THEMATIC SECTION:
CHILDHOOD AND EDUCATION
OF ETHNIC-RACIAL RELATIONS

Children in Nature: lived experiences, knowledge and belonging

Léa Tiriba[I]
Christiana Cabicieri Profice[II]

[I]Universidade Federal do Rio de Janeiro (UFRJ), Rio de Janeiro/RJ – Brazil
[II]Universidade Estadual de Santa Cruz (UESC), Ilhéus/BA – Brazil

ABSTRACT – Children in Nature: lived experiences, knowledge and belonging[1]. This study is about the lived experiences of children in nature and the repercussions in their biopsychosocial development. From a Spinozean perspective, it is understood that everything is constructed from nature, whereby humans are beings of nature and, simultaneously, of culture. The study demonstrates their biophilic condition and discusses the drawings and speech of children from Tupinambá de Olivença and Mura ethnicities and of non-indigenous children from New York, with the aim of our approximating to their ecological knowledge and their feelings in relation to the natural universe of which they are part. This approach is reflected upon within indigenous and urban school education, considering elements of K-12 education guidelines and studies on human rights and the environment.
Keywords: **Child-Nature. Biophilia. Tupinambá. Indigenous School Education. Biopsychosocial Development.**

RESUMO – Crianças da Natureza: vivências, saberes e pertencimento. Tratamos de vivências de crianças na natureza e de suas repercussões em seu desenvolvimento biopsicossocial. Numa perspectiva espinosana, entendemos que tudo se constitui a partir da natureza, sendo os humanos seres da natureza e, simultaneamente, da cultura. Destacamos as implicações de sua condição biofílica e discutimos desenhos e falas de crianças das etnias Tupinambá de Olivença e Mura e de crianças não indígenas, de Nova Iorque, buscando nos aproximar de seus conhecimentos ecológicos e de seus sentimentos em relação ao universo natural de que são parte. Refletimos sobre essa abordagem na educação escolar indígena e urbana, considerando elementos das diretrizes da educação básica e estudos acerca dos direitos humanos e meio ambiente.
Palavras-chave: **Criança-Natureza. Biofilia. Tupinambá. Educação Escolar Indígena. Desenvolvimento Biopsicossocial.**

Introduction

The present study addresses and highlights the importance of nature in children's well-being and health, and seeks to understand how they perceive and construct bonds with environments, beings and processes of the natural world (Wells, 2000). It is believed that this is the best way to warn people about harm, especially to children, from the scarcity of non-human living beings in urban life settings.

The urbanization of living spaces is a global reality; it is estimated that, by 2050, two out of every three people will be living in cities or urban centers (UNFPA, 2017). Brazil is following the same tendency, as currently more than 80% of Brazilians live in areas considered urban (IBGE, 2010). It is certain that rurality and urbanity are not distinct realities, on the contrary, it is shown that the countryside and the city are present within each other (Santos, 2006; Jacinto; Mendes; Perehouskei, 2012). However, to a greater or lesser degree, nature is becoming more and more distant from people. Children spend the greater part of their day in enclosed places interacting with electronic devices. Even those who do not live in densely populated, cemented urban centers have been spending a great deal of their time entertained with fascinating games, photos and social networks on cell phones and tablets.

Currently, there is not the necessary temporal distance or means with which to evaluate the impact of this absorption in screens and virtual interaction on human development. However, it is known that child development, understood as a process of biopsychosocial dimensions (Bronfenbrenner, 2005), is directly affected by the conditions of the socio-ecological systems in which it occurs (Walker; Meyers, 2004), be it in the countryside or in the city. Within this context of accelerated urbanization, nature loses physical space and importance in people's daily lives, with natural areas not only being abandoned, but substituted by activities with a high impact on ecosystems and their biodiversity. Beings, processes and elements of nature are perceived as dead raw materials for industrial production (Mies; Shiva, 1997; 1998) and are transformed into resources to meet the demands of ever-expanding markets (Cosenza; Kassiadou; Sánchez, 2014; Loureiro, 2012a; 2012b).

Despite urbanization being a global phenomenon, the criteria for categorizing a zone as rural or urban are not uniform between countries (IBGE, 2017). In Brazil, many areas with a predominantly natural landscape are said to be urban when there is the presence of urban equipment, such as a school or health care service. Therefore, there is a mosaic of more or less anthropized natural environments, which means that not all people from urban contexts live in a totally enclosed environment, isolated from nature. Nevertheless, in large urban centers and medium sized municipalities in Brazil, factors such as violence and a lack of available adults to take care of children have led to a reduction in their freedom of movement outdoors, and a significant increase in their use of electronic devices. Moreover, school, a place of compulsory attendance for children over four, offers few open spaces and little time for activi-

ties in contact with nature. This is the challenging question: how can we intervene in a scenario where the distancing of nature strongly expresses the western anthropocentric perspective?

In this study, initially, the participants shall be presented along with the contexts and ways in which, since 2009, we have sought to understand how nature is experienced by children living in urban and indigenous contexts. Spinozean conceptual references will be then introduced, supporting comprehension of the importance of nature for the development and well-being of children, arguing in defense of proximity with the natural world as a human right. This shall be followed by the presentation of data from the research-intervention carried out with children from indigenous education centers that make up the Tupinambá de Olivença Indigenous State College (CEITO) (Ceito, 2013). The results of this research-intervention will also be discussed, with support from the adopted theoretical references and compared with exploratory studies carried out with groups of children of the Mura ethnicity, from Amazonas and from New York, in the USA. Finally, considerations on the theme of child lived experiences in nature shall be presented, and possible directions will be suggested for future research.

Participants, Contexts and Research Paths

Our contact with the Tupinambá took place within the context of the project on transition policy tendencies in rural, indigenous and borders communities, of the Organization of American States (OAS), the Brazilian Ministry of Education and Culture (MEC) and the Coordination of Child Education (COEDI). The objective of the project was to understand how indigenous children experience daily life marked by the transition between community spaces and formal spaces of child education. Involving Brazil, Colombia, Chile, Peru and Venezuela, the project aimed to gather knowledge and theoretical and practical know-how with the aim of supporting OAS member countries in the drafting and implementation of policies that foster quality in the daily life of children and their teachers, in accordance with the ways of life of their communities (Tiriba, 2010). Thereafter, other research projects were also developed with the aim of improving knowledge on the relationships between children and nature. In 2013, the *Tupinambá Infâncias*[2] research project was launched, entailing a case study on the interactions between children and natural environments in indigenous communities (Tiriba; Profice, 2012; 2018). In the same year, at the Santa Cruz State University (UESC/BA), the teaching project *Environmental Education for Traditional and Indigenous Communities* was started. The project, still ongoing, proposes educational practices developed by scholarship recipient students and by educators of the Katuana nucleus of CEITO[3]. Finally, in 2017, the research project *Childhoods in traditional communities and in environmental protection areas in Brazil and Cuba – lessons for environmental education* was initiated. The project has the objective of identifying, gathering and systematizing knowledge produced in dis-

tinct areas of knowledge on Brazilian and Cuban childhoods, specifically the knowledge produced by traditional communities or by communities that live in areas of environmental protection, with a focus on the interaction of children with natural environments and beings. The project articulates GEPISA/UESC, GiTaKa/UNIRIO, Universidad de Pinar del Río/Cuba and the Association of Educators of Latin America and the Caribbean (AELAC).

The Tupinambá de Olivença, inhabitants of the Southern coast of Bahia, in North-East Brazil, were among the first people to enter into contact with Europeans in the 16th century. Nowadays, approximately 4,300 indigenous people live in 23 villages/communities located in the municipalities of Ilhéus, Buerarema and Una. Having been recognized as ethnicities by the federal government, from 2002 on their grievances began to concentrate on movements of demarcation/ratification of territories, as well as the affirmation of indigenous identity and the struggle for citizenship rights, including healthcare and education. It is worth highlighting that the Tupinambá de Olivença indigenous territory was demarcated in 2009, although its ratification by the federal government remains pending. The first exploratory study (Tiriba, 2010) led to the conclusion that activities conducted by educators in natural spaces outside the school enabled continuity between indigenous traditions and pedagogical practices. Although some activities are similar to those of conventional, non-indigenous school, such as copying exercises from the board into an exercise book, a considerable part of the time is spent outdoors, in activities directed by the educators to a greater or lesser extent.

As indicated, from this initial contact, qualitative and quantitative research was organized involving ten indigenous education centers, all linked to CEITO (Santana; Cohn, 2018). The research methodology is described below.

Contact with Mura children occurred through episodic insertion, between August 28th and September 6th, 2015, in the Missionary Hospital Ship extension project[4], carried out with children from the villages of Santo Antonio, Moyray, Igapenus and Murutinga, situated in the Amazonian region close to Manaus, Amazonas state. The Mura are an indigenous Brazilian ethnicity inhabiting the center and west of Amazonas. This ethnicity had an active participation in Brazilian history, dating back to the colonial period, with documents from the time citing their elusive personality and their spirit of resistance in the face of Portuguese domination. In 1835, the Mura participated in the *Cabanagem*[5] to retake their lands and their lost freedom. According to the last census, their population is almost 13,000 (IBGE, 2010). Currently, the only known Mura language is *Pirarrã*, all other variations having become extinct (Pequeno, 2006).

Lastly, the North-American children participated in the study through a post-doctorate placement at New York City College, under the supervision of professor William Crain. The group of children consisted of students from a private Catholic school in the borough of Queens, in

New York, who were in the period corresponding to Brazilian elementary school. Most of the children were from immigrant families with a certain economic stability, which enabled them to maintain their children at a private school. In general, New York is a highly urbanized city, despite the presence of many green spaces for public use. Nevertheless, it can be considered an urban center, in which most children's activities are carried out in connection with electronic devices in enclosed environments (Profice, 2018).

The research protocol used with the Tupinambá de Olivença involved carrying out thematic drawing sessions, interviews and the filming of activities during the academic year at 10 education centers, between 2013 and 2016. A total of 91 children, aged between 6 and 14, participated along with their teachers. Each school was visited at least twice by the research team, which was composed of researchers, master's students, scientific initiation and teaching scholarship holders, generally accompanied by one of the women of the indigenous community. Initially, the children were offered a square sheet of plain white paper (21 cm) and a box of 12 different colored pencils, and were asked to draw nature, the natural world in their surroundings. Then the participants were interviewed, responding to questions on their drawing, their feelings for nature and their indigenous belonging. Subsequently, activities conducted oors by indigenous educators were followed-up and they were interviewed in regard to their pedagogical practices, as well as their own childhoods, in comparison to those of the children with which they were working.

In the present study, data brought by the Tupinambá children in their drawings in reference to biodiversity is discussed, as well as the responses given to one of the questions from the individual interview, namely: What are your feelings for nature? We also briefly describe our impressions on the drawings of the children from the Mura ethnicity approached in the activities of the Missionary Hospital Ship. We also present, for comparison purposes, the results obtained from the meetings with the North-American children from Queens, in New York, who carried out the same tasks (drawing and interview) in 2016.

Detailed description of the methodology used in the study with indigenous and North-American children, as well as broader exposure of the data collected and discussion on statistical and qualitative aspects are accessible in previous publications (Profice; Santos; Anjos, 2016; Tiriba; Profice, 2012; 2014; 2018; Tiriba, 2018; Profice, 2018). The present study shall be dedicated mainly to theoretical reflection on the theme and its implications for educational practices. Regarding the feedback given to participating indigenous schools, the obtained results are being procedurally presented and debated with the Tupinambá educators, through specific meetings for the self-evaluation of outdoors educational practices, or of activities from the teaching projects and research projects mentioned above. In the American school, the director was presented with a report with the results of the survey and suggestions for activities to promote biophilia in the school space and outside the school.

Conceptual References and National Guidelines

For Spinoza (2009), beings are forms of expression of nature that affect and are affected; that live in a state of connection with other forms and that are strengthened in this state of connection. In his words,

> [...] the human body is composed of many individuals (of different nature) each one of which is also composed of many parts. [...] The individuals that compose the human body and, consequently, the human body itself, are affected by external bodies in many ways. The human body needs, for its preservation, a number of other bodies, by which it is continually, so to speak, regenerated (Spinoza, 2009, p. 66).

The capacity to preserve the integrity of its being (*conatus*) is related to the capacity to carry out worthwhile encounters: "[...] nothing contains in itself anything whereby it can be destroyed, or which can take away its existence; but contrariwise it is opposed to all that could take away its existence. Therefore, in so far as it can, and in so far as it is in itself, it endeavors to persist in its own being" (Spinoza, 2009, p. 105).

Distinct in terms of power, beings exist interconnected with each other, constituting the network that is life. Life strengthens itself through its capacity to make encounters that make it stronger, or it weakens due to bad encounters. Only good encounters are generators of strength, of joy! The good encounters are those which increase our own capacity to affect and be affected by the other beings with which we interact, as "[...] in no case do we strive for, wish for, long for, or desire anything, because we deem it to be good, but on the other hand we deem a thing to be good, because we strive for it, wish for it, long for it, or desire it" (Spinoza, 2009, p. 106).

According to the philosopher, in nature there is a common order to which we are subjected and according to which bodies meet through their parts. Thus, we participate in nature to the extent that we exist with our bodies and think with our soul, that we perceive another body when it affects ours, and we perceive our body when it is affected. However, among people, the power to be affected is not constant and suffers variations as per the moment of life and the context of the encounters. Children, especially, depend more on external causes than adults, in regard to their strength of affection. They, in their becoming, know without maps. They trace them along the way, such that the encounters that happen leave their marks on the children (Deleuze, 1997; Profice; Pinheiro, 2009). We are our own nature; we participate in encounters and endeavors that are created and undone between beings according to their own aspects and the conditions of the socio-ecological systems in which they are established.

According to Deleuze (1968), contrary to regressive, analytical Cartesian thought, which intended to know the cause from the effect, the approach of Spinoza is reflective and comprehensive, seeking to know the effect through the knowledge of its cause. According to Spi-

noza, (*apud* Deleuze, 1968, p. 243), "[...] even in its commands reason makes no demands contrary to nature, it demands only, that every man should love himself, should seek that which is useful and proper and endeavor to preserve his own being, increasing his power to act". Writing on the philosophical vision of the 17th century, Deleuze clarifies that:

> [...] good exists when a body directly composes its relationship with ours, and, with all or with a part of its strength increases ours. For example, a food. The bad for us exists when a body decomposes the relationship of ours, such that it composes with our parts, but under other relationships than those that correspond to our essence: for example, a poison that decomposes the blood (Deleuze, 2002, p. 28).

In other words, the good encounter happens when we come into contact with someone or something that increases our power, strengthens us, brings us joy, enhances us; the bad encounter is when the interaction weakens us, saddens us or takes power away from us.

Based on these ideas, and with the perspective of complying with what the law defines as children's rights – stated in the Brazilian Constitution and, subsequently, in the National Educational Bases and Guidelines Law (LDB) – educational institutions can be understood as places of potency production. Thus, compulsorily, they are guided by an ethic that is "[...] necessarily an ethic of joy: only joy is valid, only joy remains and approximates us to the action and the beatitude of action. Sad passion is always impotence" (Espinosa, 1983, p. 34).

It is in this sense of seeking what brings joy and enhancement that we come to interpret the movement of children in the direction of spaces where they can play with nature. Our previous research (Tiriba, 2005; 2018; Rosa, 2014; Profice; Santos; Anjos, 2016) demonstrated what is visible to the naked eye, at schools, in city squares, in urban areas, on beaches, in rural areas to which children have access: their attraction for the natural world and its processes, the search for earth, for water, for sand, for trees, for wind, for oceans.

Based on the philosophy of Spinoza, children can be conceived as beings of nature and, simultaneously, of culture. They are a species that renovates itself on the Earth; beings whose development occurs in the interaction with other humans (Vygotski, 1989), in a state of structural coupling (Maturana; Varela, 1995) with natural environments, understood as those that are constituted by all living beings, humans and non-humans, but also by their physical processes and components, like air, mountains and climatic phenomena (Tiriba; Profice, 2014). On this line of commitment to the full development of children, made possible by the exercise of the enhancement of self-expression and self-expansion, schools are conceived as spaces for experiencing what is good, spaces for joy and enhancement of existence.

Another concept guiding our reflections is that of biophilia, which was conceived as a human condition that makes people feel affiliated

to nature and that induces the search for relationships with other living beings and natural processes (Wilson, 1984). The biophilic condition of humans, especially children, is established as a fundamental aspect for their full development and well-being, and has its roots in the long process of human evolution, in coevolution with the other living beings and systems (Kellert, 1993). However, the socio-historical context and the culture can promote or inhibit biophilia, whereby communities that live in direct daily interaction with living beings and processes of nature have more opportunities for the promotion of biophilia than those situated in urban contexts, where natural environments are rarer and more distant.

Although controversial and the object of much criticism, the concept of biophilia has been mentioned since its appearance (Wilson, 1984) as an explicative idea for the positive effect of nature and green spaces on the recovery of patients in healthcare contexts (Tidball, 2012; Ulrich, 1984) and on the well-being and emotional and cognitive development of children (Kahn Jr., 1997; Kaplan; Kaplan, 1989; Kellert, 1993; Profice, 2016; Wells, 2000). Biophilia is the target of attacks, both from culturalists, who turn their noses up at any biological predisposition among people, and from biologists, who tend to underestimate the role of socio-historical contexts and culture, conferring primacy on genetic factors. However, it seeks to overcome this dichotomic trap of phenomena comprehension, positioning itself as integrated in a socio-ecological system, opening up discussion to a scenario of interdisciplinary collaboration and consilience (Wilson, 1999), a term that indicates the possibility of an action together with distinct branches of knowledge in the comprehension of complex phenomena, such as biophilia and socio-ecological systems.

In this direction of broadening interfaces between social and biological aspects, Humberto Maturana considers that love

> [...] is the central emotion in evolutive human history since the beginning, and it all occurs as a history in which the conservation of a way of life, in which love, the acceptance of the other as a legitimate other in coexistence, is a necessary condition for normal physical, behavioral, psychological, social and spiritual development of the child, as well as for the conservation of physical, behavioral, psychological, social and spiritual health of the adult. In a strict sense, we, human beings, originated from love and we are dependent on it. In human life, most suffering comes from the negation of love: human beings are children of love (Maturana, 2002, p. 25).

Maturana and Varela (1995) consider that our natural altruistic nature was what enabled such complex, sophisticated social development among humans. According to the authors, "[...] altruistic impulses, present since the beginning of our life as social beings (hundreds of millions of years ago), are a biological condition enabling social phenomena: *without altruism there are no social phenomena*" (Maturana; Varela, 1995, p. 23). Distancing themselves from those that consider the evolution of

culture as a process of distancing from nature, the Chilean biologists tell us the opposite: our biological inclination, when faced with other people and communities, follows in the direction of cooperation and altruism; the destruction of the other and the annihilation of peoples of which we are not part, are, in fact, a cultural anomaly that should be overcome through critical conscience that segregation and domination, as an interactive pattern, are against life. Collaboration between beings is the dominant process. This does not mean that there does not exist violence and death in interactions. They exist, not as a standard, but as a circumstantial event of regulation of life. Ousting any person or group from their place as legitimate other, in the context of socio-ecological systems, means objectalizing the other human, in the same way that we did with nature upon transforming its beings into natural resources. In this sense, they also alert us to the danger of objectalizing what we wish to know, differentiating ourselves from our own perception, as if we could perceive and reflect upon this object, which would exist regardless of our perception. Therefore, when perceiving nature, we cannot disconnect from our own experience to describe it as an entity of which we are not part, given that we are nature, our bodies and our minds. As Deleuze states (1968, p. 116), "[…] it is enough to know to know that we know".

It is through good encounters with nature, its beings and processes that we enhance the capacity of people, of children, to affect and be affected by them, which means that biophilia acts through significant experiences in socio-ecological contexts. Vigotski (2010) claims that the lived experience is constituted as a relationship unit between the child and the environment and not as a phenomenon of interaction between two pre-existing, distinct elements. As the author defines,

> The experience of any situation, the experience of any component of the environment determines which influence this situation or this environment will exercise on the child. Therefore, it is not this or that element taken independently of the child, but the element interpreted by the experience of the child that can determine its influence on the course of their future development (Vigotski, 2010, p. 683-684).

The lived experience happens during the encounter, in the situation lived and in the way the individual is affected by it. Therefore, we set out from the idea that the experiences of children in nature strengthen their bond with the natural world, besides supplying local knowledge on environments, beings and natural processes.

When societies eliminate nature from their living spaces, children, deprived of experiences with natural beings and processes, have their biophilia interrupted or, at least, weakened, leading to severe harm to their development, their health and their well-being (Crain, 2014; Zhang; Goodale; Chen, 2014). Given that development is a biopsychosocial process (Bronfenbrenner, 2005), the experiences of children occur in a given socio-ecological system, which may provide biophilia or make its accomplishment difficult. The microsystemic dimension of

development contexts, in which we directly interact with people, natural beings, objects and landscapes on a daily basis, gains particular relevance. According to Bronfenbrenner (2005, p. 147), "[…] a *microsystem* is a pattern of activities, roles and interpersonal relationships experienced by the person in development in a given context, face to face with specific material and physical aspects". If in living contexts such as the neighborhood around their home or school nature is not present, biophilia does not take place/strengthen in the daily meaningful experiences of the children. This might not just compromise their full biopsychosocial development, it might also generate a feeling of distance in relation to nature, which, in turn, makes people less and less sensitive to the necessity to protect it. In synthesis, we believe that nature increases the power of affection and capacity of action of children! Their encounters with plants, animals, water and sand are meaningful experiences that act on their biopsychosocial development and enhance their biophilia, as they enhance feelings of attachment and the necessity to protect the biotic and abiotic universe of which they are part.

Applying Humberto Maturana to the debate, in a study carried out in the context of a rural community in the state of Rio de Janeiro on the close relationship children establish with everything that is live, Mariana Rosa (2014) writes that the Chilean biologist

> [...] associates the idea of living being with the quality of relationships that an organism is capable of establishing. This means that the more and better an individual of a species relates to other individuals of the same species and of other species (structural coupling), the more supported and sustained is their own life force. On the other hand, the more isolated a human individual, or an organism of any species, is found to be, the less stable their system of support to life is [...] (Rosa, 2014, p. 143).

Understanding that the joy children generate outdoors, in contact with elements of the natural environment, reveals the sensation of biophilic plenitude, the sense of our intervention is to defend such proximity as a human right, as, from the Spinozean perspective being claimed, humans, like other beings, affect and are affected by the surrounding universe. All are gifted with potency for remaining integrated with this universe. If the exercise of this power is what guarantees the possibility of persisting in their integrity of being, then the connection with nature is a child's right (Tiriba; Profice, 2012; 2014; 2018). The movement in this direction has the purpose of guaranteeing that children fulfil the necessity of persisting and maintaining themselves as beings that are constituted in/of the unique substance that is life, as well as maintaining, as Maturana teaches, their life force more supported and better sustained. Thus, free access to the natural world is their right. The defense of this right is not only for the respect of human individuals, but because the health of the planet depends on the maintenance of this connection. To treat it lovingly, it is necessary to have loving experiences with nature (Guimarães; Prado, 2014; Boff, 1999; Grün, 2003).

According to the Brazilian Constitution (Brasil, 1988), children are defined as subjects with rights. Therefore, from the legal point of view, it is the duty of schools to incorporate into their politico-pedagogical projects the listening of children's desires for connection with nature, as well as offering time and space for expression of children's innate attraction for the natural universe. Besides enhancing their development, this attraction, fueled by educators, most of whom are women, would contribute to self-perception as beings that are part of this universe and would, therefore, increase their capacity to act in its defense.

Full access to nature is a human right (Tiriba; Profice, 2014) guaranteed in official documents of the national education system, such as the National Policy for Environmental Education (Brasil, 1999), the more recent National Education Guidelines on Human Rights (Brasil, 2012a), the National Curriculum Guidelines for Environmental Education (Brasil, 2012b) and the National Curriculum Guidelines for Indigenous School Education (Brasil, 2012c).

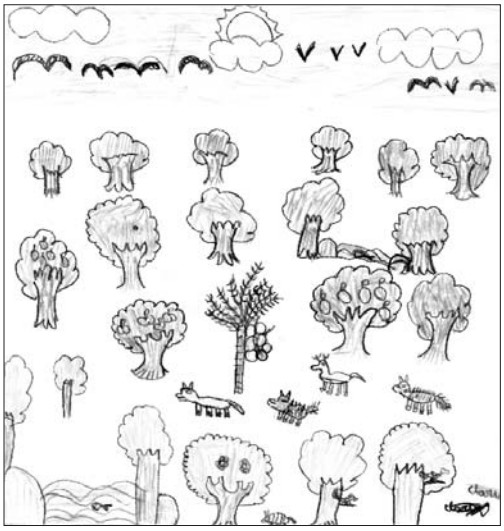
Based on these legal references, since 2014 we have conducted two teaching projects aimed at the establishment of close relationships with natural environments as environmental education practices. The objective is to highlight, value and encourage pedagogical relationships in proximity with nature and assist in the integration of educational guidelines (indigenous school education, child education and environmental education), so that educators may substantiate and improve their actions. One of the projects was developed in an environmental protection area in the city of Rio de Janeiro; the other in communities/villages of the Tupinambá de Olivença people. In the present study, we shall present, specifically, the results obtained from the research in the Katuana center, linked to CEITO.

Results

Drawing Nature

The Tupinambá children drew 30 types of vegetation (13.4% generic and 86.6% specific) and 43 types of animal (86.6% wild and 14% domestic). In Clarice's drawing, biodiversity in its natural landscape can be seen. There are fish swimming in the river, little birds and king vultures, anteaters and opossums in the forest constituted by a coconut tree and other fruit trees, such as apple trees and orange trees (Figure 1).

Figure 1 – Clarice, 11 years old, Tupinambá



Source: Research data.

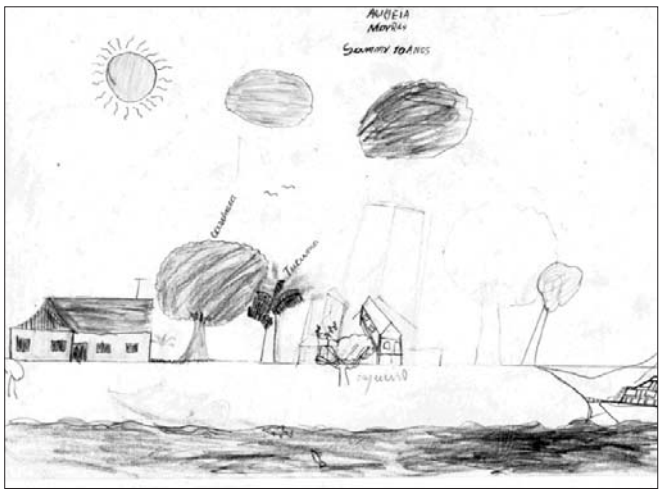
The children from New York drew 12 types of vegetation (75% generic and 25% specific) and 22 types of animal (82% wild and 18% domestic). Chase's landscape is segmented into two domains divided by a river – one natural, sunny and colored and the other urban, cloudy and pallid. The trees are generic, without a specific species. This image clearly shows a perspective pertaining to industrialized western countries, in which nature and humans are part of distinct worlds (Figure 2).

Figure 2 – Chase, 11 years old, New York

Source: Research data.

The drawings of the Mura children were not collected under the same conditions, precluding a more refined comparison between them, but it is important to say that the references made were surprising, even those made by the youngest (5- to 6-year-old) children, to a large number of fruit trees and other types of trees from the surroundings of the villages. On his landscape, Sammy wrote the names of two species of local vegetation: the *Carobera* and the *Tucumã* (*Astrocaryum aculeatum*) (Figure 3).

Figure 3 – Sammy, 10 years old, Mura



Source: Research data.

This evident difference in the ecological knowledge of the three groups reveals the extent to which nature participates in the socio-ecological contexts, lived experiences and biopsychosocial development of each one. The Tupinambá and Mura children live on indigenous reservations with a greater or lesser degree of anthropization, situated in Atlantic Forest and Amazonian Forest biomes, respectively, both with a high socio-biodiversity index. Nature and their knowledge on it, by and large, is shared by all the members of the community, although specialists, such as the shamans, are charged with perfecting local knowledge and disseminating it through oral tradition. The experiences in and with nature nourish biophilia on a daily basis, strengthening the sense of belonging, both biologically and culturally. However, the children from New York – who live in an urban context, enclosed and highly connected to electronic devices and, therefore, having sporadic leisure time or academic contact with environments, beings and processes of the natural world – produced a landscape with little variety of animals, which were mostly domestic, and with generic trees. They said, "it's a tree", but did not recognize or name them as individual types of vegetation with their own characteristics.

What are your feelings for nature?

The responses given both by the Tupinambá and the American children were classified into five categories and, after statistical treatment (chi-squared), no significant difference was observed between the groups ($p < .74$), nor were there differences between gender ($p < .87$) or age ($p < .15$). The first category, with 73%, is composed of responses putting forward Good Feelings in relation to nature, such as happiness, joy, beauty, well, good, marvelous, fun, peace, calm, good place and interesting. The second category, Bad Feelings, aggregated responses with terms like fear, pain and danger, and obtained 1.4%. The third category, denominated Source of Resources, included responses that indicated nature as important to humans, animals and plants, and gathered 2.8%. The fourth category was named Ethical and Environmental Concern, presenting the idea of care, respect and protection, and obtained 12.5% of responses. Finally, the fifth category, denominated Others, gathered 9% of the responses, being those which did not fit in any of the other categories. Together, the categories of Good Feelings and Ethical and Environmental Concern accounted for 85.5% of responses, which enables us to conclude that there is a strong presence of biophilia among the participants, regardless of their living context, gender or age.

The same boy from New York, Chase, aged 11, gave the following response to the question on his feelings: "[…] humans should take more care of nature to be able to enjoy it". His friend Eleonor, aged 13, said that nature is "[…] something marvelous, which everybody should look after, we need to experience it before it disappears". The response of Sujal, aged 11, indicates the awareness that being away from nature is detrimental to him and his family: "good feelings, right? I really like nature; my mother also likes nature because there are trees... In the city there aren't any, there are shadows".

Among the Tupinambá children, the appreciation of nature is present, albeit in a very different biopsychosocial context to that of the American children. Iris, aged 12, said the following about her feelings for nature: "I think it is very beautiful, I like it, there is a place in my grandmother's house where we can see the beautiful beach. I think that nature is beautiful". Tainá, aged eight, responded: "I feel like this... I like it. I miss nature". Nerbert, aged six, declared "I like nature, my heart beats when I run".

Discussion

In the present study, data and reflections have been presented on how children experience biophilia according to the presence of environments and natural beings in their socio-ecological context and their role in biopsychosocial development. With the Tupinambá group, during follow-up of the outdoors school activities, it was found that natural environments are places of daily experiences, both outside and within the school period and its building. It was also found that the children re-

tain knowledge of local biodiversity, which led us to conclude that they participate in traditional local knowledge passed between the generations orally and through observation. Exploratory research carried out with groups of children from the Mura ethnicity, inhabitants of Amazonas state, points to the same direction of substantial knowledge of the local biodiversity and manifest attachment and belonging to the territory.

On the other hand, the analysis of drawings and interviews of a group of children resident in the urban context of New York revealed sparse, limited knowledge of local flora and fauna: individual vegetables are not discriminated as species but designated generically. Despite this lack of knowledge of the natural world so far from their experiences, the American children revealed themselves as clearly conscious of both environmental problems and the impacts of the scarcity of nature on their health and well-being.

The collected data enable the affirmation that Tupinambá children have a strong bond with nature in their surroundings and a feeling of belonging to the natural world that can be identified in their drawings and speech. Biophilia is present in the feelings they express in regard to nature and in how they believe the interaction between people and natural beings should be established. Nature is not a world apart, from which people take energy and supplies; it is its own context of life, given that the indigenous communities directly extract their sustenance from it: from nature come shelter, food and the sacred. Among the children from New York, nature is seen as a place in which humanity is not present and is a victim of human action which, according to them, should be less destructive and more caring. Biophilia is also present in the relationship of attachment to other beings from nature, although the experiences, in their biopsychosocial contexts, are dominated by indoor environments. At the same time, children are revealed as being well-informed in relation to environmental problems generated by the capitalist, urban and industrial way of life (Mies; Shiva, 1997).

Biophilia reveals our sense of belonging to the natural world; however, when this experience is cleaved, it is parted in relation to beings and processes of nature, and human development is compromised. In this sense, the responses of the participating children, both the Indigenous and the New Yorkers present awareness of this biophilic condition and of the impacts of the lack of nature in their daily lives on their health and well-being. Thus, for both, nature is life itself, healthy and/or sick. While the Tupinambá warn of threats to the natural world, such as contamination of river water and deforestation, the American children experience health problems, especially respiratory, due to the pollution of the air in the big city. Therefore, the idea is evident that human beings are immersed in nature and human life develops in symbiosis with it, nature is the foundation of culture.

As forms of expression of nature that exist in connection with other forms, children persist because they *know* that proximity is a condition for integrity. Contact means the opportunity for good encoun-

ters with other living beings and natural processes, but also with our own living nature, as the experience is not just the existence of someone somewhere, the being and the environment are not separate elements, they cannot be conceived as distinct, or they risk losing their own meaning. If we get away from altruism and from the position of considering the other, any other that is not I, as a being invested with legitimacy, we also move away from the greater sentiment that involves all beings, from the fundamental love spoken to us by the biology of Maturana and Varela. If nature is no longer the legitimate other, but becomes an object of analysis and intervention, involvement between things is suspended, including between people.

> On being analytically fragmented to penetrate entities, knowledge separates what is organically articulated in the order of the real; without knowing, without express intention, scientific rationality generates a negative energy, a vicious circle of environmental degradation that knowledge neither comprehends nor contains (Leff, 2012, p. 49).

On the other hand, despite all its complexity, the fantasy world, populated by virtual digital scenarios and social networks that generate new expectations and forms of interaction between people, cannot substitute the complex that exists in the natural world. In reality, this technological fantasy, in its form and themes, derives its complexity from nature itself. Culture integrates nature, contemplated or destroyed, like food or a garbage dump, revered or scrutinized, inhabited or possessed, loved or feared.

Therefore, the present study is not defending an illusory or romantic idea of a return to the village, as there is clarity on both the woes and wonders of urban ways of living and educating, and the joys and hardships experienced by remote indigenous people, struggling for their philosophies of life, their decent conditions of existence, their health and their education. Furthermore, we also know that Indigenous school education experiences can reproduce western education methods, according to what the indigenous themselves have studied in schools *of the white man* (Tiriba, 2010).

From a Spinozean perspective, people, animals, plants, mountains, winds and oceans are beings and processes/things of nature that exist in different degrees of power. Similarly, in various cosmologies of native Brazilian, Latin-American and Caribbean peoples, nature is not just landscape and humans do not occupy the center or constitute a purpose of existence (Guimarães; Prado, 2014; Ribeiro, 1995). Men, women and children are beings interwoven with other species making up the same world, as interdependent beings. In this perspective, the philosophy of Spinoza and the native philosophies affirm the connection, unity and cooperation as fundamental to the preservation of life (Spinoza, 2009; Boff, 1999).

This idea is present both in the adopted theoretical references and the drawings and sayings of the children participating in the study. All

are beings of culture and are, simultaneously, beings of nature. In this study, we sought to highlight this human dimension. Whether being children inhabitants of cities or of less anthropized environments, the defense we make of their right to intimate contact with nature is linked to the fact of constituting a being whose full development depends on this proximity. Thus, the challenge consists of valuing, from urban and indigenous school experiences, what is fundamental to the integrity of the species and the planet: the connection between the human and the natural-cultural universe of which they are part.

Final Remarks

Differently to western society, which seeks to distinguish the child's world from that of the adult, in indigenous communities, children participate in daily activities and share the knowledge of the group. It can be highlighted that indigenous children are appreciated as legitimate guardians of traditional knowledge, without waiting for cognitive maturity or readiness for learning, which are highly valued aspects in conventional education systems. On the contrary, the Tupinambá community allows both direct continuing action with beings and processes of the natural world and the participation of children in cultural activities and practices that bring together elements of nature as subjects of the everyday. Through our observations we discovered that, besides continual exposure to the natural context, the indigenous school also promotes interaction between children and natural environments. In this cultural reference, nature is not only the landscape on which culture is conducted, but it is constituted of living beings that interact and interfere in the life of humans and in their decisions. Therefore, the present study reinforces the importance of the indigenous tradition of constant contact with nature, especially for the maintenance and fostering of traditional knowledge and their educational practices.

We consider that city schools, marked by paradigmatic anthropocentric references, have a lot to learn from the experiences of Tupinambá indigenous school education, in reference to the conception of the human being as an inseparable part of nature, in a state of structural coupling with it. This way of comprehending life goes against the rationalist logic that guides the hegemonic development model, centered on the accumulation and possession of material goods, which, invariably, are produced from the resources that nature offers to all species as a gift (Mies; Shiva, 1997). This model guides forms of organization dissociated from nature, in broader social places and also in schools, producing subjectivities that are not identified as part of the natural universe which, therefore, tend not to be interested in its protection.

Thus, it is essential to affirm and encourage the movement that human children make in the direction of elements of the natural world, as this movement expresses their condition of beings with an attraction for nature and that need its proximity to be maintained as part of the unique substance that is life. It is true that children are beings of culture, a vision

that is widely defended and disseminated in official documents guiding K-12 Brazilian education. What is not duly emphasized is that they are, simultaneously, beings of nature. Thus, the connection is their right and should therefore be guaranteed. However, this is only a half-truth. Children need the greater universe as much as it needs them; because this is not interaction between two subjects – human and non-human – it is a unit! Nature loses when one of its elements moves away and develops feelings of indifference, or even contempt for this infinite universe. There are relations between distancing and environmental degradation!

Either living in urban spaces or in villages, children are forms of expression of nature, interconnected with other forms that either foster the full exercise of their potency or create obstacles to it. Thus, it is important that the forms of expression that exercise the function of educating them – teachers – are attentive, promoting their movements in search of connection. It is on the accomplishment of these movements that the health of our children and the health of our planet depend, in the context of a new culture of respect and cultural diversity, but also of respect for biodiversity. This learning could be promoted by the exchange of knowledge between urban educational experiences and those of indigenous school education.

Translated by Claudio Carlos Pucheta and proofread by Ananyr Porto Fajardo

Received on November 22, 2018
Approved on March 27, 2019

Notes

1 This article is part of the Thematic Section, *Childhood and Education of Ethnic-Racial Relations*, organized by Renato Noguera (Universidade Federal Rural do Rio de Janeiro), Míghian Danae Ferreira Nunes (Universidade da Integração Internacional da Lusofonia Afro-Brasileira), Luciana Pires Alves (Universidade do Estado do Rio de Janeiro) and Nancy Lamenza Sholl da Silva (Universidade Federal Fluminense).

2 Project carried out in partnership between the Research Group in Socio-environmental Interactions (GEPISA) of Universidade Estadual de Santa Cruz (UESC) and the Childhoods, Ancestral Traditions and Environmental Culture Group (GiTaKa) of Universidade do Estado do Rio de Janeiro (UNIRIO). An agreement Universidad Pinar del Río, Cuba, also enabled its support through the project entitled Conceptions and Pedagogical Practices on Nature for the Development of Teachers and the Education of Children and Teenagers from a Non-Anthropocentric Perspective.

3 The Tupinambá de Olivença Indigenous State School, an institution with headquarters in the district of Sapucaeira (BA) and with centers distributed over indigenous territories, was founded in 2003 and had its headquarters inaugurated in 2006. It addresses all levels of K-12 education.

4 Project coordinated by the physician and professor Sonia Middleton, from Universidade Federal do Estado do Rio de Janeiro (UNIRIO), which involves travelling along the rivers of the Amazon Basin providing healthcare, support

to community development, education and spiritual development. The project is carried out by teams of multidisciplinary professionals and aims to support and develop actions with the communities and, at the same time, empower local entities to reach autonomy in the driving of their claims.

5 Grassroots rebellion in the region of the current state of Pará, in the north of Brazil, which received this name due to the type of housing of the rebels.

References

BOFF, Leonardo. **Saber Cuidar**: ética do humano, compaixão pela terra. Petrópolis: Vozes, 1999.

BRASIL. Constituição da República Federativa do Brasil, 1988. **Diário Oficial [da República Federativa do Brasil]**, Brasília, DF, 05 out. 1988.

BRASIL. Lei 9.795, de 27 de abril de 1999. Dispõe Sobre a Educação Ambiental, Institui a Política Nacional de Educação Ambiental e Dá Outras Providências. **Diário Oficial [da República Federativa do Brasil]**, Brasília, 28 abr 1999.

BRASIL. Ministério da Educação. Resolução nº 1, 30 de maio de 2012. Estabelece Diretrizes Nacionais para a Educação em Direitos Humanos. **Diário Oficial [da República Federativa do Brasil]**, Brasília, 31 mai. 2012a.

BRASIL. Resolução nº 2, 15 de junho de 2012. Estabelece as Diretrizes Curriculares Nacionais para a Educação Ambiental. **Diário Oficial [da República Federativa do Brasil]**, Brasília, 18 jun. 2012b.

BRASIL. Resolução nº 5, de 22 de junho de 2012. Define Diretrizes Curriculares Nacionais para a Educação Escolar Indígena na Educação Básica. **Diário Oficial [da República Federativa do Brasil]**, Brasília, 25 jun. 2012c.

BRONFENBRENNER, Urie. **Making Human Beings Human**: bioecological perpesctives on human developement. California: Sage, 2005.

COSENZA, Angélica; KASSIADOU, Anne; SÁNCHEZ, Celso. Educação ambiental e direitos humanos: necessárias articulações a partir da justiça ambiental e da ecologia política. In: SILVA, Aida; TIRIBA, Lea (Org.). **Direito ao Ambiente como Direito à Vida**: desafios para a educação em Direitos Humanos. São Paulo: Cortez, 2014. P. 21-46.

CEITO. Colégio Estadual Indígena Tupinambá de Olivença. **Plano Político Pedagógico do Colégio Estadual Indígena Tupinambá de Olivença**. Ilheus: CEITO, 2013.

CRAIN, Willliam. **The Emotional Lives of Animals & Children**: insights from a Farm Sanctuary. San Francisco: Turning Stone Press, 2014.

DELEUZE, Gilles. **Spinoza Et le problème de L'Expression**. Paris: Les Éditions de Minuit, 1968.

DELEUZE, Gilles. **Crítica e Clínica**. São Paulo: Ed. 34, 1997.

DELEUZE, Gilles. **Espinosa, Filosofia Prática**. São Paulo: Escuta, 2002.

ESPINOSA, Benedictus de. **Tratado da Correção do Intelecto**. Translation and notes: Carlos Lopes Matos. São Paulo: Abril Cultural, 1983.

GUIMARÃES, Mauro; PRADO, Carlos. Educação em Direitos Humanos e Ética Ambiental. In: SILVA, Aida; TIRIBA, Lea (Org.). **Direito ao Ambiente como Direito à Vida**: desafios para a educação em direitos humanos. São Paulo: Cortez, 2014.

GRÜN, Mauro. **A Outridade da Natureza na Educação Ambiental**. São Paulo: Instituto Geológico, 2003.

IBGE. Instituto Brasileiro de Geografia e Estatística. **Censo Demográfico**. Rio de Janeiro: IBGE, 2010.

IBGE. Instituto Brasileiro de Geografia e Estatística. **Classificação e caracterização dos espaços rurais e urbanos do Brasil**: uma primeira aproximação. Rio de Janeiro: IBGE, 2017.

JACINTO, Janério Manoel; MENDES, César Miranda; PEREHOUSKEI, Nestor Alexandre. O Rural e o Urbano: contribuições para a compreensão da relação do espaço rural e do espaçourbano. **Percurso**, Maringá, v. 4, n. 2 , p. 173- 191, 2012.

KAHN Jr., Peter. Developmental Psychology and the Biophilia Hypothesis: children's affiliation with nature. **Developmental Review**, online, n. 17, p. 11-61, 1997. Available at: <http://dx.doi.org/10.1006/drev.1996.0430>. Accessed: 18 June 2018.

KAPLAN, Rachel; KAPLAN, Stephan. **The Experience of Nature**: a psychological perspective. Cambridge: Cambridge University Press, 1989.

KELLERT, Stephen. Introduction. In: KELLERT, Stephen; WILSON, Edward (Org.). **The Biophilia Hypothesis**. Washington: Island Press, 1993. P. 20-28.

LEFF, Enrique. **As Aventuras da Epistemologia Ambiental**. São Paulo: Cortez, 2012.

LOUREIRO, Carlos Frederico. **Sustentabilidade e Educação**: um olhar da ecologia política. São Paulo: Cortez, 2012a.

LOUREIRO, Carlos Frederico. **Trajetórias e Fundamentos da Educação Ambiental**. São Paulo: Cortez, 2012b.

MATURANA, Humberto. **Emoções e Linguagem na Educação e na Política**. Belo Horizonte: UFMG, 2002.

MATURANA, Humberto; VARELA, Francisco. **A Árvore do Conhecimento**. Campinas: Editorial Psy II, 1995.

MIES, Maria; SHIVA, Vandana. **Ecofeminismo**: teoria, crítica y perspectivas. Barcelona: Icaria editorial, 1997.

MIES, Maria; SHIVA, Vandana. **La Práxis Del Ecofeminismo**. Biotecnologia, consumo y reproducción. Barcelona: Icaria Editorial, 1998.

PEQUENO, Eliane da Silva Souza. Mura, Guardiães do Caminho Fluvial. **Estudos e Pesquisas**, FUNAI, Brasília, v.3, n.1/2, p. 133-155, 2006.

PROFICE, Christiana. **Crianças e Natureza**: reconectar é preciso. São Paulo: Pandorga, 2016.

PROFICE, Christiana. Nature as a living presence: Drawings by Tupinambá and New YorkChildren. **Plos One**, São Francisco, n. 13, v. 10, p. 1-15, 2018.

PROFICE, Christiana; SANTOS, Gabriel; ANJOS, Nathane. Children and Nature in Tukum Village: Indigenous Education and Biophilia. **Journal of Child & Adolescent Behavior**, Londres, v. 1, n. 6, 2016.

PROFICE, Christiana; PINHEIRO, José. Explorar com Crianças: reflexões teóricas e metodológicas para os pesquisadores. **Arquivos Brasileiros de Psicologia**, Rio de Janeiro, n. 61, v. 3, p. 11-22, 2009.

RIBEIRO, Darcy. **O Povo Brasileiro**: a formação e o sentido do Brasil. São Paulo: Companhia das Letras, 1995.

ROSA, Mariana. Natureza e Escola: percepções infantis e currículo: notas sobre a educação ambiental na perspectiva da Educação em direitos humanos. In: SILVA, Aída; TIRIBA, Lea (Org.). **Direito ao Ambiente como Direito à Vida**: desafios para a educação em direitos humanos. São Paulo: Cortez, 2014. P. 140-173.

SANTANA, José Valdir Jesus de; COHN, Clarice. A Escola dos Tupinambá de Olivença-BA: alguns apontamentos. **Espaço Ameríndio**, Porto Alegre, v. 12, n. 1, p. 50-80, 2018.

SANTOS, Milton. **A Natureza do Espaço**: técnica e tempo, razão e emoção. São Paulo: Universidade de São Paulo, 2006.

SPINOZA, Benedictus de. **Ética**. Traduzido por Tomaz Tadeu. Belo Horizonte: Autêntica Editora, 2009.

TIDBALL, Keith. Urgent Biophilia: human-nature interactions and biological attractions in disaster resilience. **Ecologyand Society**, online, n. 17**,** v. 2, p. 2-12, 2012. Available at: <https://www.ecologyandsociety.org/vol17/iss2/art5/>. Accessed: 18 June 2018.

TIRIBA, Léa. **Crianças, Natureza e Educação Infantil**. 2005. 249 f. Tese (Doutorado em Educação) – Programa de Pós-Graduação em Educação, Pontifícia Universidade Católica, Rio de Janeiro, 2005.

TIRIBA, Léa. **Educação Entre os Povos Tupinambá de Olivença**: projeto tendências de políticas de transição em comunidades rurais, indígenas e de fronteira. Estudo de caso Brasil. Brasília: OEA; MEC; COEDI; Fundação Bernard Van Leer, 2010.

TIRIBA, Léa. **Educação Infantil como Direito e Alegria**: em busca de pedagogias ecológicas, populares e libertárias. Rio de Janeiro; São Paulo: Paz e Terra, 2018.

TIRIBA, Léa; PROFICE, Christiana. Lições da Creche-Oca: Interações Afetivas e Apego à Natureza. In: REISs, Magali; XAVIER, Maria do Carmo; SANTOS, Lorene (Org.). **Crianças e Infâncias**: educação, conhecimento, cultura e sociedade. São Paulo: Annablume, 2012. P. 122-135.

TIRIBA, Léa; PROFICE, Christiana. O Direito Humano à Interação com a Natureza. In: SILVA, Aida; TIRIBA, Lea (Org.). **Direito ao Ambiente como Direito à Vida**: desafios para a educação em Direitos Humanos. São Paulo: Cortez, 2014. P. 47-77.

TIRIBA, Léa; PROFICE, Christiana. Crianças Tupinambá: rios, colinas, bancos de areia e matas como lugares do brincar cotidiano. **Teias**, Rio de Janeiro, v. 19, p. 28-47, 2018.

ULRICH, Roger. View Through a Window May Influence Recovery from Surgery. **Science**, online, n. 224, p. 420-421, 1984. Available at: <https://science.sciencemag.org/content/224/4647/420.full>. Accessed: 12 June 2018.

UNFPA. United Nations Population Fund. ERKER, Arthur (Ed.) **Mundos distantes**. Saúdes e direitos reprodutivos em uma era de desigualdade. 2017. Available at: <http://unfpa.org.br/swop2017/swop2017.pdf.> Accessed: 18 June 2018.

WALKER, Brian; MEYERS, Jacqueline. Thresholds in Ecological and Social-Ecological Systems: a developing database. **Ecology and Society**, online, n. 9, v. 2, 2004. Available at: <http://www.ecologyandsociety.org/vol9/iss2/art3/>. Accessed: 18 June 2018.

WELLS, Nancy. At Home with Nature: effects of "greenness" on children's cognitive functioning. **Environmentand Behavior**, online, n. 32, v. 6, p. 775-795, 2000. Available at: <https://www.ncrs.fs.fed.us/pubs/jrnl/2000/nc_2000_wells_001.pdf>. Accessed: 18 June 2018.

WILSON, Edward. **Biophilia**. Cambridge: Harvard University Press, 1984.

WILSON, Edward. **A Unidade do Conhecimento**: Consiliência. Rio de Janeiro: Campus, 1999.

VYGOTSKI, Lev Seminovich**. A Formação Social da Mente**. Rio da Janeiro: Martins Fontes, 1989.

VYGOTSKI, Lev Seminovich. Quarta Aula: a questão do meio na pedologia. Tradução de Márcia Pileggi Vinha. **Psicologia USP**, São Paulo, n. 21, v. 4, p. 681-701, 2010.

ZHANG, Weizhe; GOODALE, Eben; CHEN, Jin. How Contact with Nature Affects Children's Biophilia, Biophobia and Conservation Attitude in China. **Biological Conservation**, online, n. 177, p. 109-116, 2014. Available at: <https://www.sciencedirect.com/science/article/pii/S0006320714002389?via%3Dihub>. Accessed: 12 April 2018.

Léa Tiriba holds a PhD in Education from Pontifícia Universidade Católica do Rio de Janeiro (PUC-Rio). Professor at the School of Education and Postgraduate Program in Education (PPGEdu) of Universidade do Estado do Rio de Janeiro (UNIRIO) and leader of the Research Group on Childhoods, Ancestral Traditions and Environmental Culture of the Childhoods, Nature and Arts Center (UNIRIO) and the Association of Educators of Latin America and the Caribbean.
ORCID: http://orcid.org/0000-0001-9508-5980
E-mail: tiribalea@gmail.com

Christiana Cabicieri Profice holds a PhD in Psychology from Universidade Federal do Rio Grande do Norte (UFRN). Professor at the Department of Philosophy and Human Sciences at Universidade Estadual de Santa Cruz (UESC), professor and researcher at the Postgraduate Program in Regional Development and Environment and leader of the Research Group on Socio-Environmental Interactions and Languages.
ORCID: http://orcid.org/0000-0002-1972-9622
E-mail: ccprofice@uesc.br