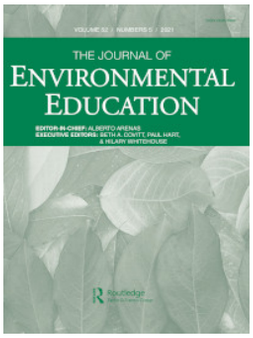

The Journal of Environmental Education

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/vjee20

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To cite this article: Clementina Rios, Alison Laurie Neilson & Isabel Menezes (2021) COVID-19 and the desire of children to return to nature: Emotions in the face of environmental and intergenerational injustices, The Journal of Environmental Education, 52:5, 335-346, DOI: 10.1080/00958964.2021.1981207

To link to this article: https://doi.org/10.1080/00958964.2021.1981207

Published online: 24 Sep 2021.

THE JOURNAL OF ENVIRONMENTAL EDUCATION
2021, VOL. 52, NO. 5, 335–346
https://doi.org/10.1080/00958964.2021.1981207

Routledge
Taylor & Francis Group

RESEARCH ARTICLE

COVID-19 and the desire of children to return to nature: Emotions in the face of environmental and intergenerational injustices

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ABSTRACT

The global COVID-19 public health crisis has driven policies of lockdowns and social distancing that have had negative social and economic impacts, worsening inequalities and social exclusions, and mixed environmental impacts. This study engaged children from schools with diverse environmental pedagogies in online focus groups about nature and their experiences with nature during the pandemic. Participants expressed fear of the unknown virus, sadness from isolation, longing for family and friends, and yearning for the freedom to enjoy the outside world. They revealed knowledge of both positive and negative impacts of lockdowns on the environment. Their experiences with nature demonstrate how environmental injustice affects the lives of children from public schools in urban contexts, especially those from lower socioeconomic backgrounds, who reported less contact with nature during the lockdown. As a group, children are aware and very critical of intergenerational environmental injustice and argue for the need for adults to act.

KEYWORDS

Intergenerational and environmental injustice; emotions; nature; children; COVID-19

Introduction

The COVID-19 global public health crisis has driven lockdown and social distancing policies formulated in strong connection with local "geocultural/historical contexts" (Rodrigues & Lowan-Trudeau, 2021), despite the global nature of the pandemic. These policies have had negative social and economic impacts across the globe, worsening inequalities, and social exclusion. At the same time, there may be positive impacts on the environment, such as reducing pollution and preserving biodiversity (Muhammad et al., 2020).

This context challenges "anthropocentric rationalities" (Rodrigues & Lowan-Trudeau, 2021), with the abrupt deceleration of life, which forces us to rethink the prevailing dichotomous relationship between humans and nature. According to an ecocentric perspective, this raises issues of environmental justice, which involve "post-colonial engagement and inclusive pluralism that goes beyond one 'species' sustainable development" (Kopnina, 2016, p. 147). In other words, a conception of "transformative and regenerating justice yet to come" unifies the value of the present and future humanized and non-humanized nature (Andreotti et al., 2019, p. 9).

This paper explores some of these impacts and injustices from the perspective of children during the first declarations of states of emergency and calamity in Portugal due to COVID-19 (https://www.parlamento.pt/Paginas/estado-emergencia.aspx). The state of emergency restricted the mobility of people through lockdown at home (telework and online education), with few exceptions. During the state of calamity, lockdown measures were partially lifted, which allowed greater mobility in public spaces, with the use of a mask, and the gradual return to face-to-face work and face-to-face teaching. However, nature

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and human relationships with nature have been deeply affected by the pandemic in uneven and unfair ways.

Nature and the pandemic

The Earth has undergone many global environmental changes, caused by collective human actions based on the "presumption of human superiority" (Bell & Russell, 2000, p. 189), impacting humanized and non-humanized nature, resulting from the nefarious weight of capitalism that drives the current planetary economic policy (Shotwell, 2016) and the "colonial habit of being" in a destructive relationship "with the land, with the cosmos and with each other," as well as with the generations of species to come (Andreotti et al., 2019, p. 16). In an era in which "time is running against humanity," there is an urgent need to stabilize "climate change and the integrity of the biosphere" (Artaxo, 2014, p. 21) by transforming the social, economic, and environmental policies that endanger human life and environmental and intergenerational justice.

Massive lockdowns and associated public health measures around the world have led to a deceleration in global mobility, industry and, consequently, lower consumption of energy and fossil fuels, which has reduced gas emissions and helped (at least temporarily) to preserve biodiversity (Verma & Prakash, 2020). However, the use of private vehicles has become more frequent as a safe alternative to public transport (Sharifi & Khavarian-Garmsir, 2020), increasing the emission of fossil fuels. Additionally, the regularly used facial masks, which contain microplastics, have contaminated public spaces, landfills, adjacent watersheds, and oceans (Aragaw, 2020).

Seeking nature

The pandemic has changed common daily habits. Nature is now sought to help safely alleviate confinement measures through outdoor space, away from crowds, for safe movement, relaxation, and contemplation (Ugolini et al., 2020). Simply being in nature is instrumental for the mental and physical health and well-being of populations (Slater et al., 2020).

However, not all people have equal access to nature. The pandemic has further highlighted urban problems (Tendais & Ribeiro, 2020) such as the scarcity of green spaces. Confined within cities, people seek natural urban spaces, or simply tree-lined streets, to relax and reduce the stress caused by lockdowns (Ugolini et al., 2020). In several countries, however, lockdowns have included the closing of community parks and green areas, further restricting scarce access to urban nature and disproportionately affecting more disadvantaged groups (Slater et al., 2020), while wealthier people retain access to their own private natural spaces (Cole et al., 2021). This is a repeat of history, reminiscent of the early nineteenth century when the proliferation of tuberculosis led to the "exodus to the countryside by the middle or upper-middle class families" (Seixas et al., 2020, p. 27). The escape from the city to rural areas with lower population density and more green spaces "is a valuable solution to combat the COVID-19 contagion" (Biglieri et al., 2020, p. 1).

Between the online and the outdoors

Children and young people from Western and urban families spend more time indoors, where new technologies play a prominent role in both virtual entertainment and school. This excessive access to a mediatized world can deprive the acquisition of skills through contact with the real world (Baró et al., 2021). Families in urban areas value technologies, as they keep children interested in indoor activities that are perceived to be risk-free (Plowman et al., 2010).

Although online education is a way for children and young people to maintain access to school during the pandemic, they feel isolated and long for movement, socialization, and contact with the physical world (Beery, 2020; Román et al., 2021). During lockdowns, schools with environmental and outdoor education emphases around the world saw their activities moved to the virtual world. Via

online activities, it was possible to discuss environmental issues and virtually discover the nature of the (local) world, but teachers called into question the lack of experiences, access to education—due to technological reasons (see Román et al., 2021)—and lack of sensory and emotional connection with nature (Quay et al., 2020).

After lockdown, in-person education in Portugal has tended to take place outdoor or in well-ventilated spaces (Seixas et al., 2020). Similar to the nineteenth century, when open-air schools first emerged, many believe that open-air spaces can provide appropriate conditions for teaching, life, and hygiene (Amaral, 2017; Figueiredo, 1922). Green spaces can also be a source of well-being, alleviating the stress and anxiety caused by the pandemic (Silva-Melo et al., 2020). They provide opportunities for ecomotricity (Rodrigues, 2018), since these spaces allow contact, interaction, and experience of the sensory body with humanized and non-humanized natures. Moreover, this promotes experiences with sensory, emotional, and environmental meaning, reestablishing interactions with nature through "mind-body-environment" articulation (Rodrigues, 2020, p. 179).

Methodology and methods

This multiple case study aimed to further understand the experiences that stimulate children's environmental awareness and citizenship in a pandemic, assuming that the voices of children must be heard on issues that impact their lives (Casas et al., 2021; Mackey, 2012). These cases focused on the relationships that children, from different educational and family backgrounds, have established with nature during the pandemic.

The study was conducted in six schools with different environmental pedagogies (eco-schools, Waldorf, forest schools, Krishnamurti) and included children between 4 and 13 years of age. Data collection was performed online through participant observation of environmental education classes and via focus groups. To ensure confidentiality, pseudonyms have replaced all names of schools and participants.

Context: Participating schools

The research was carried out in public and private schools located in rural and urban contexts (Table 1). In Portugal, access to free public schools is based on age and area of residence; private schools involve a monthly fee. As such, the socioeconomic status of families is more diverse and generally lower in public schools. As relationships with nature was a focal point of our research, schools from both urban and rural contexts were included. These schools were intentionally selected as representing different pedagogical

Table 1. School characteristics.

School name	Education level	School approach	School type	Context	Surrounding landscape	Socio-economic background of families
Escola da Praia	Kindergarten Primary	Eco-school	Public	Urban	Outskirts of a large city, close to beaches	Approximately 70% parents with university education Middle class families
Colégio Azul	Kindergarten Primary	Eco-school	Private	Urban	Located close to the coast, but surrounded by agricultural lands and farms	90–100% parents with university education Upper class families
Escola da Aldeia Branca & Jardim de Infância do Pinhal	Primary kindergarten	Waldorf	Public	Rural	Pine and oak forest area, about 100 m away	Approximately 20% parents with university education Middle class families
Jardim de Infância da Mata & Escola do Monte	Kindergarten Primary lower secondary	Forest school Krishnamurti	Private, parents' association	Rural	A small village close to a forest	90–100% parents with university education Upper middle-class families

approaches to environmental education: some schools follow the official eco-schools program recommended by the Ministry of Education which is promoted by the Environmental Education Foundation (FEE) and the Blue Flag Association of Europe (ABAE); other schools use alternative environmental education approaches, including Waldorf, forest school, and Krishnamurti. However, all participating schools had similar core environmentally-related practices such as separating school waste (composting, recycling bins, organic waste), and planting vegetable gardens, flowers, and trees.

Methods

After establishing contact with schools, informed consent was obtained from teachers and families of the children; the children were also asked for their assent to participate and had the power to withdraw at any time during the study. Six teachers and 90 children participated.

All data collection in schools was online. To engage with children's virtual schools, entry into the field was initially achieved through participant observations in synchronous sessions to promote mutual knowledge as well as to allow children to have the control they needed over the sessions (Cornwall & Jewkes, 1995). This was essential to build a relationship of trust and proximity, particularly with the younger children. This participatory approach enabled greater knowledge of the groups, and facilitated the subsequent involvement of the participants in the focus groups.

Online focus groups involved 6 to 8 participants, and aimed to promote debate and exchange of ideas, thereby, facilitating an understanding of their experiences in nature (Morgan, 1998). The online focus group protocol was organized in different phases. At the beginning, the moderator introduced herself as a nature researcher and explained that the research aimed to understand the concerns and ideas of children about nature.

For the next phase, we selected age-appropriate images that addressed several environmental topics and issues (e.g., environmental activism, pro-environment, and environmental self-sustainability behaviors, from self-production to self-consumption, vegetable gardens, personal and household hygiene products, clothing, global warming, and humanized and non-humanized landscapes). The images were sent to participants so they could choose one or more. Once in the group, children were encouraged to identify the image they chose and to explain their choice. The moderator elicited the child's interest, ideas, and suggestions for environmental problems, their relationship with nature, and how they access nature during the pandemic. The closing phase involved a game that encouraged everyone to share an experience they associated with nature.

Transcriptions of the focus groups and field notes from the participant observations were analyzed by the first author using thematic analysis, a process that involved identification and codification of the meanings, followed by a revision by the second and third authors. This iterative process continued until themes and subthemes were coherently organized and named, "based on data and theories" (Braun & Clarke, 2006, p. 18).

Findings

In this inquiry, we identified three overarching themes: (i) emotions regarding nature and the pandemic, (ii) environmental justice and access to nature during the pandemic, and (iii) intergenerational environmental injustice.

Emotions regarding nature and the pandemic

All focus group participants expressed different emotions about nature when they spoke about the images that we presented, referring to experiences before and during the pandemic. These emotions were coded as negative when they referred to concerns, fears, excessive media coverage of COVID-19, limited mobility, and longing. Conversely, emotions were coded as positive when they expressed feelings of well-being in nature and hope.

Specifically, among the negative emotions, we highlighted their concerns with nature and pollution. They identified the possibility of pollution increasing the spread of the virus:

> Beatriz (5 years old)—(…) if we throw plastic bags on the ground, then they end up in the sea and the turtles think they are food and eat them, because they think they are jellyfish, but they are not. And then they get sick and die with so much plastic in their stomach.

> Ricardo (5 years old)—And now it is going to be worse, because many masks will also end up in the sea. And the masks can have the virus and make more people and sea animals sick.

The fear of getting sick was also commonly mentioned. However, the younger children expressed this fear with greater intensity, as can be observed in the dialogue that took place during participant observation of a synchronous session:

> Tânia (4 years old)—I have masks so I can visit my grandparents who live near my house.

> Teacher Laura—Yes, it is necessary. It is because of the little bug we call Covid.

> Tânia (4 years old)—Now, on our planet, a lot of animals are dying, and a lot of people are dying because of the virus. The virus affects our lungs. This virus is bad, it does not let the people be still. We cannot behave badly because otherwise we get sick.

Moreover, they criticized the excessive and negative media coverage of the pandemic.

> Pedro (10 years old)—There is so much news that leaves us sad and worried.

> Eunice (10 years old)—That is why my mother does not watch the news anymore. Whenever she watched the news, she would get worried and sad, because all they speak about is Covid and people who get sick and die with the virus.

They also expressed exasperation associated with the lockdown periods. For example, in an online focus group, a group of children recounted past experiences at school before the lockdown and associated those experiences with the previous school year. The teacher corrected them, as this activity had taken place only a month earlier:

> Teacher Rita—I just wanted to remind you that we cleaned the beach this year before the quarantine.

> Vera (9 years old)—Oh! That is right, it feels like a year has passed.

> Ana (9 years old)—It feels like we have been home for a year.

Furthermore, they also mentioned the restrictions to their mobility and freedom, during the quarantine.

> Miriam (5 years old)—It is so boring being at home. I want to get out of the house, jump, run.

> Beatriz (5 years)—Go see my friends, family (…) now what I like to do most is go on walks with my parents, we always go walking. We are tired of being at home.

Longing was expressed implicitly and sometimes explicitly, as was the case with these children who associated the image of flower beds in tires with their school playground:

> Duarte (8 years old)—These tires remind me of my school playground.

> Researcher—Is that so? Why?

> Duarte (8 years old)—Because in our school playground we have many plants in colorful tires.

> Luís (8 years old)—I also remembered the school playground.

> Beatriz (8 years old)—I miss school.

Overall, the participants expressed positive emotions regarding the well-being associated with experiences in nature. Moreover, these emotions were triggered when they spoke about images that reminded them of experiences with and in nature, especially in the pandemic context.

Zulmira (9 years old)—I like to go on walks in nature, to see the scenery. Just the other weekend I went on a walk with my parents and saw baby ducklings with their mom. I like to see scenery like that, I also like to walk. That's what I like to do the most, I'm tired of staying at home looking at my house, this darned virus. I can't stand being at home anymore. So, this makes me enjoy taking walks in nature even more.

Luana (9 years old)—Before the quarantine, I used to go for a walk with my parents whenever we could. Now we can only do that on the weekend. On Saturday and Sunday, I was hiking with my parents. There were no houses, there were no cars, there was no noise. There was a lot of forest and then we went on the walkways, it was so beautiful there. I love to enjoy nature, to see the flowers, the trees and that is how you learn.

Hope emerged in some statements from children about the future of the Earth in the context of a pandemic:

Paula (8 years old)—I made a drawing of the planet and wrote: we will all be fine. Because if we do not pollute the planet with garbage, with masks, and always throw the garbage in the garbage containers and in the recycling bins, we will be less sick and we will all be fine.

As demonstrated above, children expressed a strong emotional connection with nature and an intense desire to return to school and to the life that existed before the pandemic.

Environmental justice and access to nature during the pandemic

In the online focus groups, children talked about experiences of enjoying and accessing nature in their school and family contexts, before and during the pandemic. These descriptions referred to the diverse educational approaches and contexts (rural or urban) of schools, but also to the socioeconomic class of families from public and private schools, which were inferred from children's statements.

Specifically, regarding school educational approaches, all preschool children reported having frequent access to humanized nature within the school playground. They described garden care routines, outdoor play, and other activities:

Miriam (5 years old)—In our school we already plant trees. And any day now we will plant a cork oak tree and then we will get a trophy, because we participated in the tree contest.

Researcher—And what is the trophy?

Miriam (5 years old)—It is an olive tree for us to then plant in school.

João (5 years old)—If we win, we will have olives.

In one of the rural private kindergartens with a forest school pedagogy, the participants described not only access to the nature of the school playground, but also to the less humanized nature in their community, such as pine forests:

Patrícia (4 years old)—In the woods, I play in the mud kitchen.

Researcher—Is that so? There is a kitchen there?

Patrícia (4 years old)—Yes, the school and our parents built a kitchen in the woods for us to play in. We have little pots, we have water, dirt, sticks, rocks, flowers, so many flowers. And then we play.

Liliana (5 years old)—We make beautiful cakes, soups.

Rui (4 years old)—It really looks like soup, but it is not for us to eat, only for us to play with.

During the pandemic, and with their families, participants from public and private schools tended to have different access to nature. Children from urban public schools mostly mentioned enjoying restricted community-governed natural spaces:

Luís (5 years old)—I like going to the city park to run, see the ducks, the chickens, and have picnics. It is so good.

Researcher—And you, what do you like doing, João?

João (5 years old)—I like playing football at the beach with my father, but now in quarantine we have been playing in our building's courtyard.

Miriam (5 years old)—I play a lot in the backyard of my house, but it is not very big. But I can play with a ball.

Ricardo (5 years old)—I can only go to the balcony, because my parents are working from home during the week. We can only go on a walk during the weekend.

Conversely, the participants in urban private schools described access to large and private natural spaces, namely in their own homes:

Helena (9 years old)—My vacation home has many trees. It is in the middle of vineyards, so I have a lot of space to play and stuff. I only do not have space to ride my bicycle or roller-skates because it is mostly rocks, and I might fall, it doesn't work. But I have a lot of nature there and there is a big pool.

Jaime (9 years old)—I really like to have dinner in the garden of my house in the Village, because I have a very cool neighbor there and we spend the day playing outside in the garden and pool. Once it was 49 degrees.

Nuno (9 years old)—That is so hot!

On the other hand, children from public schools in rural contexts reported easy access to local nature, such as the local forests, and private natural spaces in family farms. For example, Joana explained that she usually helps her grandmother take care of the farms:

Joana (10 years old)—I usually spend a lot of time with my grandmother in the garden, planting potatoes. On Thursday I am going to dig them out of the ground with my grandmother.

Researcher—What do you like doing most in the garden?

Joana (10 years old)—Sow and water. (…)

Researcher—And why do you like to do that?

Joana (10 years old)—Since kindergarten, my grandmother picks me up from school and takes me to the threshing floor to cultivate with her. I always liked the land.

These findings revealed an unequal access to nature during the pandemic, closely associated with the school context (urban, rural) and the socioeconomic status of the families from public/private schools.

Intergenerational environmental injustice

Issues related to intergenerational environmental injustice emerged during discussions on how children and adults care for nature, particularly in relation to environmental problems that threaten the sustainability of the planet. The feeling of environmental and social injustice was often associated with the behavior of adults and with the participants emphasizing the importance of Greta Thunberg's environmental activism.

During their walks in natural and public places, children saw masks on the ground, which caused dissatisfaction with the lack of environmental and social responsibility of those who pollute:

Irina (8 years old)—I went to the beach the other day and saw a lot of plastic in the sand. How come people do not know how to recycle plastic? They threw everything on the ground, bags, plastic cups, straws, and there are recycling bins there.

Paula (8 years old)—When I went with my parents to the beach, we took a walk on the dunes and I saw a lot of masks on the dunes. And we had to leave because I was playing in the dunes in an area that had no masks and I saw a mask buried in the sand. My parents said it could have the virus, so we left the dunes.

Another group showed the same dissatisfaction, and emphasized their incomprehension because these behaviors endanger public health, in addition to having a harmful effect on nature:

Óscar (10 years old)—For me, this image is important because everyone should recycle. When we recycle, we are helping nature because garbage takes many, many years to disappear. If we recycle the garbage that can be recycled,

it is faster. The biggest problem is plastic and now we will have the problem of masks and gloves. When I go out, I see many gloves and masks on the ground. I know we must protect ourselves, but we can't throw the masks on the ground.

Francisca (10 years old)—No, we cannot, because they pollute the ground and make us sick with the virus.

Óscar (10 years old)—People do not even think about that, I do not understand.

Expressions of indignation were constant, and it was clear when they proved to have knowledge that was devalued by adults, for example, regarding recycling:

Gabriela (10 years old)—I recycle at home and at school. I remember when some ladies went to our school to explain everything about recycling.

Researcher—And why do you think it is important to recycle?

Gabriela (10 years old)—It is important because we separate the garbage in the bins and when the garbage men get there, they take it to the place where they do the recycling. Everything is already separated, so they do not need to waste time on that.

Rui (10 years old)—And this way the garbage does not remain in the landfills for millions and millions of years anymore.

Hugo (10 years old)—That is true, but people still do not cooperate, they are stubborn. They do not recycle and continue to put garbage in the wrong places.

Greta Thunberg's image provoked criticism of the environmentally irresponsible attitude of adults, as well as the defense of the importance of environmental activism for the protection and preservation of the Earth:

Úrsula (9 years old)—I saw Greta's image. I know her because I have seen some videos on Youtube, she likes to help the planet.

(shares image)

Duarte (9 years old)—She says, for example, that adults tell us to throw things in the bin, but they do the opposite.

Xavier (9 years old)—I know that on Fridays she goes on strike for the environment. And there are many schools that join it.

Pedro (9 years old)—What is a strike?

Xavier (9 years old)—It means not going to school. That day they go to the streets with signs and speakers like that (referring to the image)

Ana (9 years old)—She is lucky. She skips school.

Francisca (9 years old)—I also chose this image because I would like to be like her.

Researcher—Why?

Francisca (9 years old)—Because I like what she does, and I also believe in what she believes to help the planet.

Irina (9 years old)—I chose another image, but it is similar to Greta's image. It is also from a protest, but in Portugal, because the signs are written in Portuguese.

Research—I already know which one it is, I will share it.

(shares image)

Irina (9 years old)—And I chose this image because I think we need to do a protest like this (refers to the image). Because there is more and more garbage on the ground. I live near a field, and I see a lot of garbage, plastic cups, bottles, everything is full of garbage.

Generally, children manifested a strong sense of intergenerational environmental injustice regarding the ways adults (do not) deal with the environmental problems that threaten the sustainability of the planet.

Discussion

This research explored children's environmental citizenship during the pandemic. We believe that children are political actors in their own right who can, and should, have a say regarding nature and contemporary environmental problems (Biswas & Mattheis, 2021). As such, our approach created room for "'critical voices' to be heard; voices of protest that point to personal experiences of oppression and the need for changes to policies and practices to ensure equity, fairness" (Taylor & Medina, 2013, p. 9).

Overall, our findings demonstrate that the pandemic, the isolation, and social distancing policies to contain the COVID-19 virus have worsened the preexisting differences between the various social groups and raise the issue of environmental justice (see also Lloro, 2021) and intergenerational justice.

Children expressed concerns about experiences related to environmental issues (e.g., pollution in public spaces) which may interfere with the preservation of the Earth and public health (Amorim et al., 2021). These concerns may jeopardize the right to a safe and healthy environment for all people (Ferreira, 2018). Positive emotions were also mentioned. It is important to maintain "human-nature interactions" (Morse et al., 2020, p. 16), since the more emotionally positive experiences described by the participants were those related to getting out of home confinement and into nature. Overall, there is emotional ambivalence toward nature and being outdoors; children expressed fears about contracting the virus, but they also shared a desire for the freedom of being outdoors and connecting with nature. The expression of less positive emotions can be "a starting point for constructive hope" (Ojala, 2016, p. 51), because a critical and conscious vision motivates pro-environmental actions for change by problematizing the environmental injustices that emerged and stood out with the pandemic (see also Misiaszek, 2021).

The disparities in access to nature are another significant aspect of this study's findings. During the lockdown, several children from public schools in urban areas felt their freedom was lost, as they were confined to their apartments. Contact with nature was limited and, when possible, restricted to short walks in natural community spaces or to areas with vegetation within the city—streets with trees, gardens, walks by the sea and or by the river (Tendais & Ribeiro, 2020). There were moments when city parks were closed, which further restricted the access of children to nature. For some participants, namely those from private schools, the closing of public natural spaces had no significant impact, as they had access to private natural spaces—reinforcing the need to rethink the socio-spatial inequalities in cities (e.g., Biglieri et al., 2020) and to foster an equal access to green spaces (e.g., Venter et al., 2020). As claimed by Sharifi and Khavarian-Garmsir (2020), vulnerable groups are more subject to environmental injustice as a result of the pandemic. The children from higher socioeconomic status families had "vacation homes" in rural areas, large gardens, vineyards, and wooded areas. We believe that access to nature "should not be a privilege of only the few but a common experience for all people (…); social justice is an important part of much of our environmental education work" (Neilson, 2008, p. 82), and promoting children and young people's awareness about injustice is of particular significance (see Forsythe & Chan, 2021).

Although the schools offered differing degrees of "engagement in nature," the responses revealed that all participants were environmentally aware and emotionally invested in the environment, showing empathy and care for nature. The rural schools facilitated engagement with "non-human" nature in the pine forests, while the urban schools did not have forests to use. Within the urban context, however, an important difference existed between the public and the private schools. The public urban schools had relatively limited playground areas, while private schools had larger playgrounds and wooded areas. This gap in potential experiences between the public and private was widened by socioeconomic status, as private school children, unlike those in the public system, also had extensive green spaces at their homes and vacation properties. The impact of these inequities reveals a need for further research to understand how they might influence meaning-making and constructions of human/nature (Rios & Menezes, 2017).

Finally, intergenerational justice was expressed by the children when they mentioned issues related to sustainability of the Earth, and described feelings of irresponsibility, incomprehension, and indignation broadly and critically associated with the environmentally negligent conduct of adults. They emphasized the importance of Greta Thunberg's environmental activism and defended a responsibility that implies we should not "be stewards over the earth" (Clayton, 2000, p. 462), but rather actively intervene in the local community in favor of intergenerational and environmental justice.

Thus, the children "challenge[d] intergenerational injustice" (Biswas & Mattheis, 2021, p. 2) when they criticized adult structures and assumed politically interventionist attitudes, such as when they suggested holding protests to reduce pollution. Encouraging participation in issues that impact children's lives is, therefore, essential for personal empowerment and democratic pluralism (Menezes, 2003). It also involves the development of a "collective intelligence—and even more, a citizen intelligence" (Sauvé, 2017, p. 114), decentralized from humanity. This awareness, which includes all beings in a vital interaction network, makes it possible to problematize issues of social equality and environmental justice.

Funding

This work was supported by the Portuguese Foundation for Science and Technology (FCT) and by the European Social Fund, under the Human Capital Operational Programme (POCH) from Portugal 2020 Programme [grant no. SFRH/BD/137233/2018]; and by the Portuguese Government, through the FCT, under CIIE's multi-annual funding [grants no. UID/CED/00167/2019, UIDB/00167/2020 and UIDP/00167/2020].

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