

The relationship between children and nature in preschool education: a state of knowledge

A relação entre criança e natureza na Educação Infantil: um estado do conhecimento

Débora Ferreira Martins^{1,2} , Alexandra Ferreira Martins Ribeiro^{3*} , Valquíria Elita Renk^{3,4} 

¹ Universidade Tecnológica Federal do Paraná (UTFPR), Programa de Pós-graduação em Formação Científica, Educacional e Tecnológica (PPGFCET), Curitiba, PR, Brasil

² Secretaria Municipal de Educação (SEMED), Curitiba, PR, Brasil

³ Pontifícia Universidade Católica do Paraná (PUCPR), Programa de Pós-graduação em Direitos Humanos e Políticas Públicas (PPGDH), Curitiba, PR, Brasil

⁴ Pontifícia Universidade Católica do Paraná (PUCPR), Programa de Pós-graduação em Bioética (PPGB), Curitiba, PR, Brasil

HOW TO CITE: MARTINS, D. F.; RIBEIRO, A. F. M.; RENK, V. E. The relationship between children and nature in preschool education: a state of knowledge. *Revista Ibero-Americana de Estudos em Educação*, Araraquara, v. 20, e19171, 2025. e-ISSN: 1982-5587.
DOI: <https://doi.org/10.21723/riaee.v20i00.1917102>

Abstract

The relationship that children establish with nature gives them the opportunity to recognize the world and expand their investigations and experiences. With this perspective, researchers have looked into the topic and disseminated their results. This article aimed to inventory the published research that deals with the relationship between children and nature in preschool education and that are available on the Journal Portal of the Coordination for the Improvement of Higher Education Personnel (CAPES). Using the state of knowledge methodology, 16 scientific publications were selected and analyzed. The theses, dissertations and articles, which dealt with children's relationship with nature, discussed – from theoretical, legal and practical aspects – the culture of children in contemporary cities; the child as a citizen with rights; the relationship between children and nature in preschool.

Keywords: child education; infancy; natural elements; child; nature.

Resumo

A relação que as crianças estabelecem com a natureza oportuniza a elas reconhecer o mundo, ampliar suas investigações e experiências. Com essa perspectiva, pesquisadores têm se debruçado sobre o tema e disseminado seus resultados. Sendo assim, esse artigo objetivou inventariar as pesquisas publicadas que tratam da relação criança e natureza na Educação Infantil que estão dispostas no Portal de Periódicos da Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES). Valendo-se da metodologia estado do conhecimento, foram selecionadas e analisadas 16 publicações científicas. As teses, dissertações e artigos que trataram da relação da criança com a natureza discutiram – sob aspectos teóricos, legais e práticos – a cultura das crianças em cidades na contemporaneidade; a criança cidadã de direitos; a relação criança e natureza na Educação Infantil.

Palavras-chave: educação infantil; infância; elementos naturais; criança; natureza.

INTRODUCTION

The term child can present several concepts in its historicity. Friedmann (2020) emphasizes that the concept of childhood has evolved over time through social, cultural, historical, and educational processes. This ongoing transformation is shaped by demographic factors, living conditions, diverse perspectives on childhoods, and advances in public policies aimed at securing children's rights, recognizing them as active citizens in a democratic society. Despite the multiplicity of concepts, in this article, the child is understood as a historical social actor of rights who, in the multicultural relationships of everyday life, builds their personal and collective identity by playing, imagining, fantasizing, creating, desiring, learning, observing,

*Corresponding author:

alexandrafmrbeiro@gmail.com

Submitted: April 01, 2024

Reviewed: May 15, 2025

Approved: June 02, 2025

Financial support: Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – CAPES.

Conflicts of interest: There are no conflicts of interest.

Ethics committee approval: Not applicable.

Data availability: Research data is available on the Capes Journals Portal. Study conducted at Pontifícia Universidade Católica do Paraná (PUCPR) and the Universidade Tecnológica Federal do Paraná (UTFPR), Curitiba, PR, Brasil.



This is an Open Access article distributed under the terms of the Creative Commons Attribution license (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

experimenting, narrating, and questioning, producing culture and redefining understandings of themselves, others, and the world.

Regarding the conceptualization of nature, the assertions of Louv (2016) and Tiriba (2017) were considered. Nature, a word “[...] that comes from the Latin, *natura* – birth, constitution, character, course of things – and, beyond *natura*, *nasci* – to be born” (Louv, 2016, p. 30). Nature, as conceptualized by Tiriba (2017), is the primordial force that not only originated, but also maintains the natural order of everything that exists; it is the essence of life, responsible for creating all the beings that make up the Universe; it is the dynamic that drives beings, a spontaneous force that generates life cycles that itself created. Regarding the word from a child’s perspective, Louv (2016) attests that nature causes amazement, enchantment and even astonishment, with deeper purposes in developing limits, respect, freedom, privacy or a separate peace. Thus, this article corroborates the concepts of nature presented and understands that, in their relationship with natural elements, children give themselves and attribute different meanings to the word nature.

Regarding Early Childhood Education, the first modality of Basic Education, this article considers the purpose of this teaching modality to care for and educate children from zero to five years of age. Early Childhood Education is structured around two structuring axes, “play and interactions”, which promote experiences and experiences that develop social, physical, motor, cognitive and emotional aspects, encouraging investigations and discoveries in children. Furthermore, as Tiriba (2017) points out, it is within the scope of Early Childhood Education institutions that children interact with other people outside the family circle and deal with sociocultural diversity, which enriches their personal identity and enhances their existence in the world. Thus, it is understood that the relationship between children and nature can be promoted in Early Childhood Education.

The relationship that children establish with nature allows them to learn about the world and expand their research and experiences. These relationships between children and nature can be established through play and interactions, which lead them to create toys and play with the natural elements present in the spaces and times of educational institutions. This process encompasses the culture of childhood and scientific culture, and permeates the relationships between children and natural elements, in an outdoor education with and in nature from early childhood. In this sense, it is understood that it is possible to identify the relationship between children and nature even in Early Childhood Education.

Bachelard (1988) proposed that the construction of knowledge occurs through lived and reflected experience. From this perspective, the research process involves a deep immersion in the world of senses and perceptions, which allows us to attribute meanings and understand the complexity of existence. The dialectical phenomenological approach to the imaginary, proposed by Bachelard, when applied to the relationship between children and nature, highlights the importance of allowing children to experience and explore the natural environment, encouraging a deep and personal connection with nature. This relationship can stimulate curiosity, creativity and reflection on the poetic beauty and complexity of the natural world, allowing the construction of knowledge.

According to Piorski (2016), it is possible to use the phenomenology of poetic images proposed by Bachelard (1988) as a perspective to understand the complex relationship between children and nature. Children, in their investigative contexts with natural elements, create relationships that refer to a world of meanings and sensory experiences, which makes it possible to know the potentialities and gaps of this relationship, with regard to learning and the full development of children in early childhood .

In this relationship between children and nature, the contemporary needs of early childhood must be considered. According to Friedmann (2020), contemporary early childhood encompasses anthropocentric and market-oriented needs, since the relationship with nature establishes an exploratory connection with resources, alteration or perpetuation of environments. The challenges posed in this relationship are leading humanity to reflect on its actions, its inhabitation and belonging in the world, as well as its coexistence with the biodiversity of the environment of which it is a part. Such reflections need to be experienced from early childhood.

Challenges and possibilities can arise from the process of reflections arising from the relationship between children and nature in early childhood. Among the possibilities, according to Tiriba (2017), the relationship between children and nature from a socio-environmental perspective will seek to develop dreamlike and telluric experiences in natural contexts and will promote the formation of environmentally responsible children. However, it is necessary to consider that children live in different social, economic, environmental, historical, geographic and cultural contexts. Some contexts do not always allow children the access to natural environments that are suitable for their exploration, discovery and reflection, as it happens with children who live in large urban centers and who may not have contact with the different types of existing biomes, for example.

Another challenge is the need for effective mediation in order to promote stimuli, reflections and discoveries. Early childhood educators must provide opportunities and adequate guidance so that meaningful interactions occur in the relationship between children and nature, which promote the construction of knowledge and the full development of the child. In early childhood education institutions, it is the teacher who will promote experiences and experiences – within the context of investigation with natural elements, in the relationship “Child and Nature” – and who will enable children to form hypotheses about themselves, others and the world. Through scientific publications, it is possible to glimpse effective practices of early childhood education teachers in the relationship between children and nature.

In view of the above, this research aimed to inventory the published research that deals with the relationship between children and nature in Early Childhood Education and that are available on the Journals Portal of the Coordination for the Improvement of Higher Education Personnel (CAPES). To this end, theses, dissertations and articles available on the platform, published between 1999 and 2023, that dealt with the relationship between children and nature in Early Childhood Education were selected. Furthermore, the objective was to systematize and examine the approaches prioritized in the research. This is a bibliographical research, whose methodology was the state of knowledge type, which allowed the selection, organization and analysis of the documents.

The choice to use the CAPES Journals Portal as a research source is based on its quality, diversity, and scope, which provide users with a wide range of resources for consultation and study. The CAPES Journals Portal is defined as “[...] a virtual library that brings together and makes available the best of international scientific production to teaching and research institutions in Brazil” (Brasil, 2025). The CAPES Journals Portal, funded entirely by the federal government, aims to reduce regional inequalities in the access to scientific information in Brazil. In addition to more than 45,000 full-text titles and 130 reference databases, the CAPES Journals Portal offers a wide variety of resources, including books, encyclopedias, reference works, technical standards, statistics, and audiovisual content. This diversity of materials allows users to find relevant information for their research and studies in various areas of knowledge.

Despite the vast range of materials available on the platform, this research chose to inventory theses, dissertations, and articles published in journals and found on the CAPES Journal Portal. It was found that theses and dissertations are reviewed by an examining board composed of PhDs who aim to ensure quality and theoretical-methodological rigor and that, after the approval and bureaucratic procedures of each postgraduate program, such scientific productions are available in online repositories. Furthermore, it was considered that journals are spaces for curation and dissemination of important values, important characteristics in times of increased online production, as Araujo (2021) points out. It is worth mentioning that scientific articles published in qualified journals undergo a rigorous peer review process that validates the publications. In addition, it is emphasized that the scientific paths and results published in credible journals are subject to accessibility, interoperability, verification, and reuse. Such questions justify the choice of which material would be analyzed.

Regarding the methodology used, the state of knowledge type, some methodological considerations need to be taken into account. First, Romanowski and Ens (2006) outline that through the state of knowledge one can have an overview of the knowledge that has been constructed in a given area or theme. Research of the “state of the art” or “state of knowledge” type deals with a methodology of inventory and description of academic and scientific production in a given area of knowledge, as highlighted by Ferreira (2002). At the

time of data collection and analysis, this methodology used categories that emerge from the relationship with the phenomenon studied. The ordering and systematization of data, originating from the state of knowledge, allows the researcher to glimpse the contributions of other researchers, identify gaps, characteristics and perspectives that arise from the scientific production. Therefore, to constitute the systematization of articles available on the CAPES platform, which deal with the theme “Children and Nature” in Early Childhood Education, the state of knowledge type methodology was chosen. The relevance of the study is understood due to the importance of situating and debating what has been produced, as well as providing support for the direction of new studies.

As a result, 16 scientific publications that addressed the relationship between children and nature in Early Childhood Education were analyzed, including theses, dissertations and articles. The selected publications addressed the theme and contemplated theoretical, conceptual and legal discussions, as well as teacher practices in Early Childhood Education. Furthermore, the categories were: children’s culture in contemporary cities; the child as a citizen with rights; and the relationship between children and nature in Early Childhood Education, which emerged from the analysis of these studies. These categories comprise subdivisions in this article and will be better explained later.

RESEARCH PATHS: THE RELATIONSHIP BETWEEN CHILDREN AND NATURE IN EARLY CHILDHOOD EDUCATION

Data collection was carried out in November 2023 on the CAPES Journals Portal. When using the descriptor “Child AND Nature”, 31 theses and dissertations were found. As for the articles, after using the descriptor “Child AND Nature AND Early Childhood Education” and the filter “peer-reviewed journals”, 165 articles were located. At this first moment, 296 works were found.

In a second step, the selection of research that would be analyzed in depth began. After identifying this material, it was necessary to read the abstracts in order to identify articles, theses and dissertations that explicitly dealt with the relationship between children and nature in Early Childhood Education. This analysis resulted in the selection of 7 articles, 2 theses and 7 dissertations that are displayed in Chart 1 – Research demonstration with a selection of academic works that address the relationship between children and nature in Early Childhood Education.

The table presents the title, type of publication and authors of the 16 selected research studies that deal with the relationship between children and nature in Early Childhood Education.

Chart 1. Research demonstration with a selection of academic works that address the relationship between children and nature in Early Childhood Education.

Title	type	Author
The school environment: a discussion on the school-nature relationship in Early Childhood Education	Article	Elali (2003)
Childhoods in Early Childhood Education	Article	Abramowicz, Levcovitz and Rodrigues (2009)
The dialogue between aspects of scientific culture and children’s cultures in Early Childhood Education	Thesis	Ruffino (2012)
The toy and the imagination of the earth: a study of floor games and their interactions with the fire element	Dissertation	Piorski (2013)
Children and nature: educational experiences in green areas as humanizing paths	Dissertation	Lima (2015)
Formation and assimilation of scientific concepts with an environmental education approach in Early Childhood Education	Dissertation	Weirich (2015)
Outdoor spaces as a possibility for multiple experiences in Early Childhood Education	Article	Monteiro and Rodrigues (2015)
Children and the affective experience with nature: the conceptions in the official documents that guide and regulate Early Childhood Education in Brazil	Thesis	Santos (2016)

Chart 1. Continued....

Title	type	Author
Early Childhood Education: the city, the curriculum, digital culture	Article	Silva and Almeida (2016)
Early Childhood Education as a right and joy	Article	Tiriba (2017)
Teaching Science and Art: a necessary debate in the training of Early Childhood Education teachers	Dissertation	Rossi (2018)
Implementation of a mud kitchen at the Early Childhood Education school: playing with elements of nature	Dissertation	Pires (2019)
Corporeality and nature: experience and perception in childhood	Dissertation	Silva (2019)
In the “web of life” me, them and nature: pedagogical practices on nature in Early Childhood Education in Manaus	Dissertation	Souza (2019)
Science teaching and early childhood education: a study based on interpretative reproduction and childhood culture	Article	Iglesias and Silveira (2019)
On the natural rights of children: an experience with the mud kitchen in a Brazilian kindergarten	Article	Marques and Pires (2021)

Source: Organized by the authors, based on data available on the CAPES Journal Portal (Brasil, 2025).

The 7 selected articles were written by the authors Elali (2003); Abramowicz, Levcovitz and Rodrigues (2009); Monteiro and Rodrigues (2015); Silva and Almeida (2016); Tiriba (2017); Iglesias and Silveira (2019); and Marques and Pires (2021). The theses are by Ruffino (2012) and Santos (2016); the dissertations are by Piorski (2013), Lima (2015), Rossi (2018), Pires (2019), Silva (2019), Souza (2019) and Weirich (2015), whose research deals with the theme. The analyses are presented below.

The selected research studies addressed the relationship between children and nature in Early Childhood Education, considering theoretical, conceptual, and legal aspects, as well as teacher practices. The theoretical, conceptual, and legal discussions were addressed in Abramowicz, Levcovitz, and Rodrigues (2009); Ruffino (2012); Silva and Almeida (2016); Tiriba (2017); Iglesias and Silveira (2019). The research by Santos (2016) and Pires (2019) combined legal discussions with the presentation of practices for Early Childhood Education teachers. Elali (2003); Piorski (2013); Lima (2015); Weirich (2015); Monteiro and Rodrigues (2015); Rossi (2018); Souza (2019); and Silva (2019) presented possibilities of practices for Early Childhood Education that provide the relationship between children and nature.

Categories emerged from the analysis of studies on the relationship between children and nature in Early Childhood Education. As Bardin (2015) explains, such categories arise through a process of analyzing the material, in which data are organized into units of meaning that share common characteristics, enabling the construction of thematic cores that reveal key aspects of the object of study. In the research analyzed, the following thematic cores could be perceived: the culture of children in contemporary cities; the child as a citizen with rights; the relationship between children and nature in Early Childhood Education. These approaches deal with the relationship between children and nature in Early Childhood Education based on the relevance of spaces, times, materials/materialities, the scientific and cultural culture of childhood. These approaches are in line with Tiriba's (2017) understanding regarding the fact that research on the theme of the relationship between children and nature addresses rights, citizenship-democracy-nature, and the quality of life that permeates spending more time with/ in nature. Such perspectives, explored in the selected research, made it possible to expand knowledge, discussions, reflections and dialogues to foster favorable horizons in positive experiences and experiences in the daily life of childhood culture, as well as to recognize that “I ↔ we ↔ world” is nature (Tiriba, 2017), since “Gaia, is the Mother Earth” (Latour, 2019).

THE CULTURE OF CHILDHOOD IN CONTEMPORARY CITIES

The culture of childhood in urbanized cities highlights the radical separation between human beings and nature. The presence of globalization, anthropocentrism, and the capitalist system of the modern world characterizes the dichotomy between cultural diversity and biodiversity.

As Tiriba (2017), Silva (2019), and Souza (2019) point out, in these circumstances, many children are distanced from nature, especially in large urban centers, as they play and interact with the natural world less and less.

In this contemporary urban context, some children are growing up in a crisis caused by the capitalist system, which provides little interaction with nature. Rossi (2018) explains that the means of production of human labor and the exponential accumulation of capital and natural resources promote the extraction of resources from nature. Souza (2019) warns of the exploitative relationship of nature in satisfying anthropocentric needs. In this sense, it is clear that children are developing in this scenario of accumulation and consumerism, which results in the unsustainable extraction of natural resources. This understanding corresponds to the duality of human beings and nature in which children are growing up.

In today's Brazilian culture, it is increasingly common for children to lose their connection with nature. Piorski (2013), Tiriba (2017) and Rossi (2018) highlight that the street is no longer a safe place to live; the architecture of buildings prioritizes buildings and apartments that make it impossible for children to play in the rain, in the garden, in the wind, in the trees, with ladybugs, in the sun and at night. Adults, unaware of their actions, offer children screens with the purpose of "[...] distracting them, causing, in addition to hypnotism, anxiety, dependence, in addition to take away the opportunity to interact and enjoy other experiences in which they can be more active and creative" (Friedmann, 2020, p. 104). In this dynamic, children spend a lot of time confined between four walls, often in front of screens, TVs, smartphones, computer games, video games, tablets, notebooks and other electronic devices that take on the role of a web of screens, often making them passive receivers.

In this lack of connection with nature and the unbridled exposure to digital technologies, as Silva (2019, p. 21) highlights, "[...] children may suffer a delay in their physical development", since "[...] the quality of corporeality depends on the stimuli received in childhood, and there is nothing better for children than playing outdoors", enjoying nature, with lawns, trees, animals, rocks, wind, water, and other elements that nature offers. The socio-environmental context of metropolises and large urban centers distance children from the natural world and from games and interactions in physical spaces with natural elements.

However, this problem has been causing concern in part of society. Due to the concern about establishing connections with the natural world, society seeks solutions that modify capitalist structures, materializing a new conception of being, thinking and acting in democracy. The focus is on the construction of knowledge, including children and beings in the collective for the instrumentalization, emancipation and decision-making that deconstructs oppressive relationships to which they are subjected, as revealed by Tiriba (2017) and Latour (2019). Among the solutions, in the understanding of Tiriba (2017), the collective – which seeks answers in "being, thinking and acting" in democracy – must call on children to participate, considering that they are also social actors with rights, [and] it is also the responsibility of schools to help them establish themselves as generation of change. When approaching children in their institutional contexts (school, for example), Elali (2003), Lima (2015), Monteiro and Rodrigues (2015), Santos (2016), Silva and Almeida (2016), Tiriba (2017), Pires (2019) and Souza (2019) highlight the emergency of rethinking the current socio-environmental and socio-educational model in which children and the culture of childhood are inserted.

To rethink childhood culture, it is necessary to think about promoting meaningful experiences of contact with nature. Tiriba (2017) highlights the importance of public policies that consider environmental health in childhood, recognizing the positive impact of immersion in nature on children's socio-emotional development. Louv (2016, p. 29) highlights that spaces and moments of interaction with nature offer a cure for problems such as "nature deficit disorder"¹, stimulating creativity and promoting sensory and perceptive development. From this

¹ "Nature Deficit Disorder": Although it is not a clinical diagnosis, Louv (2016) draws attention to the negative effects of children's lack of interaction with naturalized spaces on their physical, emotional and cognitive development. Excessive digital screens, urbanization and the overload of structured activities contribute to the increase in childhood obesity, attention deficit, anxiety and depression, in addition to harming creativity, imagination and the connection with natural environments. The concept is not a medical pathology, but a sociocultural critique of the growing disconnection between children and nature, highlighting the importance of experiences with natural elements in children's daily lives.

perspective, it is necessary to design policies and practices that value and promote children's access to natural environments.

From a new perspective, it is necessary to ensure children's rights and their relationship with nature in a reinvention of urban centers, with the involvement of various areas of knowledge. Sustainable urban planning for the reinvention of cities, taking into account children's rights with nature, is recommended by Elali (2003), Lima (2015), Monteiro and Rodrigues (2015), Silva and Almeida (2016), Santos (2016), Tiriba (2017), Rossi (2018), Pires (2019), Silva (2019) and Souza (2019). Such urban planning must be developed in collaboration "[...] with architects, urban planners, designers, landscapers, pediatricians and veterinarians", as well as "[...] the way classrooms are designed, houses are built and neighborhoods are organized" (Louv, 2016, p. 75). According to Souza (2019), this remodeling and construction, which provides ecological and sustainable cities, respects children's rights from early childhood, in addition to involving issues such as citizenship, democracy and planetary politics. In this reconstruction of cities, children, assured of their rights, play and interact with and in nature. Furthermore, they participate as social actors in decision-making in a democratic society, learn how to make cities ecologically sustainable, to respect nature and all forms of life — human and non-human — including relationships of care for the Earth and the wisdom of the peoples who promote the well-being of planetary sustainability.

Respect for the culture of childhood and children's rights in relation to nature make it possible to provide access to equity in equality, reconnecting the cycles of nature and its beings in continuity. To this end, educational institutions can help promote this equity in the planetary emergency. In Early Childhood Education, with the current situation of society under the interests of the market and shaped by the capitalist, urban, industrial and patriarchal system, children need to go beyond ethical, democratic, aesthetic, solidarity and political principles to respect the rights of the Earth. According to Morin (2021), education in the Planetary Era must cultivate a global consciousness and a solidarity-based ethic, forming individuals capable of acting responsibly in the face of the interdependencies and challenges of the contemporary world. According to Pires (2019), Tiriba (2017) and Latour (2019), living the sustainability of life on the planet requires bringing together the collective — including educational institutions — to overcome massification, consumerism imposed by the market, the fragmentation of reality and simplistic knowledge. This involves articulating the complexity of knowledge and relationships that distinguish the difficulties imposed by globalization, as well as identifying planetary ethics from the perspective of the Earth. To this end, educational institutions need to offer learning practices that foster relationships between children and nature, encouraging critical action-reflection-action processes in caring for the places they inhabit and to which they belong, thus promoting a territorial existence committed to the sustainability of life on Earth. Discussing Early Childhood Education in the Planetary and Digital Age is essential, as we live in a natural world on which we depend deeply. For this reason, finding ways to live in harmony and in tune with nature should be a primary objective of education from the earliest years.

THE CHILD AS A CITIZEN OF RIGHTS

The selected studies recognize government efforts to guarantee children's rights and their relationship with nature. According to Friedmann (2020, p. 18), the new circumstances of Brazilian society in the 20th and 21st centuries have boosted investments in education, implementing projects and "[...] government, state or municipal programs [that] have been offered in the most diverse spaces, environments and organizations, as well as a network of mobilization and campaigns defending rights in the area of childhood". Ruffino (2012), Tiriba (2017) and Pires (2019) reiterate that new actions have brought efforts and resources to improve, expand and adapt national and international public policies for the benefit of children, their rights and childhoods in contexts of diverse cultures. However, Piorski (2013), Tiriba (2017) and Friedmann (2020) attest to the need to expand and advance the guarantee of children's rights, in order to make citizenship effective for social actors with democratic participation in different spaces and instances.

Although the 1988 Federal Constitution is a legal milestone in historical temporality, it is essential to give visibility to children's rights and establish them as citizens who exercise

citizenship in a democratic society. Thus, it is necessary to respect their childhoods, ensure their rights and demand that adults, families, society, the State and institutions that provide Early Childhood Education take responsibility for protecting them. Marques and Pires (2021, p. 330) report that:

The Constitution of the Federative Republic of Brazil (1988) establishes education as a right for all. However, when it comes to children, guaranteeing their right to education does not mean schooling them and keeping them “locked up” in classrooms, considering this space as being “the place” for learning. According to Law No. 8,069 of July 13, 1990, which establishes the Statute of Children and Adolescents (ECA), education and leisure are rights of Brazilian children that must be ensured by the family, society in general and the government.

Considering the enchantment that children have when they are with nature, it is urgent to ensure that their rights are fulfilled, as explained in the Constitution of the Federative Republic (Brasil, 1988), the Statute of Children and Adolescents (Brasil, 1990), the Law of Guidelines and Bases of National Education - LDB (Brasil, 1996), the National Curricular Guidelines for Early Childhood Education (Brasil, 2010) and the National Common Curricular Base (Brasil, 2018). The existence of legal documents guiding Early Childhood Education, from 1988 to 2014, do not regulate the gaps that exist in the relationship between children and nature. Marques and Pires (2021, p. 329) attest that curricula need to be redesigned to ensure “[...] that children fully experience their childhood at school, guaranteeing the right to play in/with nature”. Rossi (2018) emphasizes the need to rethink the buildings of educational institutions, since current constructions do not provide the recognition of children as social actors with rights, who construct meanings and expand their learning in the relationships of experiences lived with nature. Tiriba (2017) and Pires (2019) also report that some educational institutions deny children’s rights to nature by paving their spaces, adhering to artificial and plasticized culture in plants, toys, accessories, materials, furniture, crockery, among others. Elali (2003) and Pires (2019) mention the need to establish relationships of coexistence and partnerships between children’s families and educational institutions. Therefore, in addition to legal documents, in Early Childhood Education it is necessary to rethink curricula, buildings, materials used and the establishment of greater relationships between education professionals and families in favor of children’s rights to experience nature.

One way to advance in guaranteeing children’s rights can be achieved through learning with natural elements in Early Childhood Education. Many Early Childhood Education institutions are on the opposite path to this interaction between children and nature, conspiring against children’s rights by promoting time and “[...] rigid spaces for learning, playing and interacting” (Marques; Pires, 2021, p. 329). According to Tiriba (2017) and Pires (2019), children’s learning with biotic and abiotic natural elements is a deep relationship between beings, which crosses knowledge, ignorance and mystery. Thus, the space and time of Early Childhood Education must provide children with an approach to the natural environment, and to this end, the curricula and buildings of these institutions need to be redesigned.

Early Childhood Education, according to the authors studied, is responsible for the formation of citizenship. For Tiriba (2017), the institution of Early Childhood Education participates in the construction of planetary citizenship, as it envisions possibilities when building knowledge with children, social actors who support daily praxis with nature. Souza (2019) adds that teaching practice will promote empirical and scientific recognition from the activities developed in the institutional school environment, as well as from the experiences brought by children in interaction with their families. By enabling the relationship between children and nature in Early Childhood Education, this process contributes to the formation of conscious citizens committed to preserving the environment.

To go beyond the responsibility of the school institution, some authors address the co-responsibility between the Early Childhood Education institution and the family in the formation of children as citizens. Elali (2003) and Pires (2019) exemplify partnerships between educational institutions and children’s families in the organization of pedagogical practices and proposals that aim to join efforts to guarantee a basic education that respects children’s

rights to live their integrity and human dignity from childhood. Tiriba (2017) and Pires (2019) add that the collective can exercise, with ethical and socio-environmental commitment, valid transformations to the integrity and dignity of the common good, through collaborative and dialogical actions linked to the rights of children, humans, non-humans and the natural world. In this sense, it is observed the need for everyone to implement and guarantee children's rights as well as their relationship with nature.

THE RELATIONSHIP BETWEEN CHILDREN AND NATURE IN EARLY CHILDHOOD EDUCATION

Connections between humans and the natural environment strengthen ties with life on Earth. Such connections develop through children's experiences when they engage in play and interact with socio-environmental diversity. According to Tiriba (2017), children almost innately desire to be in and to connect with nature. According to Latour (2019), it is necessary to recognize that adults either support or impede the relationship between children and nature. Therefore, it is important to respect and provide for the fulfillment of children's desire to relate to nature.

In the relationship between children and nature, children can understand that they are part of it and that they need to care for and preserve it for the well-being of the natural world. To this end, this relationship between children and nature needs to be considered in order to promote democracy, solidarity, cooperation, inclusion, plurality, social justice and sustainability, restoring the socio-environmental aspect to the fabric of sustainability and planetary citizenship, as highlighted by Latour (2019). In this process, children can learn that they are part of a society that provides opportunities for their action, giving them a voice and a chance, and that the whole makes up our identity in the world.

Another way of living in connection with the natural world should be encouraged in the child's relationship with nature. According to Tiriba (2017), Santos (2016), Silva (2019) and Souza (2019), this alternative way involves redesigning ways of coexistence between human beings, non-humans and nature, which favor the sustainability of all forms of life and simultaneously include trees, rivers, mountains, humans, fish, plants, insects, fungi, birds, whales, among other biotic and abiotic elements. Lima (2015) and Pires (2019) emphasize the importance of experiences with nature, highlighting a humanizing education that upholds children's rights and promotes practices that value knowledge, inquiry, and learning, all essential for their holistic development, recognizing nature as a cultural element that shapes their identity. In this rethought form of the child's relationship with nature, Early Childhood Education institutions need to ensure children's rights to experience investigations with natural elements.

In Early Childhood Education, this relationship is determined by everyday experiences, since they help establish supportive, collaborative, respectful and friendly coexistence when playing and interacting with natural elements. Lima (2015), Silva and Almeida (2016), Tiriba (2017), Rossi (2018), Pires (2019), Souza (2019) and Silva (2019) address the relationship between children and nature in Early Childhood Education settings and present possibilities for interactions with natural elements. These practices must involve playing and interacting with fire, wind, water, earth and wet sand; observing birds and their nests; walking, climbing, climbing trees and running barefoot in vegetation; feeling the smells, textures, temperature and proportions of plants, leaves, twigs, stones, among other elements; making mixtures using the small items found; creating collections with stones, seeds, insect shells, making comparisons, counting, term-to-term correspondence; taking care of gardens, vegetable gardens and orchards with gardening tools; making potions, teas, delicacies, cakes and other foods using kitchen utensils, based on the creativity of the creative imagination that acts on physical and mental transformations. Early Childhood Education that enables the relationship between children and nature understands the importance of the experience of the body living with natural elements. Such experiences can be provided in pedagogical practice through games and interactions with natural elements.

Play and interactions fostered through the relationship between children and nature in Early Childhood Education contribute to both scientific culture and the enrichment of childhood culture. According to Ruffino (2012), such experiences stimulate connections between reality

and imagination, offering opportunities for engagement with natural elements in ways that affirm, rather than diminish, both childhood culture and scientific understanding. Through play and interactions with natural elements, children can enhance their creative imagination, since these practices allow them to connect with other realities and cultures in the world, as highlighted by Ruffino (2012) and Piorski (2013). By fantasizing about the natural world, children form, remake themselves and give new meaning to their perceptions and existences of socio-environmental belonging. Play and interactions in the relationship between children and nature build knowledge, limits, care, respect, bonds and emancipation.

The creativity that emerges from the relationship between children and nature in Early Childhood Education was also discussed in the selected research. Elucidated by Piorski (2013, 2016), the children's creative imagination enhances their investigative processes in contexts for the construction of knowledge necessary for the internal and external understanding of themselves, when interacting with others and the world. Children's creativity in relation to natural contexts and elements in Early Childhood Education was examined by Ruffino (2012) and Iglesias and Silveira (2019), who affirmed that this relationship is far from apathetic. It stimulates investigative curiosity and fosters processes of understanding, interpretation, reflection, and critical positioning. The interaction between children and nature is never passive; it is dynamic, transformative, inclusive, and inherently creative, encompassing a complex web of relationships.

Children's relationship with nature is a dazzlement of new meanings, as they discover investigative potential in environments that expand their repertoire of experiences with their body and the territory. Children, like all humans and non-humans, are like a fluidity of nature, which requires dynamics in action that enhances dialogue, experimentation, investigation, research, creativity and imagination, in addition to poetic creation with the natural world, as Pires (2019) attests. The daily routine of Early Childhood Education must comprehend that children's bodies are movement and therefore it is necessary to promote children's communion with nature.

FINAL CONSIDERATIONS

Sixteen scientific publications dealing with the relationship between children and nature were analyzed. The analysis of these studies available on the CAPES Journal Portal made it possible to identify that, from theoretical/conceptual, legal and teaching practice perspectives, the publications focused on the culture of children in contemporary cities; on children as citizens with rights; and on the relationship between children and nature in Early Childhood Education. Regarding the culture of childhood in contemporary times, the research reflected on the challenges faced in urban centers in providing children with opportunities for a relationship with nature. Among the challenges is the need to break with the capitalist logic of consumerism and the exploitative relationship of natural resources that establishes a dichotomy between humans and nature. Furthermore, the culture of childhood in urban centers is permeated by the excessive use of digital technologies, promoted in built environments and in the absence of a relationship between children and nature. To change this scenario, the research reveals that it is necessary to rethink the culture of childhood through public policies and collective practices that provide children with access to natural environments.

Regarding children as citizens with rights, research has revealed that laws have gaps in guaranteeing children's right to interact with nature. The publications expose the need to expand and materialize children's rights to be in contact with natural elements and reveal the need to rethink early childhood education institutions (curricula, buildings, teaching practices, etc.) in order to promote the experience of nature. The real experience of children's right to be with nature in Early Childhood Education promotes the formation of conscious citizens who are committed to preserving the environment.

Regarding the relationship between children and nature in Early Childhood Education, research reveals an innate desire to interact with nature, indicating that this experience should be provided in schools. In Early Childhood Education institutions, children's rights can be ensured through experiences with natural elements, and these children can understand that they are

members of a society that encourages their participation through the expression of their opinions. Such experiences are favored in Early Childhood Education through pedagogical practices that involve play and interaction between children and nature and its elements. These practices provide children with opportunities for creativity and scientificity by establishing relationships between reality and imagination.

It is important to highlight the need to make an inventory of publications in other languages (Spanish and English) in order to locate other resources on the subject. Moreover, there may be other research that was not available on the CAPES Journal Portal at the time of data collection. Finally, it is necessary for more researchers to address and apply teaching practices that provide children with the right to a relationship with nature. However, we highlight the contributions arising from the 16 publications analyzed, which addressed the imperative of public policies and educational practices that encourage and facilitate children's access to nature, aiming not only at personal development, but also at environmental awareness and active citizenship.

REFERENCES

- ABRAMOWICZ, A.; LEVCOVITZ, D.; RODRIGUES, T. C. Infâncias em Educação Infantil. **Pro-Posições**, Campinas, v. 20, n. 3, p. 179-197, 2009. Disponível em: <https://www.scielo.br/j/pp/a/cfMLxpmmX6VCvsqsWHFGfjg/?format=pdf>. Acesso em: 16 maio 2025.
- ARAÚJO, V. O papel dos periódicos na publicação de dados de pesquisa. **Revista Brasileira de História**, São Paulo, v. 41, n. 86, p. 7-9, 2021. DOI: <http://doi.org/10.1590/1806-93472021v41n86-00>.
- <bok>BACHELARD, G. **A poética do espaço**. São Paulo: Martins Fontes, 1988.
- BARDIN, L. **Análise de conteúdo**. 5. ed. Portugal: Edições 70, 2015.
- BRASIL. Constituição da República Federativa do Brasil de 1988. **Diário Oficial da União**, Brasília, DF, 5 out. 1988. Disponível em: http://www.planalto.gov.br/ccivil_03/constituicao/constituicao.htm. Acesso em: 16 maio 2025.
- BRASIL. Lei n.º 8.069, de 13 de julho de 1990. Dispõe sobre o Estatuto da Criança e do Adolescente e dá outras providências. **Diário Oficial da União**, Brasília, DF, 16 jul. 1990. Disponível em: http://www.planalto.gov.br/ccivil_03/leis/l8069.htm. Acesso em: 16 maio 2025.
- BRASIL. Lei n.º 9.394, de 20 de dezembro de 1996. Estabelece as diretrizes e bases da educação nacional. **Diário Oficial da União**, Brasília, DF, 23 dez. 1996. Disponível em: https://www.planalto.gov.br/ccivil_03/leis/l9394.htm. Acesso em: 24 mar. 2024.
- BRASIL. Ministério da Educação. Secretaria de Educação Básica. **Diretrizes curriculares nacionais para a educação infantil**. Brasília: MEC/SEB, 2010. Disponível em: http://portal.mec.gov.br/dmdocuments/diretrizescurriculares_2012.pdf. Acesso em: 16 maio 2025.
- BRASIL. Ministério da Educação. **Base Nacional Comum Curricular**. Brasília: MEC, 2018. Disponível em: <http://basenacionalcomum.mec.gov.br>. Acesso em: 16 maio 2025.
- BRASIL. Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – CAPES. **Portal de Periódicos CAPES/MEC**. Brasília: MEC, 2025. Disponível em: <https://www.periodicos.capes.gov.br>. Acesso em: 16 maio 2025.
- ELALI, G. A. O ambiente na escola: uma discussão sobre a relação escola-natureza em Educação Infantil. **Estudos de Psicologia**, Natal, v. 8, n. 2, p. 309-319, 2003. DOI: <http://doi.org/10.1590/S1413-294X2003000200013>.
- FERREIRA, N. S. A. As pesquisas denominadas “estado da arte”. **Educação & Sociedade**, Campinas, v. 23, n. 79, p. 257-272, 2002. DOI: <http://doi.org/10.1590/S0101-73302002000300013>.
- FRIEDMANN, A. **A vez e a voz das crianças**: escutas antropológicas e poéticas das infâncias. São Paulo: Panda Books, 2020.
- IGLESIAS, T. G.; SILVEIRA, C. Ensino de ciências e Educação Infantil: um estudo pautado na reprodução interpretativa e cultura da infância. **Actio Docência em Ciências**, Curitiba, v. 4, n. 3, p. 572-593, 2019. DOI: <http://doi.org/10.3895/actio.v4n3.10609>.
- LATOUR, B. **Políticas da natureza**: como fazer ciência na democracia. São Paulo: EDUSC, 2019.
- LIMA, I. B. **A criança e a natureza**: experiências educativas nas áreas verdes como caminhos humanizadores. 2015. Dissertação (Mestrado em Educação) – Universidade Estadual de Feira de Santana, Feira de Santana, 2015. Disponível em: <http://tede2.uefs.br:8080/handle/tede/214>. Acesso em: 16 maio 2025.
- LOUV, R. **A última criança na natureza**: resgatando nossas crianças do transtorno do déficit de natureza. São Paulo: Aquariana, 2016.
- MARQUES, C. M.; PIRES, A. P. L. Sobre os direitos naturais das crianças: uma experiência com a cozinha de lama em uma escola infantil brasileira. **Runa**, Buenos Aires, v. 43, n. 1, p. 327-346, 2021. DOI: <http://doi.org/10.34096/runa.v43i1.10165>. Disponível em: <https://doaj.org/article/83eb9c6cd2a540c7a29babcb139609b77>. Acesso em: 16 maio 2025.

MONTEIRO, J. A.; RODRIGUES, J. Os espaços externos como possibilidade de múltiplas experiências na Educação Infantil. **Zero-a-Seis**, Florianópolis, v. 17, n. 32, p. 264-278, 2015. DOI: <http://doi.org/10.5007/1980-4512.2015n31p264>. Disponível em: <https://periodicos.ufsc.br/index.php/zeroseis/article/view/1980-4512.2015n31p264>. Acesso em: 16 maio 2025.

MORIN, E. **A cabeça bem-feita**: repensar a reforma, reformar o pensamento. Rio de Janeiro: Bertrand Brasil, 2021.

PIORSKI, G. **O brinquedo e a imaginação da terra**: um estudo das brincadeiras do chão e suas interações com o elemento fogo. 2013. 138 f. Dissertação (Mestrado em Ciência das Religiões) – Universidade Federal da Paraíba, João Pessoa, 2013. Disponível em: https://repositorio.ufpb.br/jspui/handle/tede/4231?locale=pt_BR. Acesso em: 16 maio 2025.

PIORSKI, G. **Brinquedos do chão**: a natureza, o imaginário e o brincar. São Paulo: Peirópolis, 2016.

PIRES, A. P. L. **Implantação de uma cozinha de lama na escola de Educação Infantil**: brincando com elementos da natureza. 2019. 66 f. Dissertação (Mestrado Profissional em Educação) – Universidade Alto Vale do Rio do Peixe, Caçador, 2019. Disponível em: <https://acervo.uniarp.edu.br/?dissertacao=implantacao-de-uma-cozinha-de-lama-na-escola-de-educacao-infantil-brincando-com-elementos-da-natureza>. Acesso em: 16 maio 2025.

ROMANOWSKI, J. P.; ENS, R. T. As pesquisas denominadas do tipo “Estado da Arte” em Educação. **Revista Diálogo Educacional**, Curitiba, v. 6, n. 19, p. 37-50, 2006. Disponível em: <https://periodicos.pucpr.br/dialogoeducacional/article/view/24176>. Acesso em: 16 maio 2025.

ROSSI, A. C. S. **Ensino de ciências e arte**: um debate necessário na formação de professores da Educação Infantil. 2018. 93 f. Dissertação (Mestrado em Educação) – Universidade Federal de Mato Grosso do Sul, Campo Grande, 2018. Disponível em: <https://posgraduacao.ufms.br/portal/trabalho-arquivos/download/5848>. Acesso em: 16 maio 2025.

RUFFINO, S. F. **O diálogo entre aspectos da cultura científica com as culturas infantis na Educação Infantil**. 2012. 217 f. Tese (Doutorado em Educação) – Universidade Federal de São Carlos, São Carlos, 2012. Disponível em: <https://repositorio.ufscar.br/handle/ufscar/2278?show=full>. Acesso em: 16 maio 2025.

SANTOS, Z. C. W. N. **Criança e a experiência afetiva com a natureza**: as concepções nos documentos oficiais que orientam e regulam a Educação Infantil no Brasil. 2016. 231 f. Tese (Doutorado em Educação) – Universidade do Vale do Itajaí, Itajaí, 2016.

SILVA, J. A. P. **Corporeidade e natureza**: experiência e percepção na infância. 2019. 83 f. Dissertação (Mestrado em Educação) – Universidade Estadual de Londrina, Londrina, 2019. Disponível em: https://www.academia.edu/50795402/Corporeidade_e_natureza_experi%C3%Aancia_e_percep%C3%A7%C3%A3o_na_inf%C3%A2ncia_Corporeity_and_nature_experience_and_perception_in_childhood_Autora_J%C3%A9ssica_Aparecida_Porfirio_da_Silva_. Acesso em: 16 maio 2025.

SILVA, M. G. M.; ALMEIDA, F. J. Educação Infantil: a cidade, o currículo, a cultura digital. **Revista Ibero-Americana de Estudos em Educação**, Araraquara, v. 11, n. 2, p. 589-603, 2016. Disponível em: <https://periodicos.fclar.unesp.br/iberoamericana/article/view/8608>. Acesso em: 16 maio 2025.

SOUZA, R. M. **Na “teia da vida” eu, eles e a natureza**: práticas pedagógicas sobre a natureza na Educação Infantil em Manaus. 2019. 230 f. Dissertação (Mestrado em Educação e Ensino de Ciências) – Universidade do Estado do Amazonas, Manaus, 2019.

TIRIBA, L. A. Educação Infantil como direito e alegria. **Laplage em Revista**, Rio de Janeiro, v. 3, n. 1, p. 72-86, 2017. Disponível em: <https://www.redalyc.org/journal/5527/552756521008/552756521008.pdf>. Acesso em: 16 maio 2025.

WEIRICH, L. M. **Formação e assimilação de conceitos científicos com abordagem da educação ambiental na Educação Infantil**. 2015. 167 f. Dissertação (Mestrado Profissional em Formação Científica, Educacional e Tecnológica) – Universidade Tecnológica Federal do Paraná, Curitiba, 2015. Disponível em: <https://repositorio.utfpr.edu.br/jspui/handle/1/1346>. Acesso em: 16 maio 2025.

Authors contribution

DFM: Conceptualization, Data curation, Formal analysis, Writing – original draft. AFMR: Conceptualization, Methodology, Visualization, Writing – original draft, Validation. VER: Writing – review & editing, Approval of the version to be submitted.

Editor: Prof. Dr. José Luís Bizelli

Deputy Executive Editor: Profa. Dra. Flavia Maria Uehara