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Challenges in Reorienting Early Childhood Education for Sustainability in Initial Teacher Education: Transforming, Creating and Expanding

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Abstract: This editorial essay introduces a special issue on education for sustainability, early childhood education and initial teacher education. We adopt a duoethnographic approach to first provide an overview of the issues, gaps, tensions and challenges in past and current trends in early childhood education for sustainability (ECEfS) in initial teacher education (ITE). Then, from our perspectives as four teacher educators located in disparate regions of the world: Finland, Turkiye, Canada, and Australia, we invite readers into our own stories as a starting place to explore the papers within the special issue. Through this dynamic interplay of four critically questioning minds and five papers, we aim to transform, create, and expand understanding of the interplay between ECEfS and ITE. We acknowledge that readers will derive their own understandings and responses from the papers, hence, our interpretations are not prescriptive, but rather aim to provoke further contributions to an emerging and developing field.

Early Childhood Education for Sustainability and Initial Teacher Education

The embedding of education for sustainability (EfS) into initial teacher education (ITE) is a recognised strategy for building new teachers' capacity to prepare future citizens to manage critical sustainability challenges like climate change, deforestation, pollution, social and cultural justice, and access to clean water and housing. This is particularly important for those studying to be early childhood education teachers because the early years are foundational for the development of lifelong pro-environmental values, attitudes, behaviours, and skills (Pramling Samuelsson, 2014) as well as for their capacity to contribute to sustainability, both now and in the future (Grindheim et al, 2019). Hence, teachers must be capable of addressing the significant sustainability issues of our time with big ramifications for young people through teaching and learning (Davis & Davis, 2020). Unless pre-service early childhood teachers develop the necessary dispositions required to manage sustainability challenges, it is unlikely that they, in turn, will be able to prepare the children they teach. Building the capacity of educators to address sustainability issues and more effectively deliver EfS was declared as one of the five priority action areas of the United Nations Educational, Scientific and Cultural Organisation (UNESCO) Roadmap for implementing a

Global Action Programme on Education for Sustainable Development (UNESCO, 2014), and is supported by the UNESCO Chair in Reorienting Education towards Sustainability (York University, n.d.). Further, UNESCO (2014) recognises that early childhood education (ECE) has powerful potential to play a significant role in "preparing present and future citizens and in aiding societies to make the necessary transitions to sustainability" (p. 70). Most recently, the importance of sustainability capable citizens has been internationally recognised through the United Nations Sustainable Development Goal 4, target 4.7, that by 2030 all learners will have the necessary knowledge and skills to promote sustainable development (UNESCO, 2019).

Early childhood is a critical phase for developing values, attitudes, behaviours, skills, and habits that may be reflected throughout life (Pramling Samuelsson & Kaga, 2008; Weldemariam & Wals, 2020). This is especially significant to EfS, which aims for learners to develop the necessary foundational knowledge, capabilities, and dispositions to respond to complex sustainability issues (Evans et al., 2017). Children are grossly disadvantaged and critically impacted by the diverse effects of unsustainable practices such as poverty, lack of access to clean water, pollution, overcrowding, and more. Young children have a profound ability and right to contribute to sustainable solutions, particularly within their own communities in accordance with the United Nations International Children's Fund (UNICEF) (1989). A recent report by the World Health Organisation (WHO), UNICEF, and the Lancet Commission (WHO-UNICEF, 2020) argues that the sustainability crisis needs to be addressed with a special focus on improving the lives of children. Therefore, early childhood educators have a critical role to play in equipping children with lifelong capacities for sustainability throughout the early phase of life through, for example, education based on arts and crafts (Furu, 2019).

How ECE teacher educators take up EfS in the context of ECEfS is critically important. This is particularly the case under Coronavirus disease pandemic conditions where traditional modes of teaching are being challenged by new technologies and different interactive platforms for teaching and learning. Providing opportunities for children's active participation is key to supporting their resilience during the pandemic and mounting sustainability crises (Heikkilä et al., 2020). Årlemalm-Hagsér and Elliott (2020) argue that EfS in ECE is complex and involves bridging the knowledge-practice and rhetoric-reality gaps, as well as challenging the "regimes of truth" around children, childhood, ECE, nature and culture (p.8-9). Further, they encourage us to challenge current taken-for-granted everyday practices in ECE. Fundamentally, paradigm shifts are needed to foster new ways of engaging with EfS within teacher education (Elliott et al., 2017). This calls for a socially transformative process capable of reconfiguring the thinking and actions of educators and the learners they teach. Such an approach promotes respect, mutuality, connectedness, and interdependence, and consequently fosters ways to act together for a sustainable world (Elliott, 2017).

Problematic is a massive research hole in ECEfS (Davis & Davis, 2020). The hole limits the capacity for a research-informed approach capable of robustly building early childhood teacher educators' capacity. The limited research available identifies further studies are needed on ways to enhance early childhood pre-service teachers' sustainability knowledge and skills, especially to build their capacity to be transformative agents and motivators for change, once they graduate (Årlemalm-Hagsér, 2017). This special issue directly responds to this call. Our intent is to explore, inform and progress practice related to the embedding of ECEfS in ITE. By doing so we aim to provide a number of provocations for ECE teacher educators wishing to make their teaching and learning relevant to current contexts and generations, who will be faced with managing the effects of decades of unsustainable practices.

An important part of any research work is deciding how to engage - the approach and methods that will best serve the purpose. In the case of this special issue, we adopted the methodology of duoethnography to help us engage with the ideas of the contributing authors. We begin by explaining what duoethnography is and how it serves the work in this special issue. Following, we offer our four individual stories of how we have come to understand ECEfS at this moment in time. Our stories provide a starting place and an invitation to connect, reflect, inspire, and provoke thinking and acting for change within ECEfS, mainly to help address the gaps within ECE in ITE programmes that exist globally (Alici, 2020; Ärlemalm-Hagsér, 2017, Davis & Davis, 2020). This lays the foundation for our commentary on this special issue.

Our Methodological Contribution

Duoethnography is an emerging form of collaborative ethnography. The methodology calls on the practices of auto-ethnography (see Ellis, 2008) and shared dialogue to juxtapose different understandings and experiences of two or more people in collaboration with each other, who are seeking the same research purpose (Norris & Sawyer, 2012). The aim is to create a more complex, inclusive, and nuanced understanding of critical tensions, insights, and perspectives experienced (Sawyer & Liggett, 2012). Duoethnography has several distinguishing features: Prioritisation of differences over similarities; learning over professing; and multiple, dialogic voices with a focus on life histories (Norris & Sawyer, 2012). As such, duoethnography promotes inquiry into an issue, problem, or phenomenon through multiple points of view presented in the form of different researcher voices in a dialogue genre that functions as a mediating device to promote new learning (Norris & Sawyer, 2012). Importantly, each point of view is made explicit and researchers focus on the differences between each person's perspectives (rather than similarities, as is the norm) to reconceptualise knowledge and understandings.

The field of ECEfS, and ECEfS in ITE in particular, is still in the infancy stage. Methodologically, the corpus of approaches on offer range from positivism to interpretivism, critical, post-humanism, and advocacy, although a disposition for interpretive research dominates (Sommerville & Williams, 2015). Such approaches are commonly given life through action research and case studies that apply an array of methods to look for similarities as the basis for developing knowledge and understanding in ECEfS (see, for example, Davis & Elliott, 2014). In this research, we use duoethnography to contrast and analyse the intersection of ECEfS and ITE and bring to the fore critical issues, gaps, tensions, and challenges, bearing in mind our own histories with ECEfS in ITE across a range of contexts.

Duoethnography turns the normative research approach upside down by positioning one's own experiences as the starting point (Smith, 2013). Co-researchers draw on their own histories to contrast, analyse, critique, and deconstruct a phenomenon or experience (Norris et al., 2014). Following this, co-researchers interrogate each other's narratives, focusing on differences to expand the peripheries of knowledge and understanding (Walker & Di Niro, 2019). In this case, we began by individually writing our histories with ECEfS, reflecting upon and storying our own journeys, tensions, and lived experiences. Like others, we asked "how have we come to know the world, and after this conversation, what meanings do we wish to maintain, modify, or reject?" (Norris & Sawyer, 2012, p. 11). The storying of our own thinking on ECEfS offered a non-prescriptive method to come to know ourselves and each other. Regular meetings invited critical conversations and invitations to interrupt normative practice and thinking-as-usual which enabled us to recognise gaps, silences and

contradictions in our various positions. Below we offer our stories as an invitation for readers to revisit their own stories, and then juxtapose them with ours as a way for all of us to collectively engage and transform our understandings of EfS in ITE.

Debra's Story

As an early childhood educator in Canada in the 1990s, I was unaware of the concept of sustainability and more focused on the holistic development of children in my care. I worked within the patchwork of Canada's early childhood and care system, a market delivery system that persists to the current day. I was educated as an ECE in one province (Ontario) and worked in another (British Columbia), and few differences were evident to me between these regions. In my early career, I worked at a non-profit centre, located within an inner-city of an industrial area. Many of the children and families who attended the centre faced hardships associated with marginalisation or disadvantage (e.g., poverty, unstable employment, lack of affordable housing). Despite being located within one of the most admired cities and regions of Canada for its natural beauty (Victoria, BC), the closest 'green space' was several blocks away and surrounded on three sides by large cement walls of various businesses. In my practice, nature was thought of as someplace to 'go to', outside of educators and the children. These early notions and idealization of nature certainly reinscribed what Audley, Stein, and Ginsburg (2020) label as "anthropocentric ecocultural identities" (p. 445). The authors explain "ecocultural identity is influenced by how one understands oneself in relation to one's participation in community activities that occur in and with the life systems that surround and include us. It is within this web of life that humans develop simultaneously a sense of vulnerability and empowerment" (p 446). Albeit, EfS was not included within my own ITE programme, nor is it currently a core intentional focus of many of the curriculum frameworks that guide ECEC across Canada today.

In my personal life, environmental sustainability has always been a core value that I aim to emulate within my everyday choices and actions. Living on an island on the Pacific Ocean side of Canada certainly triggers a recognition of the uniqueness and fragility of ecosystems. More recently, increasing frequencies and intensities of droughts, forest fires, floods, rapid urbanisation, loss of habitats, and unprecedented heat have been vivid and painful reminders of the frailty of the world. In 2021, a 'heat dome' of extreme temperatures held much of the island hostage and resulted in close to 600 human deaths across the province (mostly among vulnerable and disadvantaged groups), as well as the loss of billions of animals and massive devastation of flora. As I acknowledge my privilege and ability to cower in my home's underground basement to escape the record-setting heat, I reminisced on my own history as an educator and my current role as a teacher-educator. Am I more conscious now of the need to *act* for sustainability?

Certainly, within my early career practitioner experiences, and similar to many early childhood programmes currently operating across Canada, one will find excellent nature-based practices, gardening, recycling, an emphasis on natural or upcycled materials, and much more. But in Canada, we seem to have arrived at this juncture by happenstance without the criticality and examination of key questions such as why EfS is important within ECEC, what narrative and counter-narratives are significant, and how do we prepare educators within ITE programmes?

Taking up this challenge, about four years ago I created two courses on EfS specific for educators, one at the undergraduate level and the other at the graduate level. I felt emboldened by this small act of contribution but also recognise the long uphill road to ensure EfS is embedded within all ITE programmes in Canada. I have revisited the course syllabi

periodically throughout my two-year conversations with Snowy, Christin, and Sule, while working collaboratively across time and space on this special issue. I have used these moments and opportunities to reminisce about my own story to help question, frame, and reframe experiences, interactions, knowledge, and theoretical orientations of ECEfS for both myself and student-teachers. I feel a renewed sense of urgency to prepare educators for their roles as I simultaneously engage in the process of reflexivity, critical discourse, and theoretical-pedagogical transformation.

Snowy's Story

I came to EfS as a third-year Bachelor of Education (Honours) student. The programme required me to undertake a small research project on an education issue of my choice. As I pondered all the possible educational issues that interested me, day after day I drove past my local school with a big white and blue sign hanging on the gate: “we are proud to be a reef guardian school”. And so, as a lover of the Great Barrier Reef, and with the prospect of an investigation, I began what has become a personal and career-long embodiment of EfS. I completed my Honours and then PhD research on EfS in school education, then as a teacher education academic have dedicated my research to EfS in ITE.



EfS was not included in my ITE, although many schools throughout Australia engage with EfS through initiatives such as the Reef Guardian Schools programme. However, most Australian teachers are not, and never have been, formally engaged in EfS as part of their ITE. In schools, EfS is almost always an added extra, usually led by an enthusiastic teacher with a personal interest in sustainability. In ITE, a few programmes offer EfS as a compulsory or elective subject. More common, and similar to schools, initiatives to include EfS in ITE are typically led by teacher educators with a personal interest/passion in sustainability. This is most often done by including EfS into a component of a compulsory subject as one of several topics in lectures, workshops, seminars and/or online resources and assessment tasks.

The university where I work has made a commitment to the principles of sustainability. The commitment is actioned broadly through the University's Strategic Intent “to create a brighter future for life in the tropics worldwide through graduates and discoveries that make a difference” (<https://www.jcu.edu.au/about-jcu/strategic-intent>), a Sustainability Advisory Committee, and Sustainability Action Group. The University is also a signatory to the Talloires Declaration and the UN Sustainable Development Goals. The SDGs are promoted through teaching, research and community engagement, and by seeking to make local communities more prosperous, sustainable and inclusive. How this plays out differs across the various levels of the University. For example, at the whole-of-university level, the University supports TropEco, a sustainability programme that encourages the use of sustainable transport, food production, supports community gardens, and a war on the waste initiative. At the group/division/faculty level, the University supports a Green Impact Staff Sustainability Challenge to encourage teams of two or more staff members to take actions for sustainability. At the individual level, a social sustainability initiative called Feel Good Fridays is offered to promote staff wellbeing and encourage staff to participate in fun activities. The translation of such initiatives at the faculty and/or programme level also varies. In the Bachelor of Education (Primary and Early Childhood) we have a number of core subjects that speak to sustainability and EfS. In the first year of the programme, teacher education students develop an understanding of the underlying science and complexity of

global and local social-ecological systems and challenges through a sustainability and science education subject, *Science and Sustainability in Education*. Within the last year of the programme, teacher education students are engaged in planning, implementing and reflecting on EfS issues, actions and learning experiences across diverse school and community contexts through two subjects, *Leading Wellbeing and Sustainability in Learning Communities* and *Service Learning for Sustainable Futures*. The aim of embedding EfS subjects into the education degree is to shape graduate teachers who can “contribute to making a difference” in their communities (James Cook University, 2017, p. 15).

Christin’s Story

Professionally, I was first educated as a speech therapist, with a master's degree in philosophy. After a couple of years in clinical work, I was invited to lecture on communication and language at the ECE special teacher education forum at the Åbo Akademi University in Finland. One thing led to another, so in a few years, I found myself teaching and writing a doctoral thesis within the teacher education programme at the Faculty of Education. My focus was primarily on voice, communication, and interpersonal relationships as crucial elements in the development of teacher professionalism and my research was based on relational ontology. Environmental issues were something I considered part of my private life. I viewed my own fields of professional interest as firmly related to social and cultural sustainability, but only started to grasp the implications of a relational worldview when it came to education during the unfolding sustainability crises.

Having completed my doctoral degree in 2011, I was offered a job in the ECE teacher education programme. I was responsible for a broad range of courses and involved in daily encounters with students. In our ongoing dialogue about the foundations of early childhood care and education, we kept coming back to some important but challenging issues. How can all children feel that they are seen, heard, and included? How can kindness, empathy, and learning to care for oneself and others be embedded in ECE? How can children learn to live peacefully together? How can they learn to contribute to a better world? And, perhaps most importantly, what could ECE teacher professionalism be in this changing world?

In my private life, both environmental and sustainability issues were very much at the fore. I was involved in local protests against environmentally hazardous projects and in pro-environmental non-governmental organisations (NGOs). I was increasingly interested in the links between the inner and outer dimensions of sustainability, both at a personal and a societal level. I was increasingly curious to know how these issues were addressed in ECE teacher education. I explored Finnish national core curricula, raised sustainability issues in collegial discussions, and engaged in small-scale research within ECEfS. Drawing upon both my personal experiences and my scientific work, I could see how themes related to social and cultural dimensions of sustainability were embedded within a spectrum of courses, whilst ecological or economic sustainability was hardly visible at all. I found that the narrative about sustainability in ITE in Finland consisted of bits and pieces that were hardly linked together. The legislation was crystal clear: ECE must give every child a necessary foundation to live sustainably. Thus, sustainability could be seen as a children’s rights issue. National core curricula highlighted sustainability as an important topic, but said nothing about how EfS could or should be realised. Further, there was considerable weakness in student teachers and professionals’ understanding of EfS. Teacher education programmes addressed sustainability in a surprisingly limited way, and the few continuous professional development courses that targeted EfS reached only a small part of the workforce. I was facing some inconvenient gaps between policy and practice. I was ready to integrate my private and professional life. I was

eager to do what I could to equip myself, student teachers, and children in ECE to meet the challenges of a rapidly changing world.

I put sustainability first. In every course I taught, I tried to view the topic from a sustainability perspective. I practiced some deep listening. To hold space for anxieties and worries among students, I included more artistic approaches to learning. I dared to address the existential aspects of EfS. I engaged with researchers at other universities and together we established a national interdisciplinary network for environmental and sustainability education and learned to see things from multiple perspectives. I made plans for research projects and developmental projects and applied for money. I invited guest lecturers, wrote blog pieces, and gave some public talks. I engaged in collaborations with NGOs to highlight sustainability in the realm of early childhood education and care. I went to international conferences and met with researchers and scholars who were expressing the same urge to act. We established a European special interest group and initiated international Forums to exchange ideas and practices. We promoted research collaborations and initiated special issues in scientific journals. Perhaps most importantly, I made space for my own need for nature connectedness, for arts and crafts, and for building active hope. As you cannot pour from an empty vessel.

And here I am. A lot more knowledgeable. A lot more humble. A lot more hopeful. We are in this together. We are going to build resilience. We will find multiple paths forward. We can create a more sustainable future.

Sule's Story

The root of my interest in EfS derived from my childhood experiences, which seem very different to those of modern children. It seems to me now that access to natural areas in the local environment or family-friendly urban environments, and overall positive experiences with unstructured outdoor play are increasingly challenging for children and their parents. Perhaps this is due to changing conditions around the world such as the need for both parents to work long hours, increasing use of electronic media, traffic rates, danger, and violence.

When I think about my own childhood experiences, I recall vivid images of wonder, unstructured play, risk, freedom, and pure joy. At the time, I was living in one of the smaller and green suburbs of a big city in the Aegean Region of Turkiye. Within a 10-minute drive from my home, my family and I were able to access the local forest and lake and spend time in nature. We camped in the forest, climbed its trees, explored ants, mushrooms and bryophytes, and ate wild strawberries and mountain thyme. We listened to bird sounds, observing and discovering the changes, flows, and movements of nature in each season. When I was in primary school, I engaged with local organisations cleaning up garbage and tree planting. I also joined a scouting group. As a scout, I engaged in many activities such as camping, planting trees, and growing plants in my school garden. When I was in middle and high school, I continued to volunteer for tree planting activities with local NGOs and joined the school's environment protection club, where we also organised rubbish clean-up and tree planting days.

Throughout my post-secondary education journey environmental issues continued to be a core focus as I re-explored ideas about the balance of the environment and wellbeing. To continue to contribute, I became a member and volunteer of the Turkish Foundation for Combating Soil Erosion, Reforestation and the Protection of Natural Habitats (TEMA), a group that since 1992 has been dedicated to creating effective and conscious public opinion on environmental problems, specifically soil erosion, deforestation, desertification, climate

change and biodiversity loss. Additionally, I worked on organic agriculture to focus people's attention on food security and genetically modified organisms.

Raising each individual's awareness of their responsibility to leave a sustainable world for future generations became my own personal mantra in following the World Commission on Environmental and Development (WECD) who in 1987 argued for sustainable development that "meets the needs of the present without compromising the ability of future generations to meet their needs" (p. 43). Many national and international organisations and even UNESCO struggle to mobilise the world to recognise and address complex issues such as climate change. Given the complexity of the issues, I wondered how I could contribute. As a researcher, I made ECE my primary focus because I realised the significance of early experiences. My own childhood reflected how early experiences can shape sustainability perspectives and how more ecoculturally minded behaviours can be fostered in early childhood. I undertook initiatives such as working with children, designing and implementing professional learning for educators, and networking and participating with like-minded EfS scholars around the world.

Now, as an emerging scholar and researcher, fostering future teachers' abilities to think and act for sustainability is my primary goal. I continue to deepen my understanding of the social, cultural, and political interrelations that impact sustainability. I use this knowledge to develop learning experiences for pre-service and in-service teachers, as well as for children. For example, recently I redesigned and instructed a new compulsory course within the undergraduate program at my university, wherein I shifted and broadened the focus from a traditional environmental education approach to a more emergent EfS framework that allows me to adopt a critical theory perspective. The refreshed approach provides the platform for students to adopt active learning strategies and conduct collaborative action research projects focused on the Sustainable Development Goals, that are impactful and meaningful within their own communities.

First Moment of Clarity: There is no Linear Path

As our own personal stories foretell, there is no linear path to embracing EfS, nor do we claim to have the answer on how to prepare educators within ECE in ITE programmes. Certainly, starting with students' subjective experiences and having them narrate their own stories would invite opportunities to find both differences and commonalities. Interrogating these differences among students' personal stories can help query how biases within education have historically narrowed theoretical ECEfS discourses and limited pedagogical orientations. All four of us are embedded within systems of power/privilege and have had the luxury of learning from others, designing curricula, and developing our understandings and approaches in very organic and improvisational ways. Two of us have worked mostly pragmatically, focusing on educators' knowledge and dispositions within ITE programmes, whereas two have also affected systemic change through policy and national and international initiatives. These differences highlight the importance of *acting* versus waiting for *consensus*. Not all of the answers are available. For example, which theoretical disposition should be adopted/is most effective? Should the focus be on the impact of an individual's orientation or systemic change? Yet, the urgency remains clear - children and young people are bearing the "burdens of global unsustainability" (Davis & Davis, 2020, p. 122). Thus, we affirm that early childhood teacher educators in ITE programmes must act now!

Second Moment of Clarity: Perceptions and Practices are Shaped by the Personal and Professional

The dialogic process leading up to this editorial (both while reading each other's stories and during our monthly editor meetings) turned our attention towards the rhizomatic character of developing professional knowledge. When it comes to sustainability issues, there seems to be no sharp lines between the personal and the professional. Values, attitudes, knowledge, and the capacity to act are constructed from significant life experiences (Chawla, 1998; 1999; 2001; Palmer et al, 1998), some of which are made in one's personal life and others in one's professional life. There also seems to be a constant flux back and forth between theoretical and practical insights, between understandings constructed through reflection in solitude as well as understandings co-created in dialogue with other humans, but also the non-human. While formal education does play a foundational role, each of us have had the opportunity to transform in informal contexts as well. A further salient feature is that of friction, which was a driving force for our own engagement in sustainability matters in ECE. For each of us, discrepancies or dissonances played a crucial role in driving us towards change. This can be understood in terms of Jack Mezirow's (2000; 2009) theory of transformative education, where disorienting dilemmas are the key to change and/or learning. Hence, we want to underline the importance of paying attention to ITE students, not only as becoming teachers but also as humans. Further, there is a need to remain open to ITE students' experiences, opinions, feelings, and thoughts and turn these into valuable ingredients for sustainability education. This can lead to an education for constructive hope (Li & Monroe, 2019), where worries concerning climate or the environment can be met with compassion and through learning processes that build a sense of belonging, increase trust and strengthen participation.

Third Moment of Clarity: All Contexts Have Gaps

It occurred to us while reviewing the papers for this special issue, looking for gaps to plug in the work presented, that all contexts have gaps. A gap is a difference between a desired and actual state. There are knowledge gaps, theoretical gaps, practice gaps, and any combination of these, what academics call praxis (after Freire, 1970). When we compare an actual situation with an ideal, the results of the assessment process can reveal gaps. So, what is the gap in the body of work in this special issue? First, what is the ideal? The answer to the latter question will depend on who is setting the ideal. From our perspective, the ideal for ECEfS in ITE is a diverse representation of theory, knowledge, and practice. Albeit small, the sample of papers in this special issue points to a gap in the diversity of methodological, geographical, and cultural representation. All projects are designed from a post-positivist frame and draw on qualitative methodologies and methods. Three of the five papers are from Europe with two from Sweden and one from Malta. The other two papers are from Australia, a country with a similar worldview to Europe, and Ecuador, although the author of the Ecuadorian study is Canadian. Sweden, Ecuador, and Australia are multi-ethnic countries with recognition of the importance and significance of people from Indigenous heritage. Yet, these important views are not represented in the papers. This leads us to ask: What diverse stories are silenced by the mostly white, western representations of ECEfS in ITE? Should the field want to close this gap? Why? And how? Growing a field of knowledge requires research output from a broad spectrum of theoretical, descriptive, intervention, and evaluative studies from across different contexts. This is something to encourage in working towards closing the identified gaps in ECEfS in ITE.

Personal and professional experiences have helped inform our collective understanding of ECEfS. Next, we turn our attention towards the inspiring ideas from the papers within the special issue. We do so to further our own listening and attending and deepen our collective dialogue with the addition of varied perspectives.

What Matters in ECE in ITE?

Traditional discourses that have shaped much of the ECEfS literature within ECE-ITE, such as humanism; neo-liberalism, Eurocentrism, and colonialism have increasingly been called into question. In this special issue, Alex Berry interrupts human-centric discourses that separate and isolate the child from their contexts in *Weaving Child-Plastic Relations with Early Childhood Educators in the Ecuadorian Andes*. Places are inherently complex, alive, uncertain, and entangled with ‘others’. Thus, Berry advocates for ECE-ITE programmes to help prepare educators to be “increasingly attuned to what it might mean to consider environmental vulnerability as a foundational disposition for making curricula”. Similarly, Kassahun Weldemariam in *Challenging and Expanding Epistemic Assumptions in Teacher Education for ECEfS* offers the theoretical orientations inherent within posthumanism to disrupt epistemic and normative ontologies that have thus far worked to constrain ECEfS within ECE in ITE.

Nicole Greene, Vicki Christopher and Michelle Turner in *A Content Analysis of Documentation of Nature Play in Early Childhood Teacher Education Programme in Australia* turn our attention toward the links between nature play and sustainability stewardship. They uncover the overall lack of engagement with nature play in ITE programmes in Australia and discuss how the position of nature play and nature-based learning could be strengthened and offer a much-needed pathway and bridge for more focus on EfS within ECE. Mounting research regarding practices like nature play and nature-based learning needs to be integrated into ITE and made visible both in programme documents and in practice. This paper can be understood as a reflection of the ongoing tensions and worldviews towards understandings of EfS where humans and nature are better viewed as entangled, thus representing a shift toward relational ontologies. Perhaps it is time for ECE and ITE to start listening more to nature.

How Do We Get There?

Embedding EfS into ECE in ITE is an important research focus and established challenge. It is, therefore, no surprise that two papers in this special issue invite us to consider journeys that speak directly to the question of how to get there. Eva Ärlemalm-Hagsér, Laila Gustavsson, Susanne Thulin and Neus (Snowy) Evans expose a gap between the planned or intended and actual student learning outcomes related to ECEfS in a country where EfS is legislated across all levels of education. The intent is that all students graduate with the understanding and skills to apply the principles of sustainability within the context of their discipline or profession. However, little is known about the actual student learning outcomes related to EfS. In ECE, Arlemalm-Hagser et al. found that legislation and policy do not necessarily lead to ECE graduates with the necessary competencies to implement EfS in the workplace. Instead, ECE students graduate with different understandings of the what and how of EfS.

Spiteri advances a call for the reorientation of both in-service and pre-service ECE programmes towards sustainability by ensuring that systems thinking around critical local

environmental issues are introduced. Spiteri's study presents a unique context of challenging variables, such that education for environmental sustainability within the small island nation of Malta is not compulsory and learning about environmental and sustainability issues is not widely implemented by teachers. Although Spiteri found teachers held individualistic perspectives about environmental sustainability and did not often take global environmental problems and collective action into consideration, teachers' perceptions of environmental sustainability did influence their pedagogies in the classroom in important and generative ways, and perhaps can serve as a starting point for more systemic approaches to EfS within Malta and beyond.

Lingering Thoughts

Now, we return to our original question that shaped this process, "how have we come to know the world, and after this conversation, what meanings do we wish to maintain, modify, or reject?" (Norris & Sawyer, 2012, p. 11). We have come to know the world of EfS in ITE as white, middle-class women from the qualitative field of research. Hence, we bring a variety of similar and different perspectives and experiences. The five papers in this special issue tell diverse stories of engagement with ECEfS and offerings to ITE. The special issue offers three empirical, one review, and one conceptual study. Works emanate from various traditions of the qualitative field, mostly situated within the European context, with perhaps an overrepresentation from Sweden (two out of the five papers). Other papers are from Ecuador and Australia.

We acknowledge the limited representation of the special issue. Here, we raise the alarm and highlight the need to broaden this work to include others - the addition of voices traditionally silenced will help to counter the value-laden conventions and discourses of primarily humanist Western science orientations of EfS (for e.g., see Bignall et al., 2016).

And despite recommendations for a systemic approach to embedding EfS within ITE, uptake has been slow and piecemeal (Davis & Davis, 2020; Evans et al., 2017; Ferreira et al., 2019). Yet, the special issue collection seems to offer hope, insights, and confirmation - there is a dedicated group of researchers and teacher-educators embedding EfS within ECE in ITE from the far corners of the globe. Perhaps the time is now, and like Davis and Davis (2020), we invite the "ECE field [to unite] to push forward on this agenda... to advocate for the inclusion of EfS into teacher standards for all teachers" (p. 561). Surely, we owe this to future generations.

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