Children's Three Voices: An Exploration of Indian Students' Meaning-Making of Nature & Place

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Abstract
The study uses Interpretive Phenomenological Analysis to explore five Indian children's meaning-making of nature and place during two environmental education programs. Data consisted of structured interviews, semi-structured group discussion, written assignments, and student-authored storybooks. The results show that children's encounters with nature led to fascination, a sense of peace and belonging, gratitude, and love. The sense of merging identities engendered feelings of protectiveness and anger at human actions. Children amplified their meaning-making by authoring storybooks on nature. The results reinforce theoretical and other empirical work on the process of nature and place connectedness but add to sparse research on the meaning-making of nature by Indian children through an examination of their own voices. Furthermore, they explore the integration of children's meaning-making embedded in place and nature. Lastly, the research highlights how the dynamics of meaning-making and connectedness fuel children's environmental activism.

Keywords: Place-Based Nature Education, India, Interpretative Phenomenological Analysis, Student Views

Introduction

> *...It's not like saving the environment. I think I wanted to show that Chennai is a very beautiful place. – 8th Grader Rabia*

This research foregrounds Indian children's meaning-making of nature and place during two related environmental education programs. The first program was a place-based nature education program in Chennai, India. Children spent extensive time in Chennai's biodiverse hotspots and learned about the consequences of rampant urbanisation. The second program was a book writing program in which children used their prior experiences to write and illustrate storybooks on nature. Children's meaning-making of their place and nature experiences and its manifestation in storybooks was investigated using Interpretative Phenomenological Analysis. The results add to sparse research on the meaning-making by Indian children through an examination of their own voices. The research explores the dynamics of developing nature and place connectedness. The research would add to researchers' and curriculum makers' understanding of student experience of urban environmental education programs.

Meaning-Making

Humans construct their reality by interpreting experiences and making meaning. Children make meaning of significant and personally meaningful experiences through an interplay of cognition, affect, reflection, and prior experience and prior knowledge (Elkjaer, 2018; Illeris, 2019; Kolb, 1984). Dissonance in experience leads to emotive responses which drive curiosity and inquiry mediated by action and reflection leading to cognitive understanding and new envisioning (Brooks & Brooks, 1999). Meaning-making happens in a social and cultural context (Vygotsky, 1978). Children's meaning-making is expressed multimodally through oral talk (Worthington & van Oers, 2017), drawings (Einarsdottir et al., 2009), artefacts (Stein, 2003), writings (Bock, 2016) & digital expression (Khoo & Churchill, 2013).

Nature Connectedness & Place-Attachment

Place-based pedagogy locates learning in the students' local environments (G. A. Smith, 1999; Sobel, 2004). Nature-based learning is one form of place-based learning (Kudryavtsev et al., 2012; G. A. Smith, 1999) which includes learning about local environmental issues (Vaske & Kobrin, 2001). Another approach to place-based learning is to engage students in real-world problem-solving connected to a place (Smith, 1999). Place-based and nature-based education both help children make meaning of their learning experience by providing context, engendering emotion, and creating cognitive connections (G. A. Smith, 1999; Sobel, 2004). There are similarities in how place attachment and nature connectedness develop and is manifested. The relationship is like that with a parent or partner to whom there is a commitment (Davis et al., 2009). Direct and repeated experiences creates a sense of belonging (Chawla, 1998; Ernst & Theimer, 2011; Schultz & Tabanico, 2007) and result in emotions of love, pride, and grief at loss. The attachment is manifested in affective, cognitive, and behavioural ways. Threats and degradation of the environment produces emotions of guilt, anger, sadness (Kahn, 1997; Kellert, 1993; Stern, 2000). The cognitive and affective impact of connecting with place and nature results in a desire for frequent connection and a sense of protectiveness (Lewicka, 2011; Scannell & Gifford, 2010; Schultz, 2002).

Children give meaning to place and nature in ways that are different from adults - what seems meaningless to adults may hold meaning for children (Scannell et al., 2016). (Chawla, 1992) outlines three dimensions of childhood place attachment - the need for security & belonging, social affiliation, and creative expression and exploration. Children give importance to places in which they have the autonomy to ascribe meaning, which is co-constructed with friends (Chawla, 1992; Koller & Farley, 2019; Rogers, 2012). The outdoors holds special significance for meaning-making since it enables exploration and autonomy (Cheng & Monroe, 2012). Cheng & Monroe (2012) postulate four dimensions of children's nature connectedness i.e. the enjoyment of nature, empathy for creatures, a sense of oneness, and a sense of responsibility. Well-designed educational interventions which provide nature experiences enhance nature connectedness (Bruni et al., 2017; Liefländer et al., 2013).

Children's Environmental Activism

Despite limited resources and political power, children have a deeply personal interest in combating environmental degradation which threatens their future (Spyrou, 2020). Children and youth took the lead in organising worldwide climate activism through school strikes, Fridays4Future, and other protests (Nissen et al., 2021; Spyrou, 2020). Place-based nature experiences resulted in environmental activism by students in tiny St Vincent and the Grenadines (Selby et al., 2020). Danish students lobbied for town-wide policy changes which integrated place and environmental issues (Jensen, 2002). Activism can also take place through research, literary and arts-based expression, what Noddings (2005) calls 'telling stories of a place. Children and youth conducted ethnographic research in local communities and showcased their results in public exhibitions and on online platforms in Australia (Cutter-Mackenzie & Rousell, 2019). Children have also used photography (Littrell et al., 2020; Malone, 2016), and film (Mallick, 2022; Trott, 2019, 2020) and art (Shekar, 2020) to raise their voices. However, such opportunities for children's activism within formal schooling are extremely rare (Hungerford & Volk, 1990; R. Sharma, 2021).

Need for qualitative research

Malone (2016) argues that the constructs of nature connectedness and place attachment, especially for children, are rooted in middle-class, white, western notions of dominant humans connecting to and saving nature. The binaries of subject/object, human/nature, culture/nature, place/nature are a simplistic whitewashing of lived reality and do not account for cultural, economic, and gender differences. The purity of nature, unsullied by contradictions of harsh realities of life, animals, complexities of place is contrary to the ontological and epistemological lived experience of the majority of people in the global south. Hence research is needed to uncover meaning-making of nature and place from the perspective on non-Western children.

Furthermore, most research measuring nature connectedness and place attachment in children has used quantitative instruments (Bruni et al., 2017; Bruni & Schultz, 2010; Cheng & Monroe, 2012; Davis et al., 2009; Ernst & Theimer, 2011; Lewicka, 2011; Mayer & Frantz, 2004). Indian research has also typically been quantitative, measured shifts in knowledge or attitude (Chhokar et al., 2011, 2012; Ramadoss & Poyyamoli, 2010); and focussed on higher education (Islam & Chandrasekaran, 2016) or teachers (Aneeshya, 2018; Namdeo, 2018; K. Sharma & Pandya, 2014; Shin & Akula, 2021) These approaches view children and their ontological being through adult lenses and ignores their voices in research. Lastly, Nissen et al (2021) posit that youth activism with possibility of sparking subcultures of music, art, and

literature is an emergent and under-theorised field. Hence, there is a need for qualitative research which foregrounds Indian children's voices to understand their meaning-making of nature and place especially given the highly constrained and powerless reality Indian children confront daily in schools where their voices rarely find expression. The entire landscape of Indian children's meaning-making of place and nature, of negotiating 'difficult knowledge' of degradation and threats to a loved place and of eco-activism is invisible.

One way of hearing children's voices is to understand how they express the meaning of a lived experience. To children, schooling is a lived experience. In fact, it is *the* lived experience, given that children spend the larger part of their days in school (Thiessen, 2007). But time is not the only determinant of what is given importance as a lived experience. The value of the experience matters (J. A. Smith et al., 2009). In this particular case, the field ecology program was so powerful that the children were completely subsumed in it to the exclusion of other 'regular' school happenings. The book writing program had a similar impact on the children - it covered their mindspace despite the pandemic, lockdowns, feelings of isolation, and fear.

Method

Interpretative Phenomenological Analysis

Interpretative Phenomenological Analysis (IPA) is a method of qualitative research that examines how people make meaning of major life experiences. It uses phenomenology, double hermeneutics, and ideography for interpreting the experience of a small, homogenous group of participants to develop an understanding of the 'essence of the experience' (Pietkiewicz, I & Smith, 2012). The goal of the IPA is for the researcher to make meaning of participants' meaning-making - engaging the researcher in double hermeneutics. IPA researchers move within and across participant data, from part to whole shifting between different levels of the hermeneutic circle to illuminate meaning (J. A. Smith et al., 2009). IPA's idiographic approach necessitates a detailed examination of each participant's data by getting close and 'standing in their shoes' to gain an empathetic understanding of their voice. It also necessitates a 'distance' where the researcher 'stands alongside' the participant, and adopts, what Smith et al (2009) call the 'questioning' stance to probe, ask questions, and make interpretations. This involves several conversations with the participants, immersion into the data, multiple readings, and critical reflection of the content to generate themes (Pietkiewicz, I & Smith, 2012).

Research Questions

1. What meaning did children make of the place and nature they experienced in the field ecology program?
2. How and why did this meaning manifest itself in their voices and in their books?

The Project

A two-year place-based nature education program provided experiential learning of Chennai's biodiversity hotspots. Children spent two days a month either learning in-situ at a restored wetland or going on field trips. They saw the natural beauty, degradation and restoration works. During the pandemic, the children participating in a storybook writing program where they wrote and illustrated picture-books on nature. Teaching and learning

consisted of direct instruction, whole group discussions, individual mentoring, research, and reflective writing. Students had the autonomy to determine the theme and content of their storybooks. The online program was held after school hours during the pandemic in 2021. The resulting storybooks are listed with an online retailer.

Participants

IPA is conducted with a small homogenous group of participants to enable a detailed examination of their experience and identify the convergence and divergence in the experience (J. A. Smith et al., 2009). Five participants were selected purposively from among the group of students who participated in the storybook writing project. All participants were middle school students of the same school in Chennai and had participated in the ecology programs. Demographically, they all belonged to middle-class Muslim families with similar educational, economic, and social backgrounds. They all lived in an urbanised suburb of Chennai. The criteria for selection for these five from the 14 who participated in the book-writing program was based on:

a. Participation in the previous field ecology program
b. Mix of grades
c. Students whom the teacher knew would be willing to articulate their feelings and positions in detail

Grade	**Pseudonym**	**Age**	**Theme of storybook**
8	Rabia	13	A backpack lost in an urban forest wetland narrates its adventures to a feral cat thereby taking the reader on a journey through polluted but beautiful Chennai.
	Rifa	13	Schoolchildren on a shore-walk in Chennai discover the beautiful creatures and learn about an upcoming beach development project. The children and the local community organise protests which successfully scuttle the project.
7	Aysha	12	A molecule of carbon dioxide in Chennai discovers the adverse role it plays in creating pollution and works to find an eco-friendly solution.
	Hafsa	12	A lapwing narrates its migration to Chennai's wetland and highlights the rapid environmental degradation.
6	Musa	11	A sea eagle has to flee its home due to a beach development project and finds shelter in a restored wetland in Chennai.

Table 1: Participants & their storybooks

Interview Schedule

The data collection took place during the book-writing project. The collection procedures had to account for the power dynamics that are present in Indian classrooms between adults/ teachers which influence how children respond to adult questioning. Since IPA can also look at other evidence of the lived experience which enables a rich and detailed understanding (Creswell & Poth, 2018; Pietkiewicz, I & Smith, 2012), our first data were collected through reflective or creative writing assignments and open-ended reflective journal entries. These were completed as home assignments and not compulsory, hence were non-threatening for children. Next, we conducted a semi-structured interview using Google Forms. It contained open-ended questions and enabled students to give free and detailed responses without being influenced by the facilitator or researchers' presence. Third, we conducted an online semi-structured, focus group discussion at the end of the book writing project. The group discussion was facilitated by the mentors. Smith et al., (2009) caution against using focus groups in IPA. However, we were aware of the dynamics of this close-knit group. The audio recording was transcribed using software and the resulting transcript was edited by the lead researcher to correct errors and to replace student names with pseudonyms to preserve anonymity. The data is available only to the researchers. Last, we analysed the five books written by the children. These gave us insights into how the children's meaning-making translated into reality which is the subject of another forthcoming paper. A short description of the books is given in Table 1 alongside the participant description.

Data Analysis

Smith et al (2009) outline a process of data analysis for IPA which involves moving back and forth in the data through several readings, personal reflection, and discussion. The data for each participant was first consolidated to present a coherent picture of each child. The data was copied into a table format in Google Docs, with a column to record emergent coding, notes, and reflections. The data were read several times by the researchers. The first reading provided impressions, reflections, and thoughts. Researcher reflections were recorded as notes in analytic memos (Saldaña, 2021). The second reading resulted in emergent coding. The participants' written assignments and semi-structured interview and group discussion responses were coded inductively and manually using In-Vivo coding (Saldaña, 2021). The storybooks were analysed thematically to understand how the children's meaning-making transferred to their books and to find patterns across the different narratives (Braun & Clarke, 2006). Two researchers independently coded each participant and then discussed how to resolve differences. The coding was done for each participant before moving to the next participant to ensure a coherent picture of each child's expressions. After coding all the participants' data, further reading and discussion were done to group the coding into themes. Quotations that illuminated the meaning of the themes, commonalities, and differences were highlighted. The codes were consolidated into three overarching themes. The data, coding, and themes were shared with the third researcher for validation that the analysis was grounded in the data.

Ethics & Researcher Role, Quality & Reflexivity

Consent forms permitting the use of student data for the study were signed by both parents and the children. Pseudonyms have been used to protect the privacy of the participants. Students' permission was sought for the specific quotations used by them in the paper. Participant data is kept confidential and stored securely on Google Drive. Two researchers

were participant observers in the research. The researchers used their practitioner background and experience to describe and interpret the data. The third researcher was the mentor and guide for the study. Qualitative research is more about persuasion than accuracy since the very nature of IPA embeds the researcher in the study. To address issues of trustworthiness and credibility, within the bounds of maintaining participant confidentiality, the researchers have provided descriptive data about the participants as well as outlined the researchers' roles and perspectives. We have described the method and procedure in detail to clarify the research method. The results section extensively uses quotations from different participants for each theme to illuminate the commonalities and differences for readers. Reflective memos and inter-researcher discussions helped maintain researcher reflexivity.

Results & Discussion

During the second project, children had to recall the memories of their nature experiences to shape their storybooks. This involved a process of reflection, joined sharing of memories, and probing their recollections to find inspiration for their storybooks. The nature experiences had been memorable and created a powerful cognitive, affective and kinaesthetic impact. The memories of the experiences were multi-sensory combining aural, kinaesthetic, and visual. The sense of fascination, affordances of peace and belonging, a feeling of gratitude, and times with friends created feelings of love for the place, what (Tuan, 1990) labels as 'topophilia'. The sense of empathy and protectiveness led to an increasing sense of identification with nature-place as a part of their ontological being (Lumber et al., 2017). The children also witnessed the negative human impact on the environment and this produced feelings of frustration and anger (Schultz, 2000, 2002). This recollection and meaning-making led to emergent and exploratory examination of conjoint identities. Children expressed their understanding of what nature might feel about human intervention. The merging of identities was a two-way street - the children started using metaphors of nature to speak about their personal challenges and experiences. While many children are upset by environmental degradation (Rousell & Cutter-Mackenzie-Knowles, 2020), few feel they have the agency to do something about it (Chhokar et al., 2011, 2012; Otto et al., 2019). Part of the reason is that children lack knowledge about potential actions (Jensen, 2002) or are not empowered to do something with their knowledge (Hungerford & Volk, 1990). In contrast, the book authoring program provided the children with a formal channel for their need to raise public awareness about environmental damage in their city. Children engaged in what could be called an act of ventriloquism when they spoke for place and nature by authoring storybooks. There was a sense of urgency as children talked about the danger of ignoring the 'wake-up call' or else there would be 'no use crying over spilt milk'. These results are categorised into three expressions of meaning-making (Figure 1):

1. The Voice of the Child - Connecting with Nature
2. The Voice of Nature - Identifying with Nature
3. The Voice of the Author - Advocating for Nature

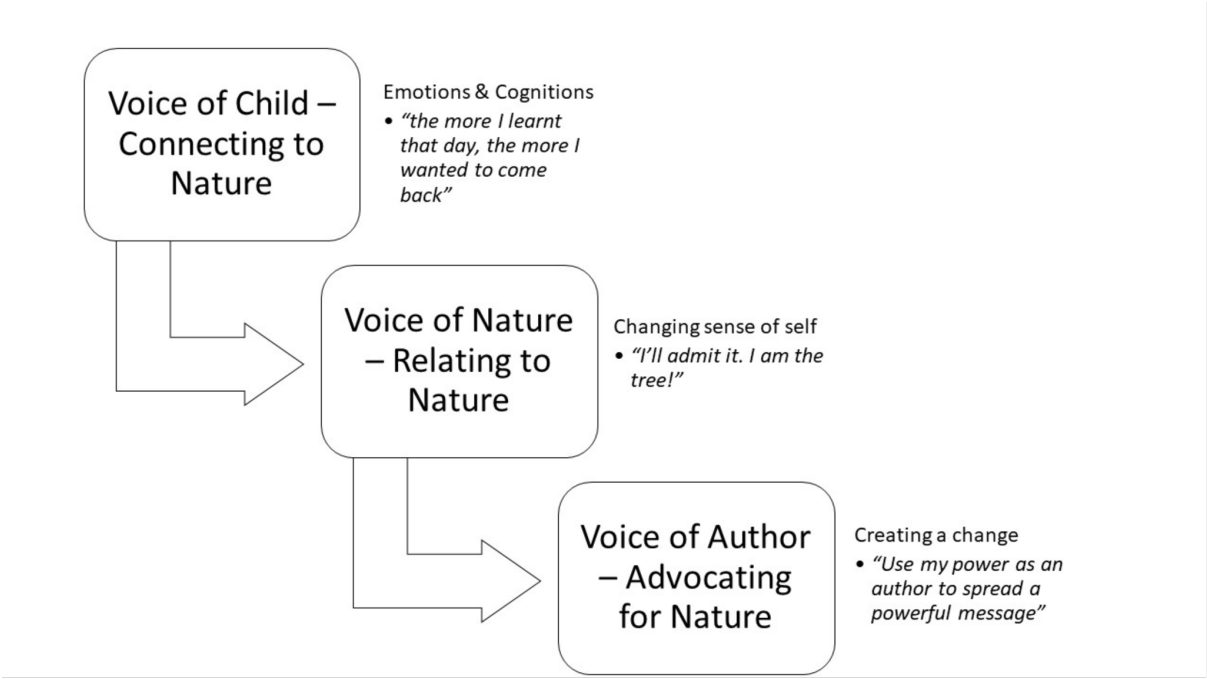

Figure 1: From Meaning-Making to Activism

Voice of the Child - Connecting to Nature

This meta-theme addresses the first research question to explain what meaning children made of nature experiences. Children were fascinated by their time in nature. For Musa, the sense of the magnificence of Poonga forest and the way it nurtures the multitude that inhabit it, made a powerful impression. Hafsa started the program with low expectations in keeping with her assumption that learning is 'boring'. But her opinion changed to enchantment when she visited the Adyar Poonga wetland and was struck by the beauty of the river. Rabia was fascinated by the multitude of new creatures she encountered at the Muttukadu beach. Sustained contact with the natural places in Chennai created a sense of peace and reinforced a sense of belonging (Cudworth & Lumber, 2021; Tuan, 1990). However, Musa expressed a sense of 'restlessness' because he was overwhelmed by all that he saw. Children expressed gratitude for being privy to a special place in Chennai where 'wildlife lives unaware of the outside country'. Rifa's words were very contextual, reiterating the connections she already had in real life. Her predominant discussion was about experiences with friends and instructors while nature and place provided the context for co-constructed memories. Children had been eager to continue the relationship with nature by sharing how they loved to be with nature. The sense of love had a cognitive dimension. The wetland stimulated Hafsa's curiosity to learn about nature. Environmental damage in their hometown filled the children with anguish (Fried, 2018). The overwhelming reaction was one of disgust and anger at the perpetrators and frustration with other people inaction.

Voice of Nature - Relating to Nature

This meta-theme addresses the second research question by highlighting two ways children expressed a sense of shared identities. On one hand, children immersed themselves in 'nature's shoes' and expressed nature's point of view on human intervention. On the other hand, children used metaphors of nature to express their personal feelings. Children's empathy for nature and grief at degradation led them to use symbolization and metaphors to anthropomorphize nature of anger, frustration and contempt. However, Nature's 'Voice' was

also nuanced as it recognized that humans may be caring, loving, and exciting. The children also used nature to express their own problems, shortcomings, and challenges.

Voice of the Author - Advocating for Nature

This theme further addresses the second research question by explaining how and why children's meaning-making manifested itself in books. Like the Voice of Nature, the Voice of the Author called upon memories of the nature program to write and illustrate to the books. However, in this case, the meaning-making was concretised and had public expression. The children believed that their books were the medium through which nature's voice could be amplified to the entire world and bring about change. In a sense, the Voice of the Author was an integration of the Voice of the Children and the Voice of Nature and an expression of children's sense of agency and purpose. Children called upon their memories of being with nature to create the settings, plots, and characters for their books. Aysha's book didn't mention any specific place, but the illustrations revealed her thinking. Her school, which she said was very important to her, appeared in her illustrations as does Manadi, a very overcrowded and traffic-ridden part of Chennai. The environmental problems were those they felt were most relevant. Rabia painted a wide canvas of the pollution problems faced by Chennai while Aysha focused on vehicular pollution. Musa, Rifa, and Hafsa highlighted how construction destroys habitats for animals, but their settings and characters were very different. The inspiration for the characters lay in the individual meaning-making of real experiences. Hafsa and Musa took on the identity of the animal who was their book's protagonist and spoke through that animal about issues they felt strongly about. The storybook writing project provided a means for children to translate the meaning-making of their nature experiences into storybooks. The children were convinced about how imperative it was for them to act. The children had an innate belief in their power to create a change through their storybooks. Rifa said she undertook the project once she realised that she 'should use my power as an author to spread a powerful message'. Hafsa was more nuanced '…power isn't really in my hands', but 'your book has ability to change the world'. Her words are peppered with a series of conditional statements,

> *...if each of them makes a resolution that I should not, probably be a part of something or later on, take some water body and it might make a difference, because every drop makes an ocean, right?*

However, Aysha had a strong belief in the inherent goodness of people, especially other children as 'kids would know that pollution is real, and knowing that it affects people, would make them want to do as much as they can to help'.

Shortcomings and areas for further research

This research is emergent, exploratory, and bounded by the context in which it took place. As an interpretative phenomenological study, it reports children's perceptions as interpreted by the researchers. Further research should be done to investigate the process of nature connectedness and place attachment for children of the global south especially with a post humanist lens. Moreover, qualitative studies, especially using the grounded theory approach, should be conducted to understand the role of play in fuelling children's arts-based environmental activism.

Conclusion

While the results of this study are not generalizable, they reinforce theoretical and other empirical work on the process of nature/place connectedness but add further dimensions. First, it is a qualitative study that brings Indian children's voices on their meaning-making to the fore. The urbanized children deeply appreciated their encounters with the rarely visited biodiversity hotspots in Chennai. The interaction made them love nature and grow to see it as a part of themselves. Seeing degradation due to urbanization filled children with a sense of grief and loss. This prompted an act of ventriloquism, where they lent their voices to nature to indite human society. This part of the results emphasises the importance of situating nature education programs in the local place to make learning contextual, meaningful, and connected with children's lived realities and reinforces other research conducted in Western settings with adults and children. But the crucial part lay when the voices of the children and their representation of the voice of nature, blended to create the narrative voice of the author. This provided an avenue for environmental action which helped build self-efficacy. Hence, nature education organization should considering including components of environmental action in their outreach programs.

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