Exploring the Significant Life Experiences of Childhoodnature

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Abstract

By foregrounding childhoodnature experience and its ongoing influence, significant life experience (SLE) offers a formative field of research for consideration

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by childhoodnature researchers. The first part of this Chapter summarizes key findings and insights from previous SLE research and, as a contested field, aspects that have been challenged. In the second part, we introduce the nine chapters; here, a collection of contemporary studies interweaves the fields of SLE and childhoodnature through time and space. Together the studies in this section supports previous findings and affords new understandings of how childhoodnature is experienced and how this influences environmental behavior.

In the third part we group the Chapter findings into five childhoodnature insights: embodied experience, nature as family, cultural participation, childhoodnature loss, and developing methodologies. The studies reaffirm that SLE in childhoodnature can be a combination of continuous or single experiences, but that self-awareness within experience is significant. Further, SLE are often sociocultural in character involving cultural participation. Authors have also demonstrated the value of exploring the notions of SLE and childhoodnature with educational professionals.

In the final part, we raise issues for future consideration, not least the need for longitudinal research and the advancement of child-framed approaches in these fields. We contend that there is an urgent need for more research in disadvantaged and culturally diverse contexts as a response to the contemporary realities of, and changes to, childhoodnature in the Anthropocene. Importantly, we appeal for a paradigm shift to bring childhoodnature experience into the heart of all education systems.

Introduction

Childhoodnature rejects the anthropocentric view of childhood and nature. It argues that children are nature and, as such, are interconnected with and part of the natural world. As children are nature, we can therefore assume that the social and cultural worlds of children are a subset of the natural world. Bringing together the natural and, within that, the sociocultural worlds of children enables us to understand more about the significant influences on children's learning and development as natural beings. This section explores how significant life experiences (SLE) research both informs and challenges our thinking around childhoodnature. We argue that understanding the importance of SLE in childhood is a fundamental prerequisite for the exploration of our developing notion of childhoodnature. SLE research provides a methodological approach that explicates insights and intentions within childhoodnature, both of which create our reality. Together, these two fields of inquiry, childhoodnature and SLE, challenge researchers to reexamine their beliefs, values, notions, and understandings of how children see themselves within and as part of nature, and further, how we think about research methodologies and design.

SLE are important phenomenological events considered critical in determining or influencing concerns, beliefs, and actions in later life. This body of research suggests that SLE in and with nature may directly influence environmental activism or opportunities to care for the environment in some way. We argue that the SLE field represents an important formative body of research that is inextricably connected to the concept of childhoodnature. This is because it foregrounds the importance of childhood experience in, with, and as nature, investigates the multiple-complexities of children's lived experiences in nature, and predicts their influence on environmental choices in adulthood. This section of the Handbook invited contributions from researchers in the field of SLE who were interested in exploring the relationship between childhoodnature and SLE.

SLE is a term introduced by Tom Tanner who developed a basic methodology and inspired an avid interest in this area of research (Tanner, 1980; Tanner, 1998b; Chawla, 1998a). Tanner's ground-breaking study, first reported in 1979 and then again in 1980 (Tanner, 1998a), identified affective experiences in nature that had an impact upon people's respect and appreciation for the environment. Building on Tanner's work, research by Chawla in the USA (Chawla 1998a, b, 2001, 2007) and Palmer in the UK and other countries (Palmer, 1998, 1999) also endorsed and confirmed the influence of SLE in nature (Tanner, 1980).

However, what is it about SLE that have such an impact upon people's lives? The quality of SLE have been shown to influence learning, not just in early childhood but throughout life. Chawla (1998a) noted that factors such as positive experiences in natural areas; environmental awareness and concern modeled by family members, teachers, books, and media; environmental organizations; as well as negative experiences that include habitat destruction have all been attributed to forming these SLE. In addition, research supports the premise that formative experiences in relatively pristine natural settings that include time with adult mentors, time alone at certain ages, family time, and time with peer adventurers are important (Corcoran, 1999). Further, personal attributes related to pro-environmental attitudes and behavior include having knowledge, competence, and an empathic perception of nature (Chawla, 1998b; Hungerford and Volk, 1990).

Building on the foundations of this field of research, the first part of this Chapter provides an overview of SLE research and associated understandings of SLE in childhoodnature. We discuss some insights into SLE, including research that also questions the impact of SLE. As an area of controversy, critical perspectives and antithetical research is important to consider in order to develop a balanced view of SLE. Yet, regardless of this controversy, Chawla (2001) reminds us that the personal stories highlighting sources of environmental interest and motivation can have a powerful impact on our understanding of significant moments and have generated this important field of study.

In the second part of this Chapter, we introduce the nine chapters included in this section, highlighting the common threads that connect examples of contemporary SLE research from around the world. The included authors provide in-depth exploration of SLE and extend the range of methodologies and tools used in childhoodnature research. Through this, the authors contextualize the influence

of society and culture on childhoodnature relationships. It is proposed that by developing a deeper understanding of significant childhoodnature experiences, this section will offer new perspectives on authentic practice in childhoodnature, and subsequent environmental action.

Finally, we present our insights from these chapters, reflect on what is missing from SLE research, and suggest foci, contexts, methodologies, and theories for future consideration by SLE and childhoodnature researchers.

Insights into Significant Life Experience Research

Pro-environmental behavior is often a goal of environmental education for children, and commonly relies on the assumption that engaging with nature, and, in particular, more than human nature, will foster a desire to protect the environment. The affective connections that people develop with the natural world are thought to foster this desire and may be the result of immersive experiences. For example, a study evaluating immersive field-based environmental education in contrast to classroom-based education found that only the field-based participants expressed sentiments toward conservation, a desire to return to the environment visited, feeling happy about themselves, and feeling safe (Cachelin et al. 2009). In addition, the field-based group more frequently discussed sensory experiences, while classroom-based participants were the only ones to express negative opinions of the wetland that was visited. The importance of sensory connections with the natural environment was also discussed by van den Born et al. (2001). Their findings support the idea that immersive, concrete experiences with nature, and those involving the senses, as opposed to theoretical learning, are associated with nature-friendly behavior in adulthood.

While children are often not able to recall these experiences, they act to shape lifelong learning, which develops into personal adult characteristics, as is demonstrated by adults' reflections upon their experiences. Eilam and Trop's (2014) study of formative experiences in environmental schools found that it can be easier to influence adults' behavior than their attitude toward the environment. Further, they found that media and formal education may be more effective at influencing behavior change since they can provide relatively quick, preplanned experiences. Whereas, influences on attitude require experiences over time.

Although wilderness programs may not provide a long-term experience, they provide an immersive experience in nature. A study with eight teenage participants of a 12-day wilderness program found that although the trip was a powerful experience for the youth, they did not anticipate that it would translate into changes in action toward the environment at home because they were too busy with their daily routines (Haluza-Delay, 2001). Based on the findings, Haluza-Delay recommended careful development of immersive environmental programs within pristine wilderness areas in order to more clearly help participants understand the connections between humans, more than human nature, and the local environment. In addition, programs

should be offered in environments at home where they are more familiar, rather than far away from children's daily lives (see also Barratt et al., 2014).

Overcoming fear of nature, especially wildlife, may be an important consideration for environmental education experiences. Investigating SLE through narrative interviews with alumni of three different environmental education programs, Williams and Chawla (2016) noted the importance of overcoming fear of nature or wildlife in natural settings, and the importance of mementos as objects that hold program memories. Fagerstam's (2012) study with high school teachers and Environmental Education Centre officers also found that students experienced fear of Australian nature and animals as a response to environmental education programs.

Providing children with opportunities to explore the natural world is important to their psychological and physical well-being. Through research at the Child Development Lab at the University of Nebraska, Benson and Miller (2008) describe opportunities for young children, aged 20 months to 5 years, to develop important skills that can lead to later learning and academic success. The natural environment provides opportunities for: social interaction through collaborative exploration and negotiation, physical development and fine motor skills as they examine natural materials and unfamiliar spaces, and language skills as they learn to express ideas and feelings about what they encounter. Although SLE research is commonly conducted with adults, asking them to reflect on their earlier experiences, Chawla (2001) supports and promotes the idea that we need to understand and consider the experiences that young people themselves consider important. Stating that environmental education and activism are "intergenerational affairs," she urges researchers to understand multiple sides that include generational differences (p. 457).

Significant Life Experiences Research as an Evolving Field

SLE research has faced varying levels of critique, with questions about the methodologies, methods, and theoretical frameworks commonly proposed. For more than 20 years, critics of SLE research have questioned the epistemological grounding of the research in relation to the use of autobiographical methods, and the apparent focus on validity, reliability, and generalizability (Gough, 1999). Further, Dillon et al. (1999) challenged the lack of theoretical frameworks for SLE research. Specifically, they suggested the use of identity theory as a way to explain how people develop their pro-environmental beliefs and enhance SLE research.

More recently, Williams and Chawla (2016) suggest the use of social practice theory to frame SLE research which implies that it should not be approached as a simple problem of identifying three or four most influential experiences. But instead, it is important to view the significant experiences within a broader context of practices in particular places and social settings, and how the various factors together shape the environmental identities that people form. There have also been challenges to the use of the term "significant" in SLE since research participants may not see childhood experiences as significant. Payne (1999), like Williams and Chawla (2016), argues that a series of experiences, or "continuity of experiences," may be

more important than one specific or significant moment or event (Payne, 1999, p. 366). Similarly, Ji's (2011) study with 14 Chinese environmental educators found that for almost all of them, it was the totality of their experiences, rather than one significant experience that led them to develop their environmental awareness and sensitivity. Russell (2006) encourages researchers to be open to learning from social movements and other theoretical positions, and that her own SLE work has been informed by women's studies, science studies and environmental thought.

In terms of methodology, SLE research has typically drawn on those methodologies that are sensitive to the research context and foreground the intricacies and richness of meaningful experiences, as participants view them. SLE research originated using qualitative and autobiographical approaches, including open-ended interviews, to enable people to provide a narrative of their experience in detail. Chawla (1998b) discusses this emphasis on qualitative research as a positive aspect, noting that the broader field of environmental education research traditionally relied on quantitative approaches. Similarly, Cachelin et al. (2009) highlight the fact that much evaluation of environmental education programs still applies quantitative methods, yet could benefit from supplementing this with qualitative approaches that add rich, nuanced descriptions of sensory experiences in the field. Further, Russell (2006) highlights the challenges of working with different methodologies, but also recognizes the importance of being open to other methodological, ontological, and epistemological approaches in order to bring richness and diversity to the SLE field.

Yet, the emphasis on qualitative, retrospective, reflective research is not without critique, including the challenge posed by the effect of the experience weakening over time and the limited accuracy of memory (see, for example, Stevenson et al., 2014). Although this is a characteristic of any interview and survey research that is based on personal views or behaviors, SLE research often requires adults to recall events from the distant past in childhood. In her article exploring SLE research methods, Chawla (1998b) highlighted this and other weaknesses of SLE research, including the lack of built-in comparator groups.

While the autobiographical tradition is still evident in SLE research, there has been some diversification of approach together with findings that do not necessarily align with previously accepted ideas. For example, Stevenson et al. (2014) conducted a quantitative study with a random sample of middle school students. They found that watching nature-related TV was actually a negative predictor of environmental knowledge. Students who had a teacher with a master's degree was the strongest positive predictor of pro-environmental behavior, but time spent outdoors and having an adult role model for environmental sensitivity were weak predictors of pro-environmental behavior. In addition, they found that minority students (American Indian, Hispanic, and African American) exhibited significantly lower levels of environmental knowledge than Caucasian students. Leppanen et al.'s (2012) study on gender and generational environmental attitudes was also quantitative, using questionnaires with sample of 237 young people and 212 parents in Finland. The findings showed that boys display more negative environmental attitudes than girls or adults, and in general, the Finnish children in the study held more

negative attitudes toward the environment than their parents. As this is contrary to other studies, Leppanen et al. postulate that the cultural context and life-stage barriers could have been influential.

Further, some critics noted the inclusion of predominantly white privileged participants in SLE studies. Yet, the diversity of participants has grown from predominantly white males, dedicated to environmental education or wildlife and wilderness preservation, to include more gender and ethnically diverse participants (Chawla, 1998b). For example, Corcoran's (1999) study with US members of the North American Association of Environmental Educators included 54% female respondents. Additionally, one study found that environmental justice activists often use their social position of disadvantage to embrace their negative social and environmental experiences and ground their work in empowerment and social justice (Ceaser, 2015).

Turning to findings, some research, albeit limited, has challenged the extent to which outdoor experiences during childhood, such as camping, playing in natural areas, and observing wildlife, are seen as influential (Howell and Allen, 2016). Howell and Allen's study found that involving 85 people connected with climate change education, found that those childhood experiences were not mentioned as a major formative influence for the sample as a whole. Although these outdoor experiences were important, and formative for some participants, they did not have the impact on climate change mitigation efforts that previous research findings would have suggested. In addition, the authors compared the matched age groups, and determined that this finding was not simply because children have fewer opportunities for nature experiences than in the past (Howell and Allen, 2016). Similarly, Ji's (2011) study with 14 Chinese environmental educators found that it was not their environmental consciousness that led them to work in environmental education, but rather a job opportunity or requirement. And unlike other studies, childhood experiences in natural areas were not seen as significant to developing their environmental consciousness.

These research findings raise questions about the influence of childhood SLE on future environmental behavior; nontheless, SLE research has overwhelmingly connected experiences, sensitivity, and activism in relation to the natural environment. One important area that has had less attention is the synergies between theory and practice. While SLE research has identified particular experiences as influential, and recommended appropriate practice (for example, see Chawla and Flanders Cushing, 2007), the extent to which this knowledge has informed practice in environmental education is less clear. Payne (1999) described this as "the biggest gap in the SLE literature... (that is) how these SLE research findings might 'translate' into culturally sensitive and contextually specific curriculum and pedagogical practices" (p. 366).

The rich and varied research on SLE, in addition to the many critiques of its traditions, suggests that it is an important of area of research that is still evolving. Much of the recent research raises additional questions that need to be explored. The next part of the Chapter introduces the research presented in this section and how it is responding to earlier critiques while progressing this field of research.

Significant Life Experiences and Childhoodnature: Introducing New Research

As discussed above, there have been a number of criticisms of SLE research in relation to its retrospective methods, less represented groups and under theorizing. In many ways, the chapters in this section start to address these concerns. Using novel and creative methodologies, which are sensitive to focus and context, and working with theory, the authors explore new and underresearched areas in the field of SLE. In doing so, they provide in-depth discussion about childhoodnature, specifically, how children encounter, interact with, and think about more than human nature, what influences this, and how nature experience in childhood may influence future thinking and behavior. This section discusses how the Chapter authors are reaching out to new contexts and groups, developing novel methodologies and portrayals of SLE and childhoodnature and concludes by exploring how the authors work within new theoretical frames.

Reaching Out to New Contexts and Groups

The contexts for the research reported in the following chapters are varied and reach out to lesser researched groups. This includes working with young children in early years settings in Alaska (Green), a deciduous forest environment in the USA (Porto and Kroeger) and forest schools in England (McCree); preservice educators in Australia (Black) and England (McCree) focusing on how educators think about SLE and their future careers; how global mobility and attendance at international schools across the world impacts on SLE (Van Zalinge), informal learning through parenting relationships in Australia (Blom) and through Family Nature Clubs around the world (D'Amore and Chawla); and children's TV in Sweden (Pettersson).

New Methodologies and Portrayals of Significant Life Experiences

The authors of this section provide in-depth analyses of children's experience in and with more than human nature, in some cases connecting this to childhoodnature practice. In beautifully crafted narratives, many of the authors provide rich portrayals of SLE in childhoodnature. So, how can researchers explore SLE in the present rather than reflecting on the past? This is addressed imaginatively by Green and by Porto and Kroeger who report research with children in real time using phenomenological approaches. These authors develop novel research tools for capturing early childhoodnature experiences and behaviors both at a prereflective and a reflective stage.

Green analyzes findings from two research projects with young children in Alaska, focusing on somesthetic experience, which Green describes as the "felt bodily experiences of childhoodnature." Children's use of wearable cameras followed by video-stimulated recall discussions gives agency to the child and enables the researcher to experience what the child sees, hears, and does during their sensory tours in the Tundra in order to discuss it with the child. Green finds childhoodnature embodied and storied entanglements as the children play and tour freely and develop a sense of being within this natural environment. Similar to

Green, Porto and Kroeger's participatory research is designed to give agency to the child; acting as co-researchers, children aged 4–5 years explore their prereflective and reflective experiences of a deciduous forest environment on a weekly basis for 9 months. A mosaic of tools (adapted from the mosaic approach, Clark and Moss, 2008) is employed to address the question, "what does it mean to be in this place?" The tools, for example, taking (and discussing) still and moving images, tours, bookmaking, and child interviews, enable children to choose how and when to share their meanings of experience. Porto and Kroeger argue that regular time to play freely in natural environments and time to talk about nature with each other may lead to pro-environmental behavior later in life. There is evidence in this study that weekly visits to the same natural environment supported children in discovering nature's needs and realizing that nature is family and, like other family members, requires care. Both of these chapters illustrate how research with children can give the child agency and how this fundamentally enriches the research. Here, both approaches invite children to gather data about their childhoodnature experience as it happens and then share their reflections using the data as a stimulus. This avoids the researcher interpreting and making assumptions about the child's experience, a tendency typical of research with children (Barratt Hacking et al., 2013), thus enabling rich and insightful findings.

D'Amore and Chawla similarly report research in real time, in this case with children and parents/carers attending Family Nature Clubs (FNCs) in the United States and Canada, as well as New Zealand, Peru, Germany, and England. FNCs are a relatively unique environmental organization as they bring parents/carers and children together with more than human nature on a regular basis. Thus, the study of FNCs represents a new area of research in SLE with opportunities to apply findings from previous SLE studies through a "triad of experiences . . . (for) children and their parents: time in nature, role models of nature appreciation, and membership in a nature-based organization." In this multimethod study, D'Amore and Chawla combine quantitative surveys with ethnographic observations and interviews. While SLE research has typically identified spending time in nature alone or with friends as important, this study identifies the significance of a collective, social experience in which leaders, parents/carers, and children learn and act together. The notion of permissive (childhoodnature) parenting is an example of how FNC leaders influence families by providing role models of parenting childhoodnature; similarly there is evidence that parents/carers learn from observing different childhoodnature parenting norms from other FNC members. While this study, like Porto and Kroeger's, and Green's real-time research, would require a longitudinal approach to demonstrate influence into adulthood, each of these studies enabled children (or parents/carers) to convey what is significant about the childhoodnature experience as it happens and consider how it is influencing their thinking or behavior.

Building on the tradition of retrospective SLE research, four authors in this section adopt novel approaches to reviewing childhood experience; Van Zalinge and Blom use an autoethnographic approach, while Black and McCree study their participants' memories of childhoodnature experiences in order to explore the links between SLE and their current professional concerns as educators. In a moving

account, Van Zalinge reflects on her experience of global mobility as a child and how this influenced her childhoodnature. This includes her experience of attending numerous international schools around the world as a "third culture kid," "by the age of 20, I had lived in 11 different countries and moved more than 18 times." She frames personal memories and critical moments through poetry and photographs to develop an autobiographical commentary. Her analysis suggests that a sense of belonging and security is a precursor to SLE without which the child may be detached from potential SLE. This is the case for all children, but especially relevant to children who experience disruption and loss in childhood through, for example, relocation. In a world where global mobility is growing, this area of research is especially pertinent and no more so than in the case of refugees. UNICEF (2016) report that child refugees increased by 75% in the previous 5 years and, at the time of writing, accounted for one in 200 children across the world.

In the second autoethnography, Blom reflects on her own experience as a child and as a mother in Australia to explore another new area of SLE research: childhoodnature parenting relationships. Her approach "draws on past memory data and artefacts to reflectively analyse visual research journal entries about my current perceptions of childhoodnature as a parent." Through this, Blom negotiates her own childhoodnature journey showing her experience with more than human nature changing "from a place of being, to a place of refuge and escape to now, nature as a parent." From this, Blom suggests that childhoodnature parenting should be a reflective process; this recognizes that parents are also role models for their children and thus can provide a "living inspiration" for how to be with and as nature, taking time to be present with nature.

In other retrospective research, Black's Chapter reports on research with two groups of 27 preservice early childhood educators studying a sustainability-focused undergraduate degree in Australia. The participants use narrative and arts-based methods to explore their personal childhoodnature experiences and then consider how this might support their current professional aspirations for working with young children. Black provides beautiful examples of her students' art and insightful narratives to reveal the wonder and importance of childhoodnature SLE and, similar to Green's findings, embodied ideas about nature relationships. In turn, this reignites the educators' commitment to working with young children and promoting experiences with natural environments. This recognized the way in which the educators themselves experienced more than human nature and natural environments "as places of being, belonging and becoming for children and families."

McCree similarly connects SLE to professional commitments by studying eight forest school trainees in England and their reasons to train. She asks "Why do Forest School practitioners choose their vocations? What role do significant life experiences play in their choices?" and responds through an ethnography of Forest School trainees using interviews and observation. Interestingly, McCree finds evidence of the impact not just of childhood SLE on reasons to train, but also views of the future environment using the concept "future shock" (Toffler, 1970). While SLE in childhood are a key driver for most of the trainees, a few disagree. Also influential are a passion for pedagogy, changes in the natural world, and a consequent

sense of loss, together with "a sense of responsibility, anger, fear and future shock." The role of negative experiences, including habitat loss and social justice concerns, aligns with findings from other SLE studies (Chawla, 1998a; Ceaser, 2015).

In a departure from previous SLE research, Pettersson's analysis of TV for children in Sweden draws on childhood sociology and visual studies; adopting a posthumanist stance, it employs discourse analysis to identify the child-nature relationship in TV, accounting for anthropocentric, and "adult-centric" views on childhoodnature. Pettersson justifies this focus by showing how public service TV is influential in the lives of Swedish children and that nature dominates TV content; hence watching TV could be seen as a potential SLE. The study samples TV content from 1980, 1992, and 2007 with additional discussion of content in 2017. Pettersson finds content represented in three ways: children outdoors, animals, and environmental issues. A detailed analysis shows overall that "the child-nature relationship represented here is more of a burden, because it positions children as becoming adults, rather than as being children in the present. And the responsibility for nature is thereby assigned to children." This study reinforces the view that SLE are socially, culturally, and historically influenced; Pettersson argues that, in the case of Sweden, "it is difficult to even imagine a childhood that is not lived in a close relationship with nature and that is not ready to save it."

Working with Theory

As discussed earlier, SLE research has been challenged for a lack of theoretical framing. While there has been some development in this respect (see, for example, Williams and Chawla, 2016), the authors in this section address this theoretical gap by working with a number of theoretical frames, as Pettersson's study, discussed above, illustrates. Some of the authors take productive forays into learning and child development theory as a lens for exploring and interpreting childhoodnature SLE. For example, Blom uses and develops Bronfenbrenner's socioecological systems theory of child development in exploring parenting relationships for childhoodnature. Like Davis and Elliot (this Handbook), Blom critiques Bronfenbrenner's model for its absence of nature and, as such, develops an adapted model to redress this. A number of authors reference social learning theories (Blom, Van Zalinge and D'Amore and Chawla) and this would seem to be a productive theoretical lens for SLE researchers; in part, this is due to the importance of children learning from more experienced others in groups and communities by observing and participating in (environmental) activity (Rogoff, 1990). More broadly, D'Amore and Chawla discuss learning and child development theories relevant to SLE research, arguing that "key experiences identified in past (SLE) studies are not surprising: they represent basic processes of learning agency in the world, learning what to notice and value, and developing a self-identity related to the environment." Theories considered include those associated with learning, agency, motivation, and a sense of competence; social modeling and apprenticeship; sympathy and stewardship; and environmental identity.

In response to the underuse of identity theory to inform SLE research, D'Amore and Chawla, McCree and Van Zalinge draw on environmental identity theory

(Clayton, 2003) and ecological identity theory (Thomashow, 1996). Both McCree and D'Amore and Chawla develop these ideas by arguing that ecological or environmental identity cannot be severed from social identity. McCree offers ecosocial identity theory, the ongoing construction of self as part of nature and society, postulating that "we do not have an authentic self that pre-dates our social self, or a relationship with nature that excludes society; we are social beings. Similarly, we do not have an exclusively social self without our biological nature; we are natural beings." D'Amore and Chawla argue that social environmental identity needs to be considered alongside ecological identity as manifested in childhood experience around environmental and nature-based organization in many SLE studies. In her autoethnography, Van Zalinge considers the influence of childhoodnature experience as a globally mobile child on her own environmental identity. In so doing, she, like the authors above, acknowledges the significance of the social and cultural contexts in the development of her personal environmental identity.

Insights into Childhoodnature

The research discussed in this section of the Handbook illustrates the ways in which SLE research can contribute to the concept of childhoodnature. As such, the following discussion elicits a number of insights from the chapters which may serve to support and challenge our childhoodnature work.

Embodied Childhoodnature

Childhoodnature experience is not just conceptual, it is embodied and cannot necessarily be put into words (see, for example, Green, Black). The idea of embodied experience in childhoodnature is sympathetic to Ingold's (2000, 2007) "dwelling perspective" in which it is argued that humans instinctively "dwell" in the world so that environmental experience represents an emergent intertwining of perception and world. This also reflects Cele's notions of embodied knowledge, "the kind of knowledge our bodies collect for us when we interact with a place frequently or intensely" (Cele, 2006 p. 9). Therefore, when developing methodologies, researchers interested in childhoodnature and SLE should be cognizant of embodied knowledge in developing tools that enable access to it. For example, a number of the authors in this section employ sensory encounters and art work. Two of the studies in this section adopt a phenomenological view (Green; Porto and Kroeger) in exploring children's prereflective experience in childhoodnature as it occurs; in early childhood, the more natural embodied dimension of experience perhaps predates the more complex cognitive elements that require language. This section has illustrated that the consideration, with children and adults, of SLE in childhoodnature can elucidate embodied knowledge and help us to understand more about childhoodnature.

The Family of Childhoodnature

Authors in this section have reminded us that children interact with non-human nature in ways that might be different to that of adults and that the child's developing physiology is stimulated when in natural environments, for example, through movement, exploration, and imaginary play (Green, Blom). This supports previous research findings that "children have different experiences of the (natural) environment to adults and value different aspects of it" (Barratt Hacking et al., 2013, p. 456). Authors also show how young children want to belong and be cared for (Van Zalinge) and that they seem to have a natural affinity with the rest of nature (Porto and Kroeger). Given sustained time and experience in natural environments, for example, visiting the same place repeatedly (see also Barratt et al., 2014), children recognize themselves as a part of the wider family of nature. The metaphor of family seems helpful in this respect; when the rest of nature is viewed as family children recognize the importance of caring, just as they want to be cared for, have friends and family, and belong. Blom and Porto and Kroeger remind us that in this way, we can think of non-human nature as family, parent and teacher. So, childhoodnature is not just in the individual realm, it is being part of nature, human and non-human, and recognizing oneself as nature within the wider family of nature.

Cultural Participation and Childhoodnature

A number of authors in this section have shown that childhoodnature SLE are culturally influenced. Thus, depending on the child's cultural traditions and norms, children may think about nature and interact with non-human nature in differing ways. Blom and D'Amore and Chawla found cultures of parenting and parenting style influential in childhoodnature, for example, permissive and reflective parenting. Pettersson shows how culturally Swedish attitudes to nature and the outdoors influences the type and quantity of nature TV that children grow up with in this context.

Ideas about cultural impacts on childhoodnature reflect sociocultural historical perspectives on learning. This theoretical lens suggests that children's learning and development is influenced through observing and participating in sociocultural activity within families and the wider community and environment (Rogoff, 1990) as D'Amore and Chawla point out. Rogoff's more recent research with indigenous communities in the Americas, "Learning by Observing and Pitching In (LOPI)" (2014), advances a model for understanding children's learning through experience. This model would seem to speak to SLE research in its explanation of the efficacy of participatory and apprenticeship learning in families and communities including environmental organizations. D'Amore and Chawla's research with Family Nature Clubs suggests that children find participating in collective environmental action stimulating and memorable. Others have suggested that skills around environmental action represent "empowerment variables," that is, variables that contribute to pro-environmental behavior (Hungerford and Volk, 1990). Children aspire to do what the more knowledgeable others or role models do (peers, older children and

adults/leaders) by participating or leading and by contributing to democratic decision making and change. A caveat is in relation to the political and cultural setting where opportunities to engage in political debate and activism of any kind may be constrained. Further, Pettersson suggests some caution is required in asking children to "shoulder the burden" of problems to do with the natural environment; children need to work alongside role models and see that others are contributing.

Childhoodnature Loss

The loss of nature and even some of the words used to describe nature (Macfarlane and Morris, 2017) is of significant concern in the Anthropocene. Emerging research on the new concept of ecological grief (Cunsolo and Ellis, 2018) identifies a "legitimate form of grief felt in response to experienced or anticipated losses in the natural world" (p. 279). This may provide new insights into the significance of ecological loss in childhoodnature. Cunsolo and Ellis argue that "ecological grief will become an increasingly common human response to the losses encountered in the Anthropocene" (p. 279). A response to this form of grief is evident in McCree's study of Forest School practitioners' SLE in which negative experiences of habitat change, environmental loss, concerns, and future fears became key motivations for the practitioners' childhoodnature practice. McCree, citing Toffler (1970), helpfully relates this to the concept of "future shock" where humans become disoriented and distressed when there is rapid and ambiguous change to deal with. McCree argues that, with the onset of the Anthropocene, "we all share a future shock upgraded for the twenty-first century and writ large into the geological record." Other section authors found that adult desires to go back to nature, as it was in their own childhoodnature, accelerates the desire to provide children with SLE and counteract potential loss (Porto and Kroeger; Blom). So, the loss these authors refer to is not solely about the loss of the natural world, but also the loss of experience. This reflects Pyle's notion of the "extinction of experience" where "the loss of neighbourhood species endangers our experience of nature. If a species becomes extinct within our own radius of reach (smaller for the very old, very young, disabled and poor) it might as well be gone altogether, in one important sense. To those whose access suffers by it, local extinction has much the same result as global eradication" (2002 p. 261). Previous studies in SLE have found that positive *and* negative forms of environmental experience can provide SLE; studies in this section support this and show further how ecological grief and concerns for the future hold significance as prompts for childhoodnature practice.

Developing Childhoodnature and Significant Life Experiences Methodologies

The authors in this section have demonstrated how novel directions and approaches in SLE research can further our understanding of childhoodnature in theory and

practice. While some of the authors in this section draw on the more established autobiographical methodologies of SLE research (Black; Blom; McCree; Van Zalinge; and D'Amore and Chawla), they adapt this approach by combining it with methodologies that access childhoodnature experience in the present. In this way, the research represents a sort of time shifting; by revisiting and connecting past and present, these authors are able to explore the relationships between past and present childhoodnature SLE. The authors focus on how practitioners' or parents'/carers' personal SLE in childhood influence the way they now think about and practice (or parent) with childhoodnature. Importantly, reflecting on past SLE appears to rekindle motivations for supporting childhoodnature in the present, for the future. Other authors focus more on SLE and childhoodnature in real time using child-framed approaches (Barratt et al., 2014; Barratt Hacking et al., 2013; Cutter-Mackenzie, 2009). These approaches recognize that "children are experts in their everyday experience, have a particular knowledge set in relation to the (local) environment and act as agents within it" (Barratt Hacking et al., 2013, p. 454) and that "children can develop and use innovative child-friendly research methods" (p. 456). Adopting a phenomenological lens, Green and Porto and Kroeger invite children, as co-researchers, to share prereflective and self-conscious awareness of childhoodnature experience as it happens in forms of their choice. This illustrates how children, including the very young, can have agency within childhoodnature research. Involving the children as co-researchers enables in-depth insights into childhoodnature experience, together with children's personal perspectives on its significance.

Overall

Research in this section has shown that SLE in childhoodnature would appear to be a combination of single momentous events and continuous or regular experience over time. Furthermore, SLE are often intergenerational and sociocultural in character and enable children to observe, participate, and/or lead in environmental action. The research also suggests that, for childhoodnature experience to be significant, children need to be self aware in the experience. And, in considering how to apply SLE to childhoodnature in practice, authors have demonstrated the value of exploring the notions of SLE and childhoodnature with educational professionals.

Looking Forward

Nevertheless, further work remains in seeking new avenues to pursue around contexts, methodologies, and theories for SLE in childhoodnature research. Child-framed SLE research in real time represents a worthwhile avenue for developing methodologies in the fields of SLE and childhoodnature. But what might such studies tell us in the longer term? What remains is a need for longitudinal studies that explore long-term impact of SLE in childhoodnature across the lifespan. Importantly, there is

a pressing need for further SLE research in contexts of disadvantage, to do with childhoodnature experience in the majority world, urban poverty or forced migration and refugees. For example, how does experience of disadvantage in such contexts influence childhoodnature? We would ague that SLE needs to better represent the contemporary realities of childhoodnature and natural environments worldwide.

In the context of unprecented change to (and loss of) our natural habitat in the Anthropocene, a key challenge is to reconcile the current trajectory with the impact on children's physical and psychological well-being. Children are having to accommodate accelerating change; this impacts on childhoodnature and more than human nature now and for the future. Together, the research represented in this section affords new understandings of how childhoodnature is experienced and what might influence children's current and future environmental behavior. Future work in SLE and childhoodnature needs to promote synergies between research and practice so that educational systems can be responsive to ongoing changes in child-hoodnature. Experience within the natural world should not be a marginal activity in education; childhoodnature should be at the heart of any education system. This section, with its focus on what is significant about childhoodnature experience, invites us to rethink education and consider a paradigm shift in relation to the sociocultural implications of childhoodnature for education systems.

Cross-References

▶ Becoming Companions: Compositions of Childhoodnature Relation, Sense, Poet-ics, and Imagining by Children and Young People
▶ Child-Nature Interaction in a Forest Preschool
▶ Childhoodnature Alternatives: Adolescents in India, Nepal, and Bangladesh Explore Their Nature Connectedness
▶ Nature Experience Areas: Rediscovering the Potential of Nature for Children's Development
▶ Toward Decolonizing Nature-Based Pedagogies: The Importance of Sociocultural History and Socio-materiality in Mediating Children's Connectedness-with-Nature
▶ Third Culture Kids and Experiences of Places

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