, and composition, using both traditional instruments and alternative sound resources; it culminates with a theatrical music piece designed by the facilitators and participants for families with babies—an element that makes this course particularly distinctive; this performance emerges organically from the practical proposals explored during the week, and is shaped by each group's unique composition and creative journey, making every edition different and deeply personal. At the heart of the process are personal development and collaborative creation, both of which are mediated through artistic tools. The awareness of the value of play is embedded in every activity. Participants are invited to reflect on their journey using the RIA model (Rodrigues et al., 2018). Throughout the years, this model has been implemented in various ways, including storyboards, focus groups, verbal expression, and nonverbal expression. The 2024 edition of the immersive training marked the kickoff of the Artistic Beginnings in Co-creation (ABC) training program, an ERASMUS+ project (Nielsen, 2025). It contributed to the professional development of six artists from Denmark, Italy, and Portugal, who have a special interest in artistic creation for infants.

### 3.2.2. Mil Pássaros in Coimbra: Examples of Articulation Between Professional Development, Artistic Practices, and Community Involvement

Mil Pássaros em Coimbra (2023–2024) took place in Coimbra, one of Portugal's main cities. It engaged the public kindergarten network extensively, with 31 out of 34 kindergartens participating, involving 48 educators, 127 operational assistants, and the families of more than 1000 children (Margas Filmes & Companhia de Música Teatral, 2024). The project combined three interrelated domains: professional development, artistic creation for children, and community involvement. Rather than describing the entire scope of such a complex initiative, this section highlights a few illustrative examples of how these dimensions were integrated and tailored to the specific context of the city.

The project began in 2023 with the I Colloquium Art and Environment, which introduced the Mil Pássaros constellation to the broader educational community. A second colloquium followed in 2024, focusing on deeper engagement with professionals. One key moment during this colloquium was the presentation of the music–theatrical piece PaPI–Opus 8 (Margas Filmes & Companhia de Música Teatral, 2019). This piece, rich in references to the universe of birds, was scheduled to tour all the participating kindergartens as part of the project. Presenting it first to an adult audience at the project's kickoff was crucial: it quickly and powerfully conveyed the beauty and artistic quality of what would later be offered to children. Afterward, educators were invited to attend the transitive training described earlier (t.Lab Mil Pássaros). Based on educators' identified needs, an additional training opportunity was also offered: Canto dos Pássaros—Musicalidade Comunicativa na Educação de Infância (Birds' Songs—Communicative Musicality in Early Childhood Care), aimed at improving educators' vocal and movement skills. This training took place between February and June 2024, spanning a total of 25 h across 12 meetings that provided a relaxed, playful, and collaborative atmosphere. Data analyses of the questionnaires revealed that participants reported experiencing joy and well-being while singing and playing together. Both trainings included songs, chants, and activities related to PaPI—Opus 8 and to the orizurus' fold. These were tools that educators could manage at their own pace in their classes. If needed, participants could also request in-person or online support from the "Birds Office" (CMT's tutors who were available to provide support at any time during the project, either individually or in groups).

In the meantime, each kindergarten hosted a small wooden object (entitled 'First Birds'). Throughout the project, with the help of educators and in dialog with families, the children created orizurus that were placed on this object, making it possible to create a small installation. Then, this small installation was utilized as a key scenic element in PaPI–Opus 8. In this way, children were engaged in preparing this music-theatrical piece while also learning the chants and songs included in the performance.

Moreover, educators were informed that the project would culminate in a collective installation, bringing together the small installations that had been hosted and built in each kindergarten, and adding interactive sound elements. The collective installation (Inúmera Mão) was exhibited in one of the most important cultural endeavors of the city (Convento São Francisco) for almost three months and was visited by thousands of visitors. Its inauguration took place after a performative lecture (Conferência dos Pássaros/Birds Conference), featuring three artists, and a meeting with the educators who participated in the project. A transhumance occurred between the "school space" and the "community space," leaving a subtle lesson: the community needs to unite efforts in caring for the environment, and this endeavor must start in early childhood, as suggested by UNESCO (2020).

### 3.3. International Examples

The first example pertains to the Federal University of Minas Gerais in Brazil. It includes an extension project—the Bambulha Group—and the Centro de Musicalização Integrado (CMI—Integrated Musicalisation Centre), a complementary body to the university’s School of Music. The Bambulha Group Project, launched in 2019, focuses on music and art for children and collaborates with trainee music educators. Its focus lies in creative practices such as composing children’s music and developing musical performances, engaging children directly in the creative process (Broock et al., 2020). An annual highlight of the project is the “Children’s Music and Cultural Production” course, a 30 h program open to students from various disciplines interested in children’s music/art (Broock & Malaquias-Alves, 2023). The course includes discussions on children’s development and music, interactions with specialists in the field, and a collective creation lab where participants compose and present original musical works. The initiative is rooted in the CMI, which has been providing community-based music education in Belo Horizonte since 1985 (Broock, 2021). The CMI offers a unique learning environment where classes are led by music students, serving as a training ground for both undergraduate and postgraduate educators. Both the Bambulha Group and the CMI represent a pedagogical model grounded in sustained dialog with the community, the centrality of artistic creation within educational practice, and the promotion of student agency. These Brazilian projects emphasize the importance of collaborative, interdisciplinary, and socially engaged training environments as essential to the holistic development of both children and educators. The search for a culture of care, attentive listening, and expressive freedom through the arts is in tune with analogous initiatives developed in Portugal. Likewise, they establish connections between academic training and extension activities.

The second example pertains to the Early Childhood Music Training Course, developed within the framework of the Erasmus+ Key Action 2 Project “Early Childhood Music Education in the Mediterranean” (project number 2014-1-CY01-KA201-00295). This project was a partnership between the C.C.R.S.M. Cyprus Centre for the Research and Study of Music, the University of Granada, the Ionian University, the Scuola Popolare di Musica Donna Olimpia, and the Cyprus Association of Private Preschool Education. The training initiative adopted a child-centered, humanistic, and intercultural perspective, integrating Mediterranean cultural elements and emphasizing human agency. The course consisted of six core modules, including practical applications of evaluation tools, action research, and 20 lessons that were implemented. Participants were 18 early childhood and music educators from the participating countries in the project. Results show that music emerged as a powerful educational tool for fostering respect for Mediterranean traditions, cultivating a cosmopolitan identity, and encouraging openness, empathy, and self-expression in a multicultural world (Anselmi et al., 2017).

Another example pertains to the Certificate for Music Educators: Early Childhood (CME) from the Centre for Research in Early Childhood, which addresses the need for a consistent, professional standard in early childhood music education. Introduced in 2017 and accredited by Trinity College London, the CME was the first accredited qualification in early childhood music practice in the UK, offering a course that supports music practitioners through a reflective, practice-based learning model not tied to any singular pedagogical method. This one-year, part-time, distance-learning course combines individual mentoring (15 h of one-on-one support), small mentor-led groups, and a broader learning community that includes both current students and alumni (CREC, 2025). Also in the UK, building on a 25-year legacy of pioneering early childhood arts work with families in Great Yarmouth, Magic Acorns has led a holistic, creative, and inclusive work that resonates with the Portuguese projects described—which combine Research, Training, Artistic

Creation, and Community Intervention—and with whom the authors have collaborated ([Magic Acorns, 2025](#)).

The final example pertains to the solid and eclectic work that has been carried out in France by the association *Enfance et Musique* for over thirty years, either in training or in artistic creation for infancy ([Enfant et Musique, 2025](#)). Its partnership with Tours University on a diploma in music for infants and music for infants in situations involving disabilities seems to be another good example of dialog between the academy and civil society, resembling the joint path that was traced in the Portuguese examples.

## 4. Human Development Grounded in Music and the Arts for Early Childhood: Training and New Routes for the Future

### 4.1. *Linking Creation, Intervention, and Research*

The observation of babies' behaviors during artistic performances tailored for early childhood—as well as the interactions occurring between infants themselves, between infants and caregivers, artists, and other participants—has become an area of growing interest for the authors ([Barbosa et al., 2023](#); [Rodrigues et al., 2018](#)). Analyzing the engagement of all involved and characterizing the microcosm formed in these settings offers valuable insights into the psychological development of infants and young children. It also encourages a more profound reflection on the role of art in human experience ([Dissanayake, 1992](#); [Eisner, 2002](#); [Greene, 1995](#)), as well as consideration of parent–child relational dynamics ([Bowlby, 1988](#); [Sameroff, 2009](#)). These interactions may be crucial to foundational elements that predict educational success. Moreover, examining such “non-instrumental” contexts—like the shared experience of parents and babies in a performance—can reveal the fundamental social processes at work.

Informal observation of interactions via Zoom—necessary during presentations of works like *Poemário Vivo* ([Companhia de Música Teatral, 2020](#)) and *PaPI-Opus 8.z* ([Margas Filmes & Companhia de Música Teatral, 2020](#))—proved effective for collecting and reflecting on this kind of data. It also provided a practical way to extend access to artistic experiences for families and kindergartens who might not otherwise have the opportunity to encounter them in person. Nonetheless, live performances remain the preferred format, especially because they allow real-time dialog between artists and participants, as seen in both *Poemário Vivo* and *PaPI-Opus 8.z*, rather than passive viewing or listening.

The pandemic highlighted social and educational inequalities associated with children's family environments (e.g., [Andrew et al., 2020](#)), underscoring the urgent need for enhanced family support ([United Nations, 2020](#)). It also revealed the importance of creating online educational resources that genuinely foster quality education and meaningful musical exposure from birth. However, simply providing these resources is not enough to guarantee their use. By designing and evaluating artistic opportunities like these—while connecting them with research on behavior observation and remote interventions—we can promote more equitable access to quality early childhood education, aligning with the United Nations' 2030 Agenda for Sustainable Development ([United Nations, 2015](#)).

### 4.2. *Itineraries, Directions, and Audiences: Where Do We Need to Go?*

The importance of the early years of life—and the long-term return on investment in policies that promote high-quality social and educational interventions ([Heckman, 2013](#))—must remain part of our shared, daily agenda. This is especially true if we truly intend to help eradicate poverty, ensure quality education and healthcare, and promote gender equality. Indeed, the 2030 Agenda explicitly sets out in Goal 4: “By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education.” ([United Nations, 2015](#)).

Promoting quality care and education in early childhood includes ensuring that all children have access to meaningful musical and artistic experiences from the earliest stages of life. The experiential space created by artistic encounters is unique for each person. Even when these deeply personal moments of connection are interwoven with shared social bonds through collective artistic enjoyment, the experience remains singular to every individual. The artistic space is thus paradoxically both singular and collective: it invites us to wander, at times through the depths of our inner worlds, at other times through spaces of shared presence and connection. While others may not fully comprehend the fullness of each person's experience, these moments reveal our closeness as human beings, reminding us that it is within this vast tapestry of differences that we recognize our shared humanity. In this way, we are, collectively, alone.

Beyond philosophical arguments that suggest art is a luxury, music also serves as a source of auditory stimulation that enhances other human abilities. For example, it is now understood that the structure of brain networks reveals the language network to be part of a larger circuit that includes musical behavior (Patel, 2010; Peretz & Zatorre, 2005). Neuroscience increasingly emphasizes the importance of movement and auditory sensory stimulation in shaping cognitive and socio-emotional mechanisms that support language acquisition (Brandt et al., 2012; Chonchaiya et al., 2013; Kuhl, 2004; Leonard & Hill, 2014). Therefore, it is crucial that, from birth, children are exposed to an environment rich in stimuli suitable for their auditory perception abilities, supporting the development of listening skills and social interaction skills (Johnson et al., 2008). Building individualized relationships with each baby through dyadic interactions, known as proto-conversation (Legerstee, 2009), where speech and singing are directed at the baby by adults and/or older children, is an essential component of neurodevelopment. Research has shown that positive early life experiences have a significant impact on emotional skills and mental health, ultimately affecting the quality of life in adulthood (Bethell et al., 2019). Consequently, training interventions should target a diverse range of recipients across various professional settings, including families, all human resources working directly with children, higher education institutions, cultural agents, policymakers, and the broader community. In summary, training programs should promote a broad awareness of the importance of caring for the environment, children, and humanity in every action. The aim should be to unite individuals and artistic practices that foster well-being and harmony within society.

Poetic language may help transform educational discourse into a more profound exploration of deeper feelings and beliefs. Poetic language can be expressed through words. Therefore, choosing poetic names for training activities may have a subtle yet significant impact on trainees and their educational endeavors. Poetic language can also be expressed through nonverbal means in films. These may also have a surreptitious effect on trainees and educational endeavors. Posing questions such as "Do children need the reports and bureaucratic accomplishments that educators are asked to fulfill?", "What are the needs, what are the tasks?" might help transform educational discourse into a deeper exploration of feelings and beliefs.

## 5. Recommendations

- (1) A well-supported caregiver is better equipped to create nurturing environments for infants and toddlers. Thus, in addition to considering the initial and continuous training of human resources, it is also essential to focus on their well-being and the development of lifelong self-care skills.
- (2) Artistic practices foster a playful attitude, which is essential for nurturing creativity and curiosity. Therefore, they should be central to the training of early childhood educators. These practices need to be experienced immersively and modeled within

relevant work settings. Additionally, they should encourage improvisation to help educators develop flexibility, adapt to unpredictability, and engage in meaningful co-creation with children.

- (3) Working models that encourage collaboration between the educational mission of families and human resources, respecting the limits of each other's actions, fostering dialog, and a collaborative spirit, should be privileged and disseminated widely.
- (4) Lifelong learning must always be accessible to educators. They should be able to request technical or specialized support whenever needed.
- (5) How educators use their tone of voice when speaking to children is likely even more important than the actual words they say. It is essential to study and understand the impact that educators' vocal tone has on children's experiences and development.

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