Promoting Transformative Practices for Sustainability in Early Childhood Education and Care

Cultivating Critical, Participatory and Emancipatory Approaches

Edited by
Fabio Dovigo
and Şule Alıcı

Towards an Ethical Praxis in Early Childhood

EECERA
European Early Childhood Education Research Association

ROUTLEDGE

PROMOTING TRANSFORMATIVE PRACTICES FOR SUSTAINABILITY IN EARLY CHILDHOOD EDUCATION AND CARE

Offering a fresh perspective on sustainability in the realm of Early Childhood Education and Care (ECEC), *Promoting Transformative Practices for Sustainability in Early Childhood Education and Care* invites educators, policymakers and researchers to rethink how young children's engagement with sustainability extends beyond nature experiences, promoting a richer, multi-dimensional understanding.

This unique book provides a wider understanding of the relationship between early childhood education and sustainability through a multi-faceted picture of the political, economic, social, cultural and natural dimensions embedded in sustainable policies and practices. Aligning with UNESCO's vision of sustainability, this book recognises the interdependencies between these dimensions, emphasising the importance of addressing intergenerational equity and social justice, especially for children to be prepared for and thrive in a rapidly evolving world. This book is structured in two main sections – the first explores innovative methodologies like sensory ethnography, constructivist Grounded Theory and critical participatory action research, while offering frameworks for effective education for sustainability (ECEfS); the second part evaluates recent ECEfS projects, focusing on promoting children's rights, agency and well-being, and highlights how shared leadership and advocacy can drive sustainable futures in ECEC settings.

By combining research-based insights with practical examples, this book is a valuable resource for educators seeking to implement transformative practices in ECEC. Its focus on empowering educators and fostering child-centred advocacy makes it an essential read for those committed to building a sustainable future through early education.

Fabio Dovigo is a Professor in the Department of Human Sciences at L'Aquila University, Italy.

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EECERA
European Early Childhood Education Research Association

Towards an Ethical Praxis in Early Childhood

Written in association with the European Early Childhood Education Research Association (EECERA), titles in this series will reflect the latest developments and most current research and practice in early childhood education on a global level. Feeding into and supporting the further development of the discipline as an exciting and urgent field of research and high academic endeavour, the series carries a particular focus on knowledge and reflection, which has huge relevance and topicality for those at the front line of decision making and professional practice.

Rather than following a linear approach of research to practice, this series offers a unique fusion of research, theoretical, conceptual and philosophical perspectives, values and ethics, and professional practice, which has been termed 'Ethical Praxis'.

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FOREWORD

Tony Bertram and Chris Pascal

Reflections on the Focus

At EECERA, we have noted that these last years have been relentless in the challenges we collectively face – the continuing COVID pandemic, climate change, economic downturn, population displacements on a massive scale and, shockingly, the continued war within Europe and continuing conflicts globally. We acknowledge that the accelerating scale and pace of these events demand that action to tackle them becomes ever more urgent as their environmental and humanitarian impact becomes ever clearer. We note that these exceptional challenges require every one of us to respond with generosity, solidarity, collective action and partnerships if we are to progress. These are all crises in which sustainability considerations are centrally placed. At EECERA, we are taking the concept of sustainability very seriously and working hard to become a sustainable organisation in all our actions and interpretations. The publication of this significant book in our Praxis Series exemplifies our commitment, which is also reflected in the Position Statement from our Special Interest Group on Sustainability which states that "Our EECERA Sustainability SIG draws on current evidence to offer a stance about sustainability in early childhood education and resolutions for moving forward to secure children's present well-being and futures in uncertain global times….We seek to raise the profile of early childhood education in this arena and draw on and extend both children and practitioners' knowledges and skills about sustainability*". chrome-extension.*

(https://www.eecera.org/wp-content/uploads/2023/09/Sustainability-SIG-Position-statement-FINAL-19-09-2023.pdf)

This scholarly, internationally informed and ambitious book entitled *Promoting Transformative Practices for Sustainability in Early Childhood Education and Care: Cultivating Critical, Participatory and Emancipatory Educational Approaches,* edited by Fabio Dovigo and Şule Alıcı, addresses this commitment and provides the sixteenth book in the EECERA Ethical Praxis book series, offering an urgent and vital agenda for our re-thinking. This book aims to go beyond a simple snapshot of updated practices in the field of ECEfS, and as the editors promise, to *"*delve into the ontological, epistemological, ethical and methodological implications of designing, carrying out and evaluating ECEfS practices through critical pedagogical reflection. Via this book, rich and robust studies from different countries are shared to discuss and critique*"*. The topic and expectations for providing research and practice guidance moving forward in ECEfS and meeting the SDGs are of great interest and obviously timely and appealing to the field. This book offers a valuable and much-needed reflection on how the ECE sector might better understand the ECEfS and respond to the challenges it brings. We believe this book provides a timely contribution to transforming the quality of early education as we consider how we move forward in a post-pandemic and post-Anthropocene world, so that all involved in ECE carefully consider how to achieve the Sustainable Development Goals.

The editors write optimistically that this book *"*aims to provide a comprehensive framework for integrating sustainability into ECEC. By drawing on a wide range of theoretical perspectives and practical examples, this book seeks to inspire and guide educators in fostering critical, participatory and emancipatory approaches to sustainability. As we face unprecedented global challenges, the role of early childhood education in building a sustainable future has never been more critical. Through collective action and innovative practices, we can empower young children to become active agents of change, contributing to transform a more sustainable and just world*"*. We at EECERA could not be more supportive of this aspiration and belief in the role of early childhood education to empower young children to lead this change agenda, which will take generations of children to fully realise. This book exemplifies how the EECERA community can act as an agent of change for our time. This collection of research-informed chapters from an internationally diverse and highly respected group of scholars and locations addresses this agenda directly. Collectively, the contributions of each chapter provide an excellent fusion of theory, research and practice which lives out the intent of the EECERA Praxis Series and should stimulate critical and deep reflections and actions to transform and improve current ECEC policy and practice in sustainability as we move forward to an uncertain future.

Underpinning Aspirations

The EECERA Book Series, entitled *Towards an Ethical Praxis in Early Childhood*, offers an innovative and exemplary vehicle for the international early childhood

sector to develop transformative pedagogy which demonstrates effective integrated praxis. The EECERA Book Series is designed to complement and link with the *European Early Childhood Education Research Journal* (EECERJ), which is primarily a worldwide academic platform for publishing research according to the highest international standards of scholarship. The EECERA Ethical Praxis Book Series aims to highlight pedagogic praxis in order to demonstrate how this knowledge can be used to develop and improve the quality of early education and care services to young children and their families.

Pedagogic Approach

The approach taken in the book series is not a linear one, but rather a praxeological one focused on praxis, meaning a focus on pedagogic action impregnated in theory and supported by a belief system. It is this fusion of practice, theoretical perspectives, ethics and research, which we term 'Ethical Praxis'. This fusion is embodied in all EECERA research and development activities, but we anticipate the book series will have a stronger focus on the development of pedagogic praxis and policy. In addition to offering a forum for plural, integrated pedagogic praxis, the series will offer a strong model of praxeological processes that will secure deep improvements in the educational experience of children and families, professionals and researchers across international early childhood services.

This book series acknowledges pedagogy as a branch of professional/practical knowledge which is constructed in situated action in dialogue with theories and research and with beliefs (values) and principles Pedagogy is seen as an 'ambiguous' space, not of one-between-two (theory and practice) but as one-between-three (actions, theories and beliefs) in an interactive, constantly renewed triangulation. Convening beliefs, values and principles, analysing practices and dialoguing with several branches of knowledge (philosophy, history, anthropology, psychology and sociology, amongst others) constitutes the triangular movement of the creation of pedagogy. Pedagogy is thus based on praxis, in other words, action based on theory and sustained by belief systems. Contrary to other branches of knowledge, which are identified by the definition of areas with well-defined frontiers, the pedagogical branch of knowledge is created in the ambiguity of a space which is aware of the frontiers but does not delimit them because its essence is in integration.

Praxeological Intentions

There is a growing body of practitioner and practice-focused research, which is reflected in the push at national and international levels to integrate research and analysis skills into the professional skill set of all early childhood practitioners. This is a reflection of the growing professionalism of the early childhood sector and its increased status internationally. The development of higher-order professional

standards and increased accountability are reflective of these international trends, as the status and importance of early education in the success of educational systems is acknowledged.

Each book in the series is designed to have the following praxeological features:

- Strongly and transparently positioned in the socio-cultural context of the authors.
- Practice or policy in dialogue with research, ethics and with conceptual/theoretical perspectives.
- Topical and timely, focusing on key issues and new knowledge.
- Provocative, groundbreaking, innovative.
- Critical, dialogic, reflexive.
- Euro-Centric, giving voice to Europe's traditions and innovations but open to global contributions.
- Open, polyphonic, prismatic.
- Plural, multi-disciplinary, multi-method.
- Praxeological, with a concern for power, values and ethics, praxis and a focus on action research, the learning community and reflexive practitioners.
- Views early childhood pedagogy as a field in itself, not as applied psychology.
- Concerned with social justice, equity, diversity and transformation.
- Concerned with professionalism and quality improvement.
- Working for a social science of the social.
- NOT designed as a text book for practice but as a text for professional and practice/policy development.

This sixteenth book in the series exemplifies these underpinning philosophies, pedagogical ethics and scholarly intentions beautifully. We believe it provides an urgent agenda and call for action, focusing on key issues and new knowledge, and also provocative and critical, encouraging and opening polyphonic dialogue about our thinking and actions in developing high-quality and sustainable early childhood services internationally.

INTRODUCTION

Fabio Dovigo and Şule Alıcı

The concept of sustainability has garnered significant attention in recent years, underscoring the necessity to integrate sustainable practices into various sectors, including education. *Promoting Transformative Practices for Sustainability in Early Childhood Education and Care: Cultivating Critical, Participatory and Emancipatory Educational Approaches* aims to further bridge the gap between sustainability and early childhood education. This book stems from a collective reflection on the meaning and power of practice in Early Childhood Education and Care (ECEC). It explores the transformative potential of early education practices in fostering sustainable development, emphasising critical, participatory and emancipatory approaches.

The Significance of Practice in Early Childhood Education

The ability of individuals to counter injustice or abuse by making their voices heard through action is usually limited. Iconic gestures, such as the man with the shopping bag standing in front of a column of tanks in Tiananmen Square, symbolise bravery but often lack the power to initiate widespread change. However, when symbolic actions are sustained over time and shared, they transform into powerful collective practices capable of changing the course of events. Historical examples include Rosa Parks' refusal to give up her bus seat in 1955, which sparked the civil rights movement, and Greta Thunberg's school strike for climate, which ignited the global Fridays for Future movement. These instances illustrate how individual actions, when magnified through collective practice, can drive significant societal change.

In the context of early childhood education, these collective practices become even more significant. The Friday for Future movement, for example, demonstrates

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that children are not merely vulnerable subjects but also potent agents of change capable of influencing political discourse. Similarly, early childhood education for sustainability (ECEfS) has the potential to empower young children to think critically and become active participants in their communities. In this regard, the UNESCO report 'The Contribution of Early Childhood Education to a Sustainable Society' (Pramling Samuelsson & Kaga, 2008) has been a pioneering step forward for establishing ECEfS as a scientific field for research and practice. Stemming from an international workshop that brought together insights, perspectives and experiences from 16 countries, the report articulated the importance of integrating sustainability into early childhood education, highlighting the necessity of fostering caring and responsible citizens from a young age. It provided a comprehensive framework for embedding sustainability in early childhood curricula, emphasising the interconnectedness of economic, environmental, socio-cultural and political dimensions. By advocating for participatory, whole-of-settings approaches, the report laid the foundation for ECEfS and catalysed further research and practice, positioning early childhood education as a crucial element in the global sustainability agenda.

The Evolution and Current State of ECEfS

Since the publication of the UNESCO report, the field of ECEfS has seen substantial growth. Review studies by Davis (2009), Somerville and Williams (2015) and Hedefalk, Almqvist and Östman (2015) indicate a growing body of research emphasising the need for a robust foundation in ECEfS. However, despite this progress, gaps remain in empowering children as change agents within their environments (Bascopé, Perasso & Reiss, 2019). This book aims to address these gaps by offering a collection of educational projects that inspire further activity and by challenging traditional conceptualisations of ECEfS.

The international landscape of ECEfS has been shaped by various influential studies. While underscoring the increasing prominence of ECEfS in educational discourse, the foundational investigation of Davis (2009) pointed out that much of the research remained nascent and required a more solid foundation. Since then, a substantial body of literature has been produced in the field. According to Weldemariam et al. (2017), the benefits of beginning ECEfS in early childhood are well-documented, with young children demonstrating their capability to become active citizens through engagement in sustainability practices. This perspective is echoed by research that emphasises the critical role of early childhood education as a starting point for lifelong learning in sustainability (Engdahl, 2015). Engdhal's inquiry within the World Organisation for Early Childhood Education (OMEP) highlighted that children as young as birth to 8 years old have substantial knowledge about environmental issues and the responsibilities of individuals regarding sustainability. Involving over 44,000 children and 13,000 teachers from 28 countries, the studies within OMEP demonstrated that young children possess significant insights and competencies often underestimated by adults. These findings underscore the importance of early

childhood education in driving sustainability initiatives and fostering environmental stewardship from a young age. More recently, Ardoin and Bowers (2020) conducted a systematic review of Early Childhood Environmental Education (ECEE), revealing the field's dynamic growth and the broad range of positive outcomes associated with nature-rich, play-based pedagogies. Their review of 66 empirical studies over 25 years highlights key outcomes, such as environmental literacy, cognitive and social-emotional development, to a lesser extent, physical development and language skills. They emphasise the importance of incorporating movement and social interaction within natural settings, which aligns with holistic development goals in early childhood education. The review also calls for more research on nonformal learning environments and the everyday interactions between children and caregivers in nature-rich contexts. Furthermore, the authors advocate for the inclusion of ECEE content in teacher preparation programmes to support this growth. Despite the predominantly positive findings, they note an overrepresentation of favourable results in the literature and stress the need for publishing null and negative results to provide a balanced perspective on ECEE's impacts. This comprehensive examination underscores the potential of ECEE to foster environmental stewardship and holistic development in young children.

Theoretical Framework and Methodology

This book is based on a theoretical framework that draws on a set of theories related to educational change, action research and systems thinking. It advocates for whole-centre approaches to change for sustainability, integrating curriculum and pedagogy with the physical and social environments of early childhood settings (Davis, 2010). Action research is emphasised as a method for fostering continuous improvement and innovation in ECEfS practices. By engaging with the entire educational community, from teachers and students to families and policymakers, these approaches aim to create a culture of sustainability within early childhood education settings. In addition, Grindheim et al. (2019) discuss how the four dimensions of sustainability – ecological, economic, social/cultural and good governance – considered from a systemic perspective are relevant to early childhood education. Their research highlights the necessity of integrating these dimensions in ECEC settings to foster a comprehensive understanding of sustainability. The authors emphasise that children's engagement and ability to challenge established ways of thinking are crucial for promoting sustainability. By facilitating children's active participation and critical thinking, early childhood education can address the complexities and contradictions inherent in sustainability, making it a multidimensional and dynamic field of study and practice.

In this direction, many scholars have underscored the importance of an evidence-based approach to ECEfS, advocating for strong theoretical frameworks and rigorous research (Davis & Elliott, 2014). It has been argued that such an approach is mandatory to legitimise early childhood practices, support critique and

improvement of programmes and enhance the prospects for funding. Methodologically, the integration of action research and systems thinking has been emphasised as essential for continuous improvement and innovation within ECEfS practices. This methodology would ensure that ECEfS is no longer marginalised but takes its rightful place as a significant contributor to global sustainability efforts.

Another important contribution to ECEfS comes from literature that explores the significance of early childhood education within the context of the Anthropocene, emphasising the necessity for transformative critical pedagogies (Ärlemalm-Hagsér & Elliott, 2020). The contribution argues that children's lives are deeply impacted by the environmental, economic and social challenges posed by this epoch. The authors discuss how contemporary ECEfS research can challenge hegemonic thinking and acting in early childhood settings, highlighting the importance of bridging the knowledge–practice gap. They advocate for multiple and holistic approaches to ECEfS, which can help to scrutinise and potentially transform entrenched practices and assumptions. By focusing on the agency of both human and non-human actors, Ärlemalm-Hagsér and Elliott emphasise the need for pedagogies that are responsive to the interconnectedness of all life forms. This perspective encourages a shift from anthropocentric views to more relational understandings of children's roles within their environments. In a similar vein, Weldemariam and Wals (2020) further elaborate on the importance of recognising children as agents of change within ECEfS but also critique the anthropocentric bias inherent in this view. They propose a post-humanist and post-anthropocentric approach, which redefines the child as part of a larger, interconnected world. This perspective emphasises the entanglement of human and non-human actors, advocating for pedagogies that incorporate affective, embodied and relational learning. By moving beyond the notion of the autonomous, rational child, this approach seeks to integrate diverse ways of knowing and being, which are essential for addressing the complex sustainability challenges of the Anthropocene. This theoretical shift challenges educators to rethink their practices and to engage with the material and agentic qualities of the world in new and meaningful ways.

Together, these perspectives highlight the multifaceted and dynamic nature of ECEfS. By integrating theories of educational change, action research, systems thinking and post-humanist approaches, they provide a comprehensive framework for understanding and advancing sustainability in ECEC, which this book aims to further support. To this, the book adds an emphasis on whole-centre approaches and children's agency as levers for enhancing critical thinking and relational understandings and for helping achieve the transformative potential of ECEfS in fostering a sustainable and equitable future for all.

Whole-Centre Approaches and Action Research

Whole-centre approaches, as described by Davis (2010), involve integrating sustainability into all aspects of an educational setting, including curriculum, physical

environment and community partnerships. This holistic approach ensures that sustainability is not treated as an add-on but is embedded in the core operations of early childhood centres. In turn, action research, a key component of this approach, allows educators to reflect on their practices, implement changes and continuously improve their strategies for promoting sustainability. In this respect, a recent study by Hirst (2019) provides a meaningful example of an action research project in an Early Childhood Studies degree. During the activity, students engaged in projects with children and local early years' providers, constructing a bird hide and bug habitats. By achieving a significant amalgamation of scientific inquiry and collaboration, this participatory approach highlighted the importance of authentic involvement by all participants, with special care given to validating children's voices and actions. The project underscored the transformative potential of action research in fostering ECEfS and demonstrated how such projects can cultivate a shared understanding and commitment to sustainable practices within educational settings. Similarly, another interesting study emphasises the importance of place-based learning within whole-centre approaches, advocating for using local contexts to develop children's ecological identities (Boyd, 2019). By engaging in offsite, community-based projects such as Forest School activities, children and educators can connect deeply with their local environment. Boyd's study found that such immersion helps children and adults become more aware of local critical issues and relate them to their own experiences. This approach not only promotes sustainability but also fosters a sense of belonging and responsibility from both children and adults towards the environment. Accordingly, the place-based learning approach, integrated into the whole-centre framework, provides a promising model for developing agents of change in ECEfS. The whole-centre approach has been further expanded by Bitou and Waller (2020), who propose incorporating participatory research with very young children in outdoor environments. Their research in England and Greece demonstrated that young children's engagement in participatory research fosters a sense of agency and inclusion that aligns with whole-centre methodologies by integrating children's perspectives into sustainability practices. They highlight the dynamic and evolving nature of outdoor learning environments, emphasising that these spaces are ideal for participatory research due to their ability to facilitate greater physical activity and agency among children.

Overall, whole-centre approaches and action research investigation highlight that practitioners play a crucial role in building reciprocal relationships with children, which is essential for capturing their authentic voices and fostering a sense of empowerment. This combination of methods not only supports the development of sustainability initiatives but also ensures that these initiatives are relevant and meaningful to the children involved. By promoting a culture of collaboration and reflection, participatory research helps to create a sustainable educational environment where every stakeholder, including the youngest children, has a voice in shaping practices and policies.

Integrating Indigenous Knowledge and Cultural Practices

Indigenous knowledge systems offer valuable insights for ECEfS by providing alternative ways of understanding and interacting with the environment. Good practices in ECEfS should integrate Indigenous knowledge, which includes sustainable living practices and a deep respect for the natural world (Davis, 2010). These practices can offer models for sustainability that are grounded in centuries of local traditions and experience. With reference to ECEfS, Harwood et al. (2018) introduce the concept of 'unsettling the settler', which involves recognising and respecting the balance of different knowledge systems, a practice Elder Dr. Albert Marshall interestingly refers to as 'knowledge gardening'. This process involves deconstructing colonial narratives and embracing Indigenous perspectives to foster a more inclusive and sustainable approach to education. By listening to Indigenous stories and perspectives, educators can challenge anthropocentric and colonial views, promoting an ecological consciousness that acknowledges the interdependence of all beings. This approach not only enriches sustainability education but also supports the decolonisation of ECEC by integrating Indigenous ways of knowing into the curriculum and daily practices.

Other relevant research highlights the importance of embedding Indigenous perspectives within ECEfS, emphasising that sustainability education should not only focus on environmental issues but also include social, cultural and political dimensions (Miller, 2014). This holistic approach requires educators to engage in reflective practices and develop partnerships with local Indigenous communities. Miller argues that such integration supports children in becoming active agents of change, capable of understanding and addressing diverse aspects of sustainability. By embedding Indigenous perspectives, educators can challenge existing power structures and create a more equitable and inclusive educational environment. Nxumalo (2019) contribute to further elaborating on the need for educators to engage with Indigenous knowledge systems to support sustainable practices in early childhood settings. They advocate for the inclusion of Indigenous pedagogies that emphasise relationality and the interconnectedness of all life forms. This perspective helps children develop a deep respect for the environment and understand their role within the broader ecological system. By integrating these practices, educators can foster a sense of responsibility and stewardship in young learners, preparing them to contribute to a sustainable future.

Together, these studies underscore the increasing prominence of Indigenous knowledge in shaping sustainable practices within ECEC. By integrating these perspectives, educators can create more holistic and inclusive approaches to ECEfS, ensuring that sustainability is understood and practised in its fullest sense.

Challenges and Opportunities in ECEfS

Despite the recognised benefits of ECEfS highlighted by the literature over the past few years, several challenges persist. One of the main issues is the romanticised

notion of children's play in nature, which often overshadows the deeper, more complex engagement required for true sustainability. Elliott and Young (2016) critique this 'nature by default' paradigm, arguing for a shift towards more critical and transformative practices that move beyond merely exposing children to nature. They question whether the prevalent focus on nature experiences in ECEC is sufficient to promote sustainability and argue that, while engagement with nature is beneficial, it should not be the sole approach. Instead, educators should aim to foster a deeper understanding of sustainability that encompasses social, economic and environmental dimensions. Elliott et al. (2017) further critique the notion that nature play alone constitutes ECEfS. Through a social constructivist lens, the authors identify misconceptions about the pedagogical role of educators in facilitating ECEfS and stress the importance of critical reflection on the assumptions underpinning outdoor play. Educators need to move beyond the idea that simply providing natural settings is enough and, instead, actively engage in pedagogical practices that integrate sustainability into all aspects of ECEC. This perspective is supported by Davis and Davis (2020), who emphasise the need for educational practices that build resilience and capabilities in children, equipping them to address the complex challenges of sustainability. The authors note how the global financial crisis, pandemics and climate change underscore the urgency of reorienting ECEC towards sustainability. Children are among the most vulnerable to the impacts of unsustainable living, and education can play a crucial role in building resilience and capabilities in young learners. Educators must be prepared to support children's engagement with sustainability from an early age, fostering connections to nature and encouraging active participation in sustainability practices.

The Role of Teacher Education

Teacher education plays a critical role in advancing ECEfS. According to Weldemariam et al. (2017), early childhood teachers need to be equipped with the knowledge and skills to engage children in sustainability practices. This includes understanding sustainability issues, integrating sustainability into the curriculum and fostering a culture of sustainability within early childhood settings. Pre-service teacher education programmes, such as those described by Alıcı and Alan (2022), can provide the necessary foundation for teachers to implement effective ECEfS practices. A couple of recent inquiries provide significant examples in connection with this pivotal aspect. An exploration of Japanese preschool teachers' perspectives and practices in ECEfS revealed that while teachers recognised the importance of sustainability, there was a significant gap between their understanding and actual classroom practices due to a lack of training and resources (Inoue, 2018). Moreover, conducting a comparative study on early childhood educators' understandings and practices in ECEfS across Japan, Australia and Korea, the researchers have found significant differences influenced by country-specific policies and educational systems (Inoue et al., 2017). While Australian and Korean educators

emphasised resource conservation and environmental issues, Japanese educators were more reluctant to focus on these aspects. These studies advocate for comprehensive professional development programmes that focus on equipping teachers with practical skills and knowledge to integrate sustainability into early childhood education. They also underline the importance of national guidelines in enhancing educators' sustainability understandings and call for targeted professional development strategies to improve sustainability practices in ECEC. Further, Alıcı and Sahin (2023) via action research emphasise the critical role of teacher education. Similarly, Weldemariam et al. (2017) highlights that pre-service teachers who participated in an ECEfS unit felt more confident and motivated to engage in sustainability practices. However, their ability to implement these practices was often influenced by the support and value placed on ECEfS in their early childhood settings. Overall, research in this field underscores that professional development and institutional support are crucial in enabling teachers to integrate ECEfS into their teaching practices effectively.

Key Recommendations for Advancing ECEfS

To advance ECEfS, several recommendations have been put forth. These include prioritising access to ECEC for all children, integrating gender perspectives into ECEfS and emphasising the role of ECEC as a foundation for lifelong learning (Daries et al., 2009). Additionally, fostering networks and partnerships, promoting professional development and embedding Education for Sustainable Development in curricula are seen as crucial for the development of effective ECEfS practices. Below, we provide a brief summary of the key recommendations for ECEfS, as highlighted by the scientific literature.

Access for All: Ensuring access to early childhood education is paramount. ECEC offers a valuable starting point for fostering socio-environmental resilience and critical thinking in young children (Daries et al., 2009). Efforts to develop ECEfS at every level should consider the relevance and quality of engagement with young children and the early childhood community. This aligns with the recommendations from the 2008 Gothenburg conference, which emphasised the importance of educational access for all within a process of lifelong development (Pramling Samuelsson & Park, 2017).

Gender Considerations: ECEC is a highly gendered field, presenting opportunities to engage critically with the contributions of women and men in educational practice and child development. Recognising and celebrating relational approaches often demonstrated by women can inform and enhance ECEfS practices (Mérida-Serrano et al., 2020). This perspective is supported by Knight and Luff (2017), who highlight the need for gender-sensitive approaches in ECEfS, ensuring that both boys and girls are equally engaged in sustainability practices.

Learning for Change: ECEC has strong traditions of curriculum integration, engagement with the lived environment and child participation, which align well

with ECEfS. By building on these foundations, ECEfS can embrace the complexities of transformative learning, fostering children's sophisticated thinking in relation to socio-environmental issues (Hirst, 2019). This approach is exemplified by the work of Elliott and Young (2016), who advocate for a shift from nature-based experiences to more comprehensive sustainability education that addresses the root causes of environmental issues.

Networks, Arenas and Partnerships: Good practices that integrate Indigenous knowledge, sustainable living practices and human rights already exist in many community ECEfS provisions. Documenting and promoting these practices through networks and partnerships can enhance the visibility and impact of ECEfS initiatives. According to Elliott and Davis (2018), building a broad-based alliance of ECEfS practitioners, educators, policymakers and researchers is crucial for advancing the field and fostering a culture of sustainability within early childhood education.

Professional Development: Capacity building for ECEC practitioners is essential for fostering a culture of sustainability. Professional development programmes should be explicitly focused on ECEfS, ensuring that educators are equipped with the knowledge and skills to integrate sustainability into their teaching practices (Evans et al., 2022). This recommendation is supported by a large number of scholars, who emphasise the need for ongoing professional development to help teachers navigate the complexities of sustainability and implement effective ECEfS practices (Ärlemalm-Hagsér & Elliott 2020; Ferreira et al., 2019). Moreover, Dyment et al. (2014) highlight the importance of tailored professional development that extends beyond practical strategies to foster deep conceptual understandings of sustainability. Their study demonstrates that interactive and reflective models of professional learning can significantly impact educators' knowledge, confidence and implementation of ECEfS, promoting a holistic approach to sustainability in early childhood settings.

Curriculum Development: Finally, reworking traditional ECEC approaches to better serve the needs of sustainability is critical. This includes integrating sustainability into formal, informal and non-formal curricula, ensuring that children are active participants in their learning and development as sustainable citizens (Kim et al., 2020; Li et al., 2019; Weldemariam et al., 2017). In this respect, Davis and Davis (2020) highlight the importance of embedding sustainability in all aspects of the curriculum, from classroom activities to community projects, to foster a holistic understanding of sustainability among young learners.

The Structure of the Book

This book is structured into two parts, each reflecting a distinct aspect of transformative practices for sustainability in ECEC. The first part explores innovative methodologies that provide a foundation for advancing sustainability practices, while the second part examines specific projects and their capacity to promote

children's rights, agency, and well-being. Each chapter contributes unique insights, presenting case studies, frameworks, and methodologies to foster a more sustainable future through early childhood education.

The first part opens with a focus on critical participatory action research, examining how undergraduate research experiences have been harnessed to support sustainability. Şule Alıcı's chapter, 'Snapshots of Critical Participatory Action Research Based on Undergraduate Research Experiences Projects: Economic, Social & Cultural, and Political Sustainability', delves into the transformative potential of participatory action research within early childhood teacher education. By analysing projects that address Sustainable Development Goals, this chapter demonstrates how pre-service teachers can design and implement impactful community-based sustainability initiatives. The findings underline how engaging future educators in active, critical research fosters profound shifts in their understanding of sustainability pedagogies.

Fabio Dovigo's contribution, *Facilitating a Paradigm Shift in Early Childhood Education for Sustainability through Participatory Design of Outdoor Spaces in Kindergartens*, highlights the role of collaborative design processes in reimagining outdoor play environments. This chapter explores how participatory approaches, such as creating sensory gardens, can promote environmental agency, community cohesion and sustainability. By embedding sustainability into the very fabric of outdoor educational spaces, Dovigo underscores the capacity of participatory design to inspire systemic change, making sustainability an integral part of daily educational practices.

Eva Ärlemalm-Hagsér and Sue Elliott's chapter, 'Whole Centre Approaches in ECEfS: Time for Transformative Leadership and Change', brings attention to systems thinking and transformative leadership in embedding sustainability within early childhood settings. Drawing from international case studies, the authors offer a revised model tailored to ECEfS, emphasising the interconnected roles of curriculum, pedagogy and community. This chapter argues for a holistic approach to sustainability education, presenting actionable frameworks for integrating environmental and social justice into early education.

The second part shifts focus to analysing ECEfS initiatives, particularly their ability to promote children's rights and well-being. Ingrid Engdahl, Ingrid Pramling Samuelsson, Susanna Fors and Sofie Spångberg explore these themes in their chapter, 'Are You a Bird Rescuer?' Using a Swedish preschool project as a case study, the authors illustrate how environmental awareness and sustainability can be cultivated through child-centred, participatory learning. This chapter showcases how empowering children to take action, such as caring for birds, fosters deeper engagement with sustainability while reinforcing their agency and sense of responsibility.

Nicky Hirst and colleagues contribute a chapter titled 'Sustainability, Well-Being, and Praxis with Children and Students', which examines an innovative project linking sustainability and mental well-being in a multicultural primary school in Liverpool. By employing creative methodologies, such as interactive journaling

and mindfulness workshops, this chapter highlights the synergy between emotional health and sustainability learning. The authors argue for a praxis-oriented approach that situates children and students as co-creators of knowledge, fostering resilience, empathy and a broader understanding of sustainability.

Finally, Nanna Jordt Jørgensen, Mia Husted and Katrine Dahl Madsen's chapter, 'Absent and Present Places: Perspectives on Childhood, Nature, and Society in Danish Early Childhood Education for Sustainability', investigates the role of place-based pedagogies in Danish ECEfS. Through participatory mapping, the authors explore how nature-focused practices dominate sustainability education in Denmark while social and cultural dimensions often remain underexplored. This chapter proposes new approaches to broadening the scope of ECEfS, advocating for more inclusive and reflective practices that address children's complex entanglements with society and the environment.

This book concludes with a critical examination of the 'whole school' approach, adapted for early childhood settings, and its potential to unify ECEfS practices across diverse contexts. By integrating theory, methodology and case studies, this volume highlights the transformative capacity of early education to contribute to a sustainable future.

Conclusions

Promoting Transformative Practices for Sustainability in Early Childhood Education and Care aims to provide a comprehensive framework for integrating sustainability into ECEC. By drawing on a wide range of theoretical perspectives and practical examples, this book seeks to inspire and guide educators in fostering critical, participatory and emancipatory approaches to sustainability. As we face unprecedented global challenges, the role of early childhood education in building a sustainable future has never been more critical. Through collective action and innovative practices, we can empower young children to become active agents of change, contributing to transform a more sustainable and just world.

The subsequent chapters will explore in greater depth specific strategies and case studies, providing nuanced insights and actionable recommendations for educators and policymakers. By cultivating a culture of sustainability from the earliest stages of education, we hope we can contribute to laying the foundation for a more equitable and enduring future for all.

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PART I

Innovative Methodologies in ECEfS

1

SNAPSHOTS OF CRITICAL PARTICIPATORY ACTION RESEARCH BASED ON UNDERGRADUATE RESEARCH EXPERIENCES PROJECTS

Economic, Social, Cultural and Political Sustainability

Şule Alıcı

Introduction

World Meteorological Organization (WMO) (2021) determined that the Earth's average temperature was approximately 1.2°C in 2020, exceeding the pre-industrial level. In the COP 28 Climate Conference (COP 28), climate change was on the agenda and global initiatives were encouraged to deal with it, aiming to retain the 1.5°C climate goal around some critical issues (e.g., the right to live clean, healthy and sustainable environment, children's right and women empowerment) (United Nations, 2023). After becoming a party to the Kyoto Protocol in 2009, Türkiye ratified the 2030 Agenda related to Sustainable Development Goals (SDGs) simultaneously with 192 countries. The Turkish government also approved and enforced the 2016 Paris Climate Agreement in 2021. Accordingly, the Turkish Ministry of Environment and Urbanisation was renamed the Ministry of Environment, Urbanisation and Climate Change, with two new organisations dedicated to climate change – the Directorate of Climate Change and the Climate Council. The Ministry of Environment and Urbanisation initially declared the 2011–2023 Türkiye's National Climate Change Adaptation Strategy and Action Plan. The analysis of adaptation strategies implies that the plan covered only one strategy oriented to 'organizing training, awareness-raising, and informative activities to develop the capacity to combat and adapt to climate change' (Ministry of Environment & Urbanisation, 2012, p. 140). However, the strategy did not clarify what educational strategies and practices are needed to perform the training and activities.

To meet this need, the Ministry of National Education (MoNE) proclaimed a climate change action plan for education in 2022. In this action plan, school managers, teachers, staff and students were provided professional training on climate change. The training and the purview of the action plan mainly focused on environmental

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and economic sustainability, and the zero-waste implementations in the plan mainly targeted 5–6-year-old children. In addition, the MoNE currently plans to update the content of professional development training for pre-service teachers in light of SDGs, environment, and climate change. For example, the 2013 Early Childhood Curriculum has recently been revised. Among significant changes, the curriculum has been extended with two new objectives and nine indicators targeting the sustainability of the social and emotional development and values (MoNE, 2024). Another key alteration in the curriculum may be the addition of outdoor playtime, an outdoor learning activity, to support children's awareness about the environment and sustainability of culture. Although the new curriculum has undergone significant updates related to sustainability, it does not provide explanations regarding sustainability (MoNE, 2024).

Following COP 28, the 2024–2030 Climate Change Adaptation Strategy and Action Plan has recently been introduced. The vision of this plan is to prepare citizens and the public and private sectors in Türkiye for the impacts of climate change and to ensure their adaptation to climate change for an economically-, socially- and ecologically-resilient, more sustainable and greener Türkiye. Moreover, within the strategies and principles of the action plan, the section on 'awareness raising and education' emphasises constructing training, capacity building programmes and development of consciousness-raising campaigns to raise awareness of decision-makers, public employees, private sector and citizens about the hazards of climate change and the impact of decisions on the other sectors/fields (p. 10). Furthermore, the *Climate Change and Adaptation Measures* section underlines to enhance societal and organisational awareness and capacity on biodiversity, nature conservation, nature-based solutions, and ecosystem and their contribution to adaptation to climate change, governmental organisations (e.g., the MoNE, Scientific and Technological Research Council of Türkiye (TUBITAK) and Higher Education Council (HEC) to diversity the training, media affairs and projects oriented to climate change and expand the in-service training organisations (Ministry of Environment, Urbanisation and Climate Change, 2024). Besides, unlike the previous action plan, this plan highlights the importance of constructed actions (e.g., waste management) that are interrelated to many sectors (e.g., education, engineering, law and health). Therefore, it is proposed that the objectives of the curriculum should be revised in terms of SDGs from early childhood to post-graduate level, professional development programmes should be designed for educators at different educational levels and the number of higher education programmes on climate change should be increased (Ministry of Environment, Urbanisation and Climate Change, 2024).

In addition, Türkiye's Twelfth Development Plan (2024–2028) targets practical implementations of the SDG with a participatory approach involving both national and local governments. This plan aims to increase the schooling rate for 3–5 years from 52.2% to 60% in 2028 by providing and sustaining the quality of early childhood education based on local needs. Students' sustainability awareness will be

raised with the help of a green transition to learning environments with a transdisciplinary approach to struggling with climate change impacts. Regarding higher education, universities will be supported in transforming their campuses into sustainable and climate-friendly ones. For this aim, pilot universities will implement climate-related projects (e.g., zero-waste, clean energy, alternative energy resources) based on their resources and needs (Presidency of Strategy and Budget, 2024).

Study Place

Given the standpoint of the pioneering role of higher education in designing sustainable futures (Davis & Davis, 2021), the university where this research was carried out has implemented some changes to adapt to the mentioned strategies and development plans. For example, the Environmental Problems Research and Application Center has been established, and this centre has organised several seminars in collaboration with the MoNE and the Ministry of Environment, Urbanisation and Climate Change. The Environment and Energy Management System Commission, affiliated with the University's Quality Management Coordination Unit, has been expanded according to the HEC's Quality Standards. This commission consists of the Environment and Zero-Waste and Energy sub-commission, consisting of members mainly from the faculties of engineering and architecture. The members have recently visited external stakeholders (bottled water factories and local governmental organisations) to elicit information about their implementations related to the environment and zero waste.

Moreover, zero-waste principles have been adopted to extend zero-waste implementations throughout the university. An action plan for zero waste has been developed based on the principles, and the Environment and Zero-Waste sub-commission has kicked off a pilot study at engineering and architecture faculty and offered seminars (e.g., a conference on International Day of Zero Waste) to students, academics and staff. Furthermore, the Environment Student Club has been established to enhance undergraduate students' active participation in environment-related activities. This club and the sub-commission have recently organised a 'Keep Clean the Environment' activity on World Environment Day. Moreover, other faculties, especially the Faculty of Education actualised practices targeting all pillars of sustainability via organising seminars, conferences, competitions and theatre.

Despite positive environment-related initiatives in Türkiye, Turkish people seem to continue living in extreme weather conditions due to the impacts of sustainability issues, such as climate change. Thus, based on SDGs and the four pillars of sustainability, we, the Turkish people, should take more effective and sustainable actions to combat the outcomes and reasons for climate change. Davis (2015) and UNESCO (2017) emphasise that individuals must robustly transform their thinking and act for sustainability. To adopt this transformation as outlined in the SDGs, citizens should be 'sustainability change-makers' and improve their knowledge, skills,

values and attitudes through Education for Sustainability (EfS) with the guidance of educators who are proactive and influential agents of change in education (Davis & Davis, 2021; Stafford-Smith et al., 2017; UNESCO, 2017, p. 7).

EfS and Teacher Education

Higher education also has a vital role in sustainability, SDGs and implementations via community-based research, and thus, EfS should be incorporated into components and processes of universities (Evans et al., 2017; Gayá & Brydon-Miller, 2017; Sterling, 2014). For Lee, Barker and Mouasher (2013), there are two approaches to promoting EfS integration. While change starts at the top (i.e., presidency, administration) and enlarges downwards in the top-down approach, it is derived from the bottom (i.e., students, faculty members) and expands to the top in the bottom-up or grassroots approach. Another approach by Brinkhurst et al. (2011) emphasises the role of academics and staff as change agents and calls for a middle instead of top-down or bottom-up approaches. In addition, for effective EfS integration, Scott et al. (2012) underline that turnaround leadership should be considered between top-down and bottom or middle-level changes based on the needs of universities/institutions.

Extracurricular initiatives in pre-service teacher education are mostly derived from academics' personal interests and devotion (Ferreira, Ryan & Tilbury, 2014; Stevenson et al., 2014). In other words, these initiatives mostly remain an *ad hoc* practice rather than being guided by top-level strategy, as Davis and Davis (2021) concluded in their study on anecdotal views about initial early childhood teacher education. In the other systematic review of how EfS is embedded in pre-service teacher education, Evans et al. (2017) propose four approaches: '(1) across whole curriculum areas, courses or institutions-systemic approach, (2) through dedicated core/compulsory subjects, (3) a component of a core/compulsory subject and (4) a dedicated elective subject' (p. 411). The review indicates that while the substantial body of research focuses on the subject-focused approach, the systemic approach remains less-studied. A previous study showed that while 'environmental education in early childhood' is offered as a compulsory course, 'sustainable development and education' is offered as an elective course in the undergraduate programme of early childhood education in Türkiye. As described by Evans et al. (2017), the undergraduate programme follows 2 and 4 approaches through these courses. As Alıcı and Alan (2022) and Alıcı and Sahin (2023) underlined, the compulsory course targets primarily environmental sustainability rather than all pillars of sustainability, and this course can be revised to include all these pillars in some universities, which, however, depends on the course instructors' interest and acknowledgement. Besides, the elective course is not conducted specified for early years.

Although the UNESCO Roadmap for Implementing a Global Action Program on EfS highlights that developing educators' capacities to raise their competencies

to target sustainability issues and deliver EfS more efficiently is one of the five critical actions (UNESCO, 2014), the Turkish Teacher Competencies and Turkish National Qualifications Framework for Higher Education have no explicitly targeted competencies and qualifications for EfS (Alıcı, 2020). Moreover, the relevant literature indicates a *significant research gap* on sustainability and teacher education, particularly early childhood pre-service teacher education and EfS, both in Türkiye and the world (Alıcı, 2020; Davis & Davis, 2020). Davis and Davis (2020) reached only five studies on pre-service early childhood education and EfS. Afterwards, a special issue on early childhood pre-service teacher education in EfS was edited by Evans et al. (2022). Five distinct papers from Sweden, Malta, Australia and Ecuador have different perspectives on this special issue. Moreover, in Türkiye, Sahin and Alıcı (2019) reviewed pre-service teacher's views on nature relatedness, Karaarslan Semiz and Temiz (2021) examined pre-service teachers' perceptions and teaching practices regarding nature-based activities, and Alıcı and Alan (2022) investigated pre-service teachers' practicum in terms of EfS activities in two different universities.

In light of the literature review and Evans et al.'s (2022) critical outcome from their duoethnographic research, the differences between the teacher education systems, contexts and teacher educators' perspectives about teaching and learning and research once more indicate the 'importance of *acting versus* waiting for *consensus*' (p. 8). In this research, I share pre-service teachers' critical participatory action research (CPAR) within undergraduate research experiences (UREs) projects targeting different SDGs in the context of Environmental Education in Early Childhood Course. Moreover, this research aims to explore pre-service teachers' experiences in CPAR-based UREs projects and to describe their understanding, pedagogical approaches and stances related to EfS after project implementations. The following research questions guide this study:

Research Questions

- What are pre-service early childhood education (ECE) teachers' experiences throughout the planning, designing and implementing CPAR-based UREs projects?
- How do pre-service ECE teachers' understanding, pedagogical approaches and stances related to EfS change after the implementation of their CPAR-based UREs projects?

Methodology

This section presents pre-service ECE teachers' CPAR-based UREs projects. CPAR-based URE projects refer to undergraduate pre-service teachers' research-based university-community partnerships and a means for the implementation of

SDGs via HEIs. Before presenting the projects, firstly, CPAR and CPAR-based UREs in EfS will be elucidated.

Critical Participatory Action Research

By 2030, SDGs aim to contribute to becoming a world 'free from hunger, injustice and absolute poverty' and to provide 'universal education, health and employment with inclusive economic growth, based on transparency, dignity and equality' while minding the Earth's limits (International Institute for Applied Systems Analysis, IIASA, 2023). To address all of these goals, promoting EfS, tangible and practicable transformative frameworks need to be constructed to support individuals' involvement and community engagement (Keahey, 2021; Trott, Weinberg & Sample McMeeking, 2018). In other words, EfS targeting SDGs tallies with the principles of PAR/ CPAR/action research (Rauch, Steiner & Kurz, 2022). Both advocate that theory and practice are interconnected and attach importance to individuals' active participation in learning processes and transformative roles as change agents to shape their own living environments (Radits et al., 2015). On the other hand, given that the origin of the term 'sustainable development' comes from the Brundtland Report, titled 'Our Common Future', which defines sustainable development as 'meeting the needs of the present generation without compromising the ability of future generations to meet their own needs' (WCED, 1987), it could be claimed that SDGs adopt understanding of just attaching importance to a sense of intergenerational equality but mostly ignore contemporary equality issues (Cachelin, Rose & Rumore, 2016). Therefore, SDGs, CPAR and critical theory bear some differences. Nevertheless, for this chapter, I prefer to use the term 'sustainability' instead of 'sustainable development' as it is analogous to CPAR. It is defined by Agyeman, Bullard and Evans (2002) as:

> Sustainability cannot be simply a 'green', or 'environmental' concern, important thought 'environmental' aspects of sustainability are. A truly sustainable society is one where wider questions of social needs and welfare, and economic opportunity are integrally related to environmental limits imposed by supporting ecosystems.
>
> *(p. 78)*

Even though action research is classified with distinct terms such as action research (AC), PAR and CPAR (Santos, 2013), all of them are derived from similar research paradigms and utilise overlapping scientific paths and processes (Altrichter et al., 2002). Yet, they are not free of considerable differences. For instance, while AC, PAR and CPAR require researchers and participants to make a collaborative inquiry to enhance participants' social and educational praxis in light of their comprehension during the research process (Kemmis & McTaggart, 1988), PAR or Southern AC highlights 'contemporary societal ills' with broad social involvement (Santos,

2013, p. 493) to promote social equality/democratic equality. On the other hand, although CPAR adopts the principal concepts in PAR (e.g., social process, participatory, practical and collaborative, emancipatory, critical, reflexive and bridging theory and practice; Kemmis & McTaggart, 2005; Sadik, 2019), it is suggested that, as a new approach, CPAR *engages in critical living practice* to promote EfS and living systems theory (Lange, 2009). Also, CPAR has emerged from education researchers' 'dissatisfactions with classroom action research, which does typically not take a broad view of the role of the relationship between education and social change' (Kemmis, McTaggart & Nixon, 2014, p. 12). However, CPAR aims to help participants/individuals collaborate to realise their individual and collective practices by pursuing rationality, sustainability and justice criteria (Kemmis, McTaggart & Nixon, 2014). To do so, the following spiral of self-reflective cycles is proposed:

- *plan a change,*
- *act and observe the process and consequences of the change,*
- *reflect on these processes and consequences, and then a new cycle begins*
- *re-plan,*
- *act and observe,*
- *reflect, and go on… (p. 18)*

CPAR and UREs in EfS

Despite their quite distinct characteristics (e.g., research context, design and duration), the integration of PAR/CPAR with UREs can compensate for the limitations of each approach by expanding participants' scope (undergraduates and community members), benefits and collaboration (Trott, Sample McMeeking & Weinberg, 2020). In other words, PAR/CPAR-based UREs could present opportunities for both undergraduate students and community members to gain research experiences (i.e., enhancing their research skills, autonomy and knowledge) and to become change agents through democratic participation (Kindon, Pain & Kesby, 2007; NASEM, 2017). In addition, while UREs are adopted in laboratory settings in natural sciences (NASEM, 2017), PAR/CPAR-based UREs could focus on real-world issues (e.g., climate change) emerging in the local environment (Trott, Sample McMeeking & Weinberg, 2020). UREs are derived from the positivist paradigm (Parsell, Ambler & Jacenyik-Trawoger, 2014); in contrast, PAR, especially CPAR, comes from critical theory. Thus, participants could become capable researchers carrying out critical and community involvement research through PAR/CPAR-based UREs (Trott, Sample McMeeking & Weinberg, 2020). Overall, this research presents pre-service teachers' experiences in designing and performing their CPAR-based UREs projects targeting various SDGs within the Environmental Education in Early Childhood Course, helping them develop their research skills and become change agents by collaborating institutions (e.g., universities, governmental organisations) and people (e.g., public employees, pre-service ECE students).

Compared to UREs, CPAR/PAR is emergent, place-based, more local and less structured; therefore, there is not just one format/structure to describe CPAR/PAR-based UREs (Trott, Sample McMeeking & Weinberg, 2020). For the present study, course-based authentic research was used as one of the URE models (Russell et al., 2015). In other words, CPAR through course-based UREs was utilised for this study to promote Scott et al.'s (2012) turnaround leadership, since while CPAR follows a bottom-up or grassroots approach, UREs pursue a top-down approach. To explicate CPAR through course-based UREs, the following section provides a summary of the research environment and participating undergraduate students' (pre-service teachers) characteristics.

The Study Environment

As mentioned in 'Study Place', this research was conducted at the newly established university characterised by considerable initiatives based on SDGs and Turkish governmental regulations and local needs. Moreover, the ECE curriculum was revised and updated with a new compulsory course – Environmental Education in Early Childhood – in 2018. According to the course description by HEC (2018), this course mainly targets environmental sustainability; yet, it was re-designed to promote all pillars of sustainability in the present study.

Environmental Education in Early Childhood Course

A 14-week compulsory course was delivered in the sixth semester (spring) of the undergraduate ECE programme. For this study, the 11-week theoretical and 9-week practical parts of the course were intertwined. Pre-service teachers created and implemented their individual and group projects throughout the practice part. The theoretical part aimed to help pre-service teachers gain awareness of sustainability and its pillars, EfS, fundamental concepts of EfS, the importance of EfS, SDGs, ECEfS, the pedagogies of ECEfS and how to construct and conduct effective activity plans/projects targeting EfS in early childhood. In other words, before designing and implementing their projects, they were knowledgeable about ECEfS. This part also included various pedagogies from lecturing, discussion, group work, a field trip and a guest speaker. Therefore, pre-service teachers had experiences with distinct teaching methods. In the theoretical part, pre-service teachers also had a chance to listen to previous years' projects from their senior peers. In the presentation phase, 'junior-senior interaction' was promoted, allowing pre-service teachers to adopt recommendations from their seniors in the planning and implementation phases and the most challenging/manageable parts of their projects. From time to time, participating students also asked their seniors for feedback.

In the practice part, individual and group projects were shaped based on CPAR through UREs. Before kicking off their projects, pre-service teachers were knowledgeable about CPAR and its self-reflective cycles. In the project presentation, they also understood how to construct reflective cycles and how to elicit answers

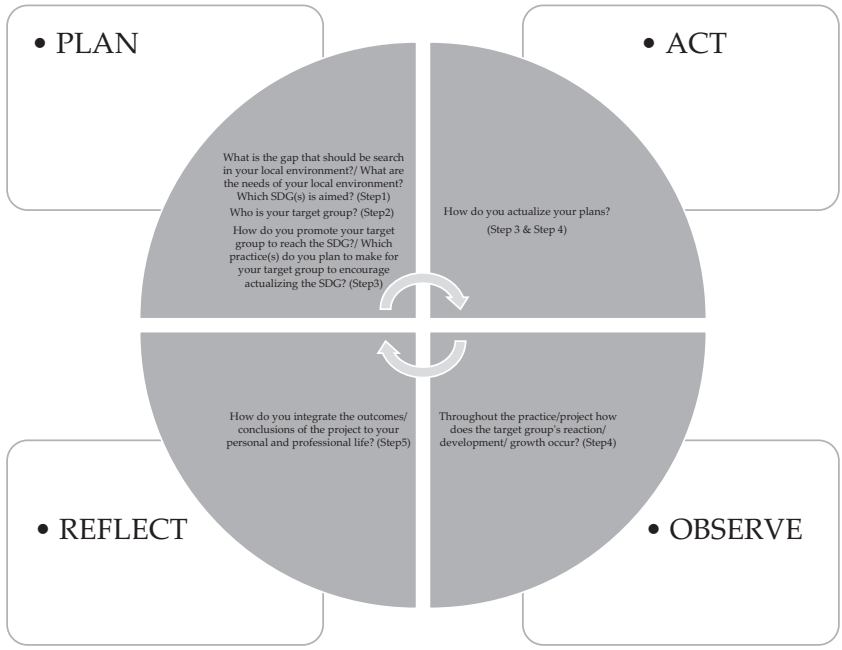

FIGURE 1.1 Cycles and steps of the CPAR-based UREs projects.

to questions at each cycle. The theoretical part also covered a discussion of what questions can shape each cycle. The steps illustrated in Figure 1.1 were duly followed by pre-service teachers. In the practice part, pre-service teachers performed at least three presentations about their projects and debriefed their classmates about the design sample selection and implementation phases of their projects. Based on peer feedback, they could make revisions to their projects, and if convenient, they would perform further presentations to receive more feedback.

In the last 2 weeks of the course, pre-service teachers shared their individual and group projects with their classmates. In the practice part, the steps of the mentioned cycle were followed by the lecturer/co-researcher. At the end of the session, the lecturer/co-researcher held an interview/focus group interview with students to uncover any alterations in their understanding and stances related to sustainability, EfS and pedagogies related to ECEfS.

In Step 1 during the *Plan* cycle, pre-service students sought the needs/gaps of the local environment through literature review, data collection and self-assessments (for individual projects) and determined and drafted which SDG(s) are related to identified needs and gaps. Then, they presented their reports to the class, including all aspects of Step 1, and received feedback from the lecturer/co-researcher and their classmates. In Step 2, pre-service teachers drafted and presented a report about their participants and received feedback. In step 3, they informed the class about the implementation phases of their projects; they drafted a report, presented it and received feedback, similar to Steps 1 and 2.

Pre-service teachers performed Steps 3 and 4 during the *Act* cycle. Step 4 entailed the implementation of their projects.

In Step 4 during the *Observe* cycle, pre-service teachers engaged in observations by collecting data on whether they attained their objectives or not while implementing their projects.

In Step 5 during the *Reflect* cycle, pre-service teachers drafted and presented a report covering all aspects of Steps 1, 2, 3 and 4, and received feedback. They then finalised their reports and submitted them as a course assignment.

Participants

Participants were all third-year undergraduate students and had previously attended various courses to promote and implement their individual and group projects, including 'research methods in education', 'community service', 'teaching approaches in early childhood', 'measurement and evaluation in education' and 'measurement and evaluation in ECE'.

Pre-service teachers implemented group and individual projects targeting various SDGs in this course. While they focused on the community's local needs for the planning phase of their group projects, their individual projects were derived mainly from their own needs. Eleven group projects and 25 individual projects were designed by a maximum of six pre-service teachers.

For this chapter, I only share one group project targeting SDG 12 (Responsible Consumption and Production) and encompassing economic and political sustainability and one individual project targeting SDG 5 (Gender Equality) and promoting social, cultural and political sustainability.

Waste/Stale (Leftover) Bread Project

Prior to proceeding to the details of project cycles, I should note that this project is dedicated to the significance of bread, as it is among the staple foods for Turkish people. In Türkiye, bread is preferred at all meals, including breakfast. Although 37 billion loaves of bread are produced in Türkiye per year, 2.1 billion of them, unfortunately are wasted (Türkiye İsrafı Önleme Vakfı [Turkish Foundation for Waste Prevention] Report, 2024). Similarly, we discovered that about 7% of food is wasted in student dining halls. Thus, this project targeted SDG 12.5, 'Substantially Reduce Waste Generation', and 12.c, 'Fossil Fuel Subsidies', and was conducted by six pre-service teachers (four females and two males).

Pre-Service Teachers' Experiences

Plan Cycle

Step 1: The group engaged in informal observations of their immediate environment, particularly in dormitories, and realised a waste/stale (leftover) situation.

FIGURE 1.2 The place where the bread was left.

They delved into the situation at dining halls and other dormitories and took photos of what they witnessed related to waste/stale food (See Figures 1.2 and 1.3).

Their overall observations suggested that students in dormitories claim much more bread during meals than they can consume and leave their leftover bread, even fresh loaves, in random places in dining halls. Loaves then become mouldy and are thrown into garbage containers by the staff. The group discussed this problem to discover what could be done to diminish students' bread consumption and prevent leftover bread from being discarded. Then, they decided to collect and share waste/stale(leftover) bread with the animals at the sanctuary. The group discovered that their solution was linked with SDG 12 and targets 12.5, 'Substantially Reduce Waste Generation', and 12.c, 'Fossil Fuel Subsidies'.

They presented their initial outcome and received feedback from their classmates and the lecturer/co-researcher. In his/her feedback, one of their classmates advised them to divert their focus not only on collecting and sharing leftover bread but also on reducing bread consumption more than needed. Then, the project group revised their project accordingly and proceeded to Step 2.

Step 2: The group identified their target group as university students, especially early childhood pre-service teachers living in dormitories. Based on their project outcomes, they intended to extend the impact with the involvement of local residents around the campus. Moreover, they attempted to collaborate with preschools to obtain support from children, parents and teachers for their project. This step was also presented in the class, and the project team received feedback from their classmates and the lecturer/co-researcher.

FIGURE 1.3 The place where the bread was left.

Act Cycle

Step 3: To diminish the bread consumption of the students at the dormitories, they decided to make students aware that bread waste is one of the highest food waste proportions. Firstly, they applied for the head of the dormitories to get the required permissions and support for their project. During the meeting with the head of the dormitories, they shared the documents explaining their project, such as its aim, target group and practices that could be implemented. After they got permission, they prepared posters, brochures, e-journals and conferences.

Even if they aimed to decrease the amount of bread waste, it has already occurred inescapably. As mentioned in Step 1, the group decided to share this waste with the sanctuary. They researched whether there was a sanctuary in the city or not. In light of their research, they reached a local government-run sanctuary. They applied to the sanctuary and local government for permission to conduct the project. Moreover, while researching local government facilities for bread waste, they realised the local government had put some bins to collect it. They asked for some bins for the dormitories.

They presented this step in the class and got feedback from their classmates and the lecturer/ co-researcher.

Observe Cycle

Step 4: The project was implemented in this step. In the end of Step 3, the group asked the local government for bins to collect leftover bread in dormitories. The local government delivered the necessary number of bins, and these bins were placed in the relevant spaces in dormitories. Upon relevant permission from heads of dormitories, the group organised a series of meetings with dormitory residents, especially with pre-service ECE teachers, to inform them about the project with posters and brochures. Participants were also informed about how to reach the project's social media page to keep updated about current news and activities within the project (e.g., project e-journal, announcements, sanctuary visits and calls for volunteers) (Figure 1.4).

To obtain more support from the community, the group members interviewed dining hall staff and janitors. They first informed the staff about the project and asked questions about their responsibilities and roles at the dormitories. Then, the team collected information on how many hours the staff work during their shifts and how much bread waste is collected per day. Although the group asked the staff whether they could help the project team collect bread waste, the staff unfortunately rejected this request.

The group also visited the city bakers to get their support for their project. As in the meetings with dormitory staff and janitors, the group initially informed the bakers about their project and elicited some information about bread production (e.g., the amount of bread produced per day and the number of loaves left per day).

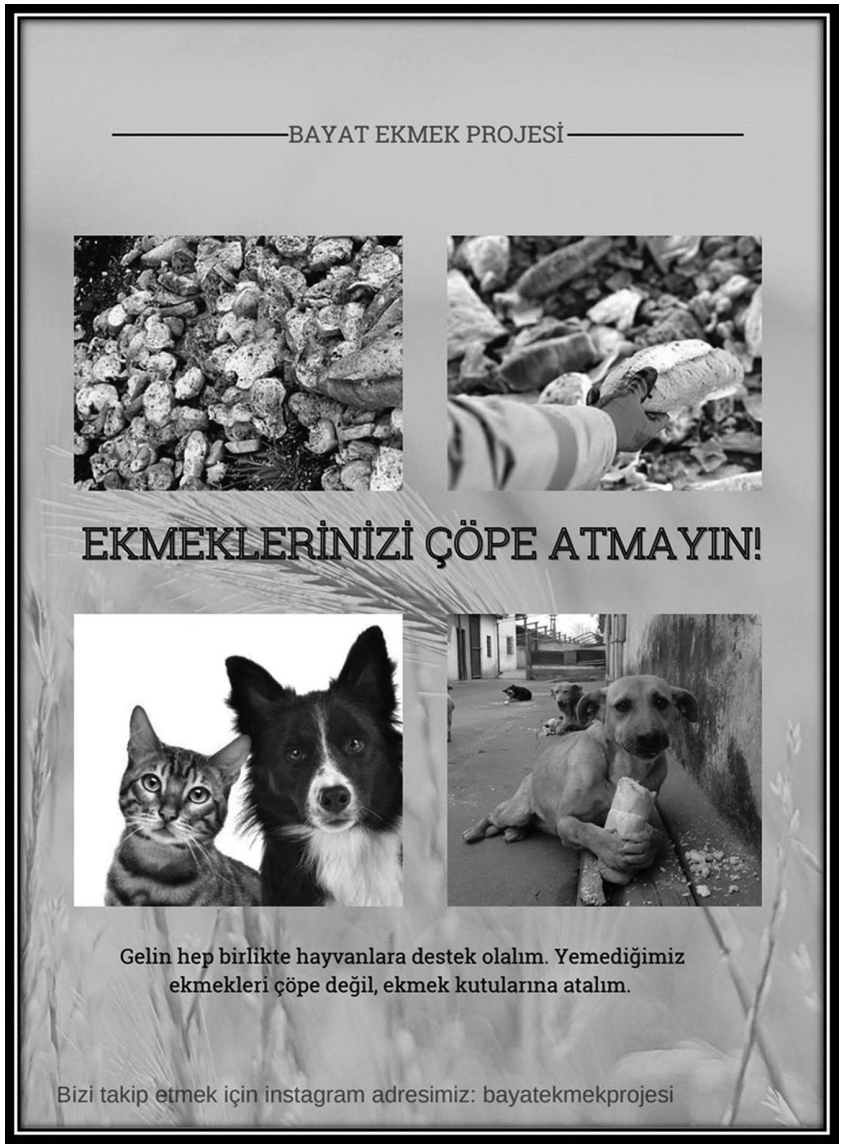

FIGURE 1.4 Poster.

Nevertheless, the bakers rejected the group's request to share leftover bread with animals, as they claimed that there was not much bread left per day. They also stated that they sell leftover bread the day after.

After student meetings, the group informed other students in dormitories that they could collect bread leftovers in the bins delivered by the local government. The majority of students supporting the project were third-year pre-service ECE students. The voluntary students then expressed satisfaction at being involved

in the project. Within 3 days, three large bins were full of bread leftovers. Once the group posted the date of the sanctuary visit on the project's Instagram page, they and volunteers visited the sanctuary to deliver bread leftovers collected (See Figure 1.5). It should be noted that the sanctuary staff scheduled a return visit to dormitories to collect bread leftovers (Figure 1.6).

FIGURE 1.5 Instagram page.

FIGURE 1.6 Sanctuary visit.

Reflect Cycle

Step 5: All the group members expressed that they were committed to seeing the project outcome, regardless of the obstacles they faced. Instead, they were self-encouraged/motivated to finalise the project and touch the lives of animals at the sanctuary.

The local government website also published details of the project) as well (https://www.kirsehir.bel.tr/haberler/kirsehir-belediyesi-nden-universite-ogrencilerinin-projesine-destek) and local news website (https://ankahaber.net/haber/detay/kirsehir_belediyesinden_universite_ogrencilerinin_projesine_destek_87950. The group members were proud of their project and its outcomes.

Pre-Service Teachers' Understanding, Pedagogical Approaches and Stances Related to EfS

In the end of the course, the group members were recruited for an interview. One of the group members stated:

> At the beginning of this course, I just thought that sustainability and environmental education are only related to recycling. However, this concept is related to all components of the environment and sustainability pillars. Not just focusing on recycling… much more than recycling…
>
> Through this project, I have become knowledgeable about sustainability, its pillars and SDGs, and I also have experience in how to conduct activities

> targeting sustainability with children in early childhood settings. For example, I will encourage children to be active agents in the learning process through a project approach, creative drama, field trips and outdoor learning activities…
>
> I am very proud to have implemented this project. We received positive reactions from not only university students but also staff at the sanctuary and the local government… All in all, I am so glad to have implemented this project.

It can confidently be claimed that participating pre-service ECE teachers' understanding of sustainability changed given the analysis of self-reflective cycles of CPAR-based UREs project and interviews. At the beginning of the course, the term 'environmental education' evoked the concept of recycling for them, and they had difficulty articulating their understanding of the terms 'sustainability' and 'EfS'. Nevertheless, they could explain sustainability with all its pillars after the course. Moreover, they had an opportunity to explore the SDGs and their targets in detail during the course. They also discovered what pedagogical approaches can be adopted to support EfS practices in the early years, as they had experienced distinct pedagogies. Prior to attaining graduate student status, they also delved into the CPAR steps and acquired how to revise and implement a project based on their experiences, participant reflections and peer/mentor feedback. In addition, they learned how to manage challenges, such as negotiations with the authorities and community members to obtain their support for their project. Ultimately, they had considerable experience in identifying local needs and collaborative community engagement, once their project was successfully implemented. Positive feedback from participants, the community and the local government engendered a positive stance towards EfS-oriented projects among the project members.

The Project on Societal Gender Equality

Melisa, one of the pre-service ECE teachers, designed this project individually. She also obtained support from her classmates in the implementation phase. In this section, this project is also summarised following the relevant cycles and steps similar to the Waste/Stale (Leftover) Bread Project.

Pre-Service Teachers' Experiences

Plan Cycle

Step 1: The news on media (printed, audio-visual and social media) related to violence against children and women led Melisa to dedicate her project to this issue. Firstly, Melisa researched the concepts of gender, societal equality and equality. She believed that the contexts of these concepts are too restricted, and many people, particularly university students, are unaware of them. Therefore, she focused on Goal 5 of the SDGs: Gender Equality and its targets to draw individuals' attention to this issue. These targets are Targets 5.1 'End Discrimination Against Women

and Girls', Target 5.2 'End All Violence Against and Exploitation of Women and Girls' and Target 5.3 'Eliminate Forced Marriages and Genital Mutilation'.

Step 2: For Melisa, the point of origin of gender equality is sunk into oblivion and banalised. Thus, she decided to work with undergraduate students enrolled in the Faculty of Education, especially pre-service ECE teachers – who are well-positioned to mentor future generations on matters pertaining to gender and equality, drawing upon their accumulated experiences and awareness of pertinent issues.

Act Cycle

Step 3: To raise pre-service teachers' awareness of social gender equality, Melisa decided to design banners on gender equality, phases of violence against women, discrimination against women (See Figure 1.6) and child brides (See Figure 1.7). She also drafted and scheduled a silent drama to attract pre-service teachers' attention to the banners. For this drama, Melisa got support from her classmates. Before performing the drama, she informed the Deputy Dean of the Faculty of Education about her project, got support for her project and obtained permission to perform indoor and outdoor dramas in the faculty.

Observe Cycle

Step 4: This step was the implementation phase of the project. Upon permission from the deputy dean, Melisa rallied together with five of her classmates (silent

FIGURE 1.7 Discrimination against women.

drama performers) for 1 hour and drafted the scenarios of the dramas. One of the drama performers held a placard on gender equality. The other one acted as a woman exposed to violence and held a banner on the phases of violence against women. One performed a child bride role and held a placard (Figure 1.7). Holding a banner (Figure 1.6), the last two acted as a woman subjected to discrimination and a man who was the agent of discrimination against the woman. As seen in Figures 1.8 and 1.9, Melisa undertook the make-up and costumes of the performers (Figure 1.10).

FIGURE 1.8 Child bride.

FIGURE 1.9 Outdoor silent drama.

FIGURE 1.10 Indoor silent drama.

Pre-service teachers' attention was drawn to gender equality through silent drama performances. During the dramas, it was challenging for the performers to remain still, refrain from laughter or speech and maintain their composure, given that the audience was present and observing their every movement. Some of the pre-service teachers even attempted to distract the performers, even if they knew they could not reply to them. Throughout the silent dramas, the audience was very

interested in what was happening and Melisa did commentary about the roles. Pre-service teachers shared this drama via social media to support Melisa's project, contributing to extending the impact of the performances.

Reflect Cycle

Step 5: At the inception of the project, Melisa was concerned about her ability to implement it, given the pervasive prejudices surrounding the issue and the potential for extreme reactions. However, she indicated that she received support not only from the faculty administration but also from her classmates and other pre-service teachers. Her project's news was published on at Faulty of Education web-site (https://ef.ahievran.edu.tr/arsiv-haberler/6666-fakultemizde-toplumsal-cinsiyet-esitligi-farkindalik-etkinligi-gerceklestirildi).

Pre-Service Teachers' Understanding, Pedagogical Approaches and Stances Related to EfS

During the interview, Melisa uttered her feelings and thoughts as indicated below:

> I am happy and proud of myself and my classmates since we were able to accomplish to draw the attention of pre-service students to gender equality. Although this issue is controversial and risky for a project, I could overcome challenges and successfully implement my project …
>
> Thanks to my experience in this project, I can dive into a project that explores the social and cultural aspects of sustainability. It will be great to contribute to a topic that is not as widely covered by my classmates, who are mostly focused on environmental and economic issues. Thus, I am also delighted to hold on to this project and get people's support by sharing my project on social media. Moreover, my project was disseminated via the Faculty of Education website and social media. Based on these outcomes, I will definitely carry out a project on gender equality with children.

Furthermore, during the focus group interview with the drama performers, they expressed satisfaction at being involved in the project and believed that they could contribute to raising awareness among pre-service teachers of gender equality issues.

For instance, Ela (who acted as a woman who is capable of doing jobs that men can do) aired:

> The banners, costumes, and makeup are absolutely stunning. People can easily understand what we do. People came up to us, read our banners, and asked Melisa questions. They even took our photos and shared them on social media to encourage us.

On the other hand, Onur (who acted as a man impeding Ela) highlighted one of the crucial issues in Turkish early childhood education:

> While I have a role impeding Ela, in fact, I was exposed to similar obstructions at the early childhood institution as a male pre-service student from the early childhood teachers when I went to the preschool for the practicum. One of my male classmates stated that they [the teachers at the practicum school] did not approve existence of male practitioners in the preschool. Therefore, I think all kinds of discrimination could be eliminated via this type of action [project].

Umay (who performed as a child bride) uttered:

> I am so excited and delighted to perform this role since my mom got married when she was 15. Luckily, people now attach more importance to the education of their daughters compared to 20 years ago, and schooling has increased…

In addition, the drama performers underlined that the early years would be crucial to initiate an attempt for education on gender equality and that such an endeavour cannot succeed without parental involvement and support. They also emphasised that they, as educators, can use different types of pedagogies (e.g., drama, project approach) and activities (e.g., field trips and games) and tools (e.g., videos, public service announcements). Moreover, one of the drama performers emphasised that governmental organisations should implement tangible measures for gender equality: 'In this city, the presence of female drivers on local buses may contribute to the transformation of gender stereotypes among young children…'

In light of the analysis of the reflective cycle, it became evident that the understanding of pre-service ECE teachers regarding sustainability underwent a transformation following Melisa's elucidation of her rationale for undertaking a project focusing on the social, cultural and political dimensions of sustainability, rather than the economic and environmental aspects. She also perceived a moral obligation to take action regarding this issue following her exposure to the news and related events, including instances of child brides subjected to abuse and discrimination. Although she had some concerns, particularly regarding the potential reactions of individuals to the project, she felt more at ease and self-assured about implementing the project after obtaining permission for silent drama from the faculty administration. Her experiences during the project ultimately shaped her perspective on the optimal methodology for designing a social equality project involving children. Furthermore, she assumed a considerable risk in planning and implementing a silent drama, as there had been no precedent for such an activity at the faculty, and she may have encountered difficulties recruiting sufficient volunteers to perform the drama.

In examining the perspectives of drama performers on the subject of gender equality, it becomes evident that they possessed a unique capacity to draw parallels

between their experiences and the broader social context. This is exemplified by their ability to make connections between the experiences of a female bus driver and her mother, who was a child bride and the broader issue of gender equality. Moreover, one of them was particularly concerned with the issue of gender discrimination, not only in relation to women but also to men. Given especially the case in the early years of childhood in Türkiye, there is still a perception that certain roles could be fulfilled exclusively by women or men. The performers also emphasised that change could start from early years with the support of parents, proficient early childhood educators and governmental policies. Thus, they opted to stage silent dramas to motivate pre-service ECE teachers to consider the possibility of taking action in the realm of social issues.

Conclusion

The results of CPAR-based URE projects demonstrated that pre-service teachers were driven and enthusiastic about undertaking these projects, as they were instrumental in their learning process and subsequent actions. Moreover, through these projects, particularly in collaboration with faculty administration, heads of dormitories and the local government, pre-service teachers had an opportunity to enhance their skills and responsibilities related to leadership roles in their own development and autonomy (Checkoway, 2001). Pre-service students also had experience of how to address local needs in the context of sustainability. In other words, they had a chance to rehearse for executing a project with kids in early childhood settings. Although these projects were designated with a bottom-up or grassroots approach, students collaborated with different stakeholders. These collaborations allowed the impacts of their project to go beyond the campus setting. Moreover, collaborative attempts could strengthen the cooperation of the university, the local government or other institutions, as highlighted in the Turkish 2024–2030 Climate Change Adaptation Strategy and Action Plan.

Pre-service students were able to learn how to interact with the local community and authorities during their projects. These projects also led their understanding of sustainability, its pillars and ECEfS to change. Prior to the study, the students lacked awareness of sustainability; however, in the end of the course, many demonstrated a deeper understanding, including of SDGs, the significance of early environmental education, and the importance of sustainability, overlapping with the findings of the study by Alıcı and Sahin (2023) with ECE teachers. Moreover, pre-service teachers indicated that all tenets of sustainability can be integrated into activities and daily plans in ECE, employing diverse pedagogical approaches such as drama and project-based learning to facilitate children's active engagement. Similarly, Alıcı and Alan (2022) indicated that pre-service teachers at the practicum preferred child-centred activities and pedagogies promoting children's active involvement.

In a nutshell, the students' course and project experiences have the potential to motivate them to make adaptations and changes in their daily and professional lives,

as they could come to recognise that sustainability is a value they wish to incorporate into life and education. In addition, I believe that the project outcomes will motivate them to take relevant, meaningful and authentic steps and actions in their professional lives. Davis et al. (2024) underlined that daily educational praxis in all early childhood education learning environments containing teacher education must be revisited to embrace transformational leadership and systems approaches. In this way, educators, researchers and practitioners to maintain their contributions to the transformation of mindsets for the realisation of local and global sustainability.

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2

FACILITATING A PARADIGM SHIFT IN EARLY CHILDHOOD EDUCATION FOR SUSTAINABILITY THROUGH PARTICIPATORY DESIGN OF OUTDOOR SPACES IN KINDERGARTENS

Fabio Dovigo

Introduction

This chapter explores key areas of ECEC that promote sustainability and holistic development. Central to this exploration is Early Childhood Education for Sustainability (ECEfS), which integrates sustainability concepts into early learning to foster environmental stewardship from a young age. This chapter also delves into the importance of outdoor and nature play, highlighting how these activities enhance children's physical, cognitive, social and emotional development. Closely linked is the concept of nature connectedness, defined as the psychological merging of self and nature, which is essential for fostering environmental responsibility and psychological well-being. Additionally, I examine the role of risky play, which involves activities that challenge children and help them develop independence, confidence and resilience. The integration of gardening in ECEC is also discussed, emphasising its multifaceted benefits, including improved nutrition, hands-on learning and community building. Finally, I introduce the research questions aimed at investigating the implementation and broader implications of sustainability in early childhood education, particularly through collaborative projects on designing and implementing sensory gardens in kindergartens.

Early Childhood Education for Sustainability

ECEfS has become a critical component of ECEC due to its potential to foster environmental agency from a young age. The primary aim of ECEfS is to integrate sustainability concepts into early learning environments, thereby promoting a sustainable mindset among children (Ardoin et al., 2018). Historically, there has been a dearth of empirical research in this area, but recent years have seen a

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notable increase in studies and practical implementations. This upsurge is reflected in the proliferation of nature-based preschools and kindergartens, particularly in Australia, Europe and the United States, which emphasise outdoor and nature-focused education (Hedefalk et al., 2015; NAAEE, 2017).

The research highlights various benefits of incorporating sustainability into early childhood education. These benefits extend beyond environmental literacy to encompass broader developmental outcomes, such as cognitive, social, emotional and physical development (Davis, 2009). For example, engaging with nature has been shown to enhance children's social skills, increase their physical activity levels and improve their emotional well-being (Green, 2015). The holistic approach to education is a transformative framework that integrates intellectual, emotional, physical, social, aesthetic and spiritual aspects of learning, emphasising balance, inclusiveness and interconnectedness to address global issues and counter fragmented, reductionist views (Miseliunaite et al., 2022). It aligns with the philosophy of forest schools, which originated in Scandinavia and emphasise regular, immersive contact with nature as part of early education (Bentsen & Jensen, 2012).

A significant portion of ECEfS research is qualitative, which is particularly suited to exploring the complex, context-specific experiences of young children (Farrell et al., 2015). These studies often document the positive impacts of nature-based education, such as increased self-esteem, better social relationships, and heightened environmental awareness (Somerville & Williams, 2015). However, there is a recognised need for more quantitative studies to validate these findings and provide a more comprehensive understanding of ECEfS outcomes (Güler Yıldız et al., 2021).

Despite the growing body of research, certain areas still remain underexplored. For instance, there is limited research on ECEfS programmes involving the youngest children (birth to age two) and those transitioning into middle childhood (ages seven to eight) (Ärlemalm-Hagsér & Elliott, 2020). These stages are crucial for developing a foundational connection to nature and fostering long-term environmental stewardship. Additionally, while most studies focus on formal educational settings, there is a need to investigate ECEfS in informal contexts, such as interactions between children and their families in nature-rich settings and outdoor play (Cameron-Faulkner et al., 2017).

Outdoor and Nature Play

Building on the idea of sustainability, outdoor and nature play are integral components of ECEC, offering myriad benefits that extend beyond physical health to encompass cognitive, social and emotional development. Research underscores that outdoor play environments enriched with natural elements advance children's overall well-being, enhancing pro-social behaviours, cognitive development, language skills, physical activity and mental health (Bento & Dias, 2017; Cooper, 2015). Furthermore, engagement in outdoor play has been associated with fostering environmental agency from an early age (Barrable & Booth, 2020a, b).

The Norwegian approach to outdoor play is a particularly illustrative example of integrating nature into early childhood education. Norwegian ECEC institutions emphasise outdoor experiences as fundamental to promote children's cultural formation and development. This is supported by state policies such as the Law of Common Access, which facilitates practical and everyday access to nature for families and ECEC institutions alike (Nilsen, 2008). Most Norwegian kindergartens ensure that children spend significant portions of their day outdoors, reflecting a cultural understanding of nature's role in child development (Sørensen & Birkeland , 2020). This is further evidenced by the popularity of nature daycare centres (*naturbarnehager*), where children engage in outdoor activities regardless of weather conditions, highlighting the importance placed on resilience and independence (Beckley & Moen, 2018).

Despite these clear benefits, there are challenges in implementing outdoor play in various educational contexts. Many educators face constraints such as limited resources, safety concerns and insufficient training in outdoor pedagogy. These barriers can restrict the opportunities for children to engage in meaningful outdoor play, especially in urban settings where access to natural spaces is limited (Hamilton, 2016; Sackes, 2012). However, creative solutions, such as partnering with non-traditional educators and utilising virtual experiences, can help overcome these obstacles and provide children with valuable outdoor learning opportunities (Hamilton, 2016).

The design of outdoor play spaces significantly impacts the quality of children's play experiences. High-quality play environments do not necessarily require expensive equipment. Rather, they benefit from incorporating natural materials and elements that encourage exploration, creativity and risk-taking (Brussoni et al., 2015). For instance, loose parts play, which involves open-ended materials that children can manipulate and adapt, is particularly effective in promoting creativity, problem-solving and physical activity (Cheng et al., 2023). This approach aligns with the Seven Cs play space design criteria (Character, Context, Connectivity, Change, Chance, Clarity, Challenge), which emphasise the importance of diverse and affordance-rich play environments (Brussoni et al., 2018), as well as of ensuring nature connectedness.

Nature Connectedness

The design of outdoor play environments is closely linked to fostering nature connectedness, defined as the psychological merging of self and nature. This sense of connectedness is a crucial aspect of fostering environmental agency and enhancing psychological well-being (Lengieza et al., 2023; Lengieza & Swim, 2021). This can be cultivated through various experiences with nature, ranging from mundane activities like walking in nature to more immersive experiences such as nature-based tourism and wilderness expeditions (Burbach et al., 2012; Mayer et al., 2009; Nisbet & Zelenski, 2011). Interestingly, even minimal interactions,

such as having plants in a room or walking barefoot outdoors, can significantly boost nature connectedness (Harvey et al., 2020; Weinstein et al., 2009).

Frequent interactions with nature are more effective at fostering this connectedness than isolated experiences. Regular contact with nature, facilitated by living closer to natural environments or engaging in nature-rich activities, is strongly associated with higher levels of connectedness (Cheng & Monroe, 2012; Hinds & Sparks, 2009). Childhood experiences with nature are particularly impactful, often predicting long-term engagement and connectedness in adulthood (Beery, 2013; Chawla, 2015; Pensini et al., 2016). Thus, integrating regular, meaningful nature interactions into ECEC can lay the foundation for lifelong environmental stewardship and personal well-being (Cheng & Monroe, 2012; Phenice & Griffore, 2003).

Risky Play

Another essential component of outdoor play is risky play, characterised by thrilling and exciting activities that involve elements of risk, such as climbing, jumping and exploring. This type of play allows children to engage in risk assessment, negotiate risk and understand their limits, fostering independence, confidence and resilience (Brussoni et al., 2015; Sandseter, 2009). While there are concerns about safety, a systematic review by Brussoni et al. (2015) indicates that most risky play incidents are minor, and the benefits far outweigh the potential risks. These benefits include increased physical activity, improved social skills, enhanced mental health and improved problem-solving abilities (Brussoni et al., 2018; Sandseter & Kennair, 2011).

Despite these advantages, opportunities for risky play have diminished due to safety concerns and risk-averse practices in ECEC settings (Wyver & Little, 2018). Educators play a pivotal role in facilitating risky play, and their perceptions are influenced by regulatory factors, cultural attitudes and personal experiences (van Rooijen et al., 2020). Research suggests that integrating loose parts, which are open-ended materials, into play environments can promote risky play by encouraging exploration and creativity (Brussoni et al., 2015). Thus, it is essential to balance safety with opportunities for children to challenge themselves through risky play to support their overall development (Hamilton, 2016). Gardening provides ECEC with a unique opportunity in this regard.

The Role of Gardening in ECEC

Gardening in ECEC offers multifaceted benefits, positively impacting children's physical, cognitive, social and emotional development. Garden-based interventions are particularly effective in improving children's nutrition, encouraging healthy eating habits and reducing childhood obesity (Elliott & Chancellor, 2020; Sharma et al., 2015; Wansink et al., 2015). Moreover, gardening provides children with hands-on learning experiences that enhance their understanding

of science, art, literacy and environmental stewardship (Blair, 2009; Cutter-Mackenzie, 2009). By engaging in activities, such as planting, tending and harvesting, children develop fine and gross motor skills, learn about ecosystems and gain a sense of responsibility and accomplishment (Sommerfeld et al., 2021; Williams & Dixon, 2013).

The integration of gardening into ECEC also supports social and cultural sustainability. In Norway, for example, gardening projects align with the national framework for kindergartens, which emphasises children's participation in food production and understanding the journey from ingredient to meal (Bergan et al., 2021). Such activities foster a sense of belonging and community, as children, educators and families work together towards common goals, thereby strengthening social bonds and cultural connections (Bergen, 2020).

Gardening encourages authentic participation, where children engage in meaningful, real-world tasks that are developmentally appropriate yet challenging. This authentic engagement not only enhances children's learning and development but also supports their psychological needs for autonomy, relatedness and competence (Ryan & Deci, 2000; Skinner et al., 2012). Teachers play a crucial role in facilitating these experiences, designing garden activities that cater to children's interests and developmental stages. For example, activities such as digging in soil, observing insects and tasting fresh produce provide rich sensory experiences that are vital for cognitive and emotional growth (Harvey et al., 2016).

Garden-based education also prepares children for future academic success. Studies have shown that participation in garden programmes is associated with improved academic outcomes, particularly in science and literacy (Williams & Dixon, 2013). By exploring plant biology, understanding food systems and engaging in inquiry-based learning, children develop critical thinking skills and a deeper appreciation for the natural world (Miller, 2007). Additionally, garden education fosters prosocial behaviours, as children learn to care for living things and collaborate with peers and adults, thereby building empathy and social competence (Acar & Torquati, 2015; Padilla-Walker & Carlo, 2014).

However, as garden-based interventions continue to gain popularity, further research is needed to explore their impact on developing exemplary practices for the implementation of SDGs in ECEC (Ohly et al., 2016).

Research Questions

The literature reviewed highlights two particularly problematic issues regarding how the principles of sustainability are interpreted and implemented within kindergartens. On one hand, interventions in this direction are often fragmented or the result of initiatives by individual teachers who are particularly sensitive to the topic or specialised in sciences, to whom other teachers simply delegate the planning of activities in this area. On the other hand, sustainability is still perceived as one educational area among many others (language, science, nutrition, movement…),

and therefore is mostly confined to the traditional perspective of education about greenery and respect for nature.

My research aimed to investigate:

- To what extent can the theme of sustainability be the starting point for developing forms of extended collaboration both within and outside kindergartens?
- Is it possible, by starting with the development of a typically 'green' project (such as designing a kindergarten garden), to cultivate a broader conception of sustainability as a cross-cutting and holistic dimension of educational work in ECEC?

The context of the investigation was a continuing professional development course for ECEC staff organised as part of a research project focused on the design of sensory gardens as an element of enrichment for educational offerings for children aged 3–5 years. The project referred to the extensive literature on the subject, in which the sensory garden is defined as a 'self-contained' area that concentrates a wide range of sensory experiences. Such an area, if designed well, provides a valuable resource for a wide range of users, from education to recreation (Sensory Trust, 2024). Initially created as a space reserved for people with disabilities or special needs, the design of sensory gardens has subsequently expanded, adopting a fully inclusive perspective inspired by the criteria of Universal Design for Learning, according to which all children need multiple means of access, representation, engagement and expression to high-quality early childhood care and education (Stockall et al., 2012).

Methods

To investigate this topic, in collaboration with a botanical garden, I organised a series of workshops with ECEC staff on designing and implementing sensory gardens inspired by the principles of the SDGs within their kindergartens. The meetings were structured around an action research approach, aiming to promote transformative social learning with a change agenda by actively involving participants in the design process (Bradbury et al., 2019: 7).

The workshops took place over the course of a year, involving 63 teachers and educators from 15 kindergartens located in northern Italy. Table 2.1 provides demographic information about the participants.

A mixed-methods approach was adopted for the collection and analysis of data related to the workshops. I conducted a social network analysis (SNA) to understand the evolution of the level of interaction among workshop participants. Data on the relationships between participants were collected through a questionnaire survey administered at the beginning and end of the series of workshops. Through the investigation of connections and relationships among individuals or groups within a social network, SNA helps understand the network's structure and

TABLE 2.1 Participant information

Gender	*Male*					*Female*				
	2					85				
Age	20–29	30–39	40–49			50–59	60–69			
	3	9	16			25	10			
Location of kindergarten	Lombardy		Piedmont			Veneto				
	30		21			12				
Role	Teacher		Support teacher			Educator				
	46		12			5				
Education level	Diploma		Bachelor's degree			Master's degree				
	28		18			17				
Teaching years	1–5	6–10	11–15	16–20	20–25	26–30	30–35	>35		
	2	6	6	8	13	10	16	2		

characteristics, identifying key actors and interaction patterns (Carolan, 2013). Since it was a bounded network, I used the Full Network Method, which allows for the identification of possible connections between every member of the closed network, as was the case with the workshops. The questionnaire listed all participants in the workshops and sought information from respondents regarding their interactions with each participant and their frequency. Participants were assured that the results would be reported in such a way that individuals would remain anonymous. Data were then analysed and visualised using social network software, Gephi. Analyses performed included average degree, network density and transitivity.

To assess the extent to which the activities contributed to developing participants' awareness regarding the adoption and implementation of SDG principles in their kindergartens, I used the OMEP Environmental Rating Scale for Sustainable Development in Early Childhood (Siraj-Blacthford et al., 2016). The scale was forward and backwards translated from English to Italian. It is designed as a tool to foster a shared culture of sustainability among children and adults in the early years. ERS-SDEC can be used as a guide for the internal evaluation of kindergartens concerning sustainability themes and to identify possible areas for intervention. The scale is structured into three dimensions of sustainability – sociocultural, economic and environmental. Each dimension includes five areas and four sets of indicators. A rubric allows for the evaluation of each indicator with a score on a 7-point scale, from 1 (inadequate) to 7 (excellent). The rubric, like the survey, was administered to participants at the beginning and end of the series of workshops. The means of the initial and final results obtained were then compared using a paired sample t-test conducted with SPSS to determine if the difference produced during the workshop was significant (Ross & Willson, 2017).

After the workshops, semi-structured interviews were conducted with eight participants to obtain a qualitative evaluation of the path taken. Participants were

identified through purposeful sampling according to the principle of maximum variation (Cohen et al., 2017). Therefore, interviewees with different characteristics (age, location of kindergarten, role, education level and teaching years) were selected to ensure a variety of backgrounds and perspectives. The interviews were transcribed verbatim, then coded and thematically analysed using NVivo (Adams, 2015).

The research was conducted in accordance with the EECERA Ethical Code for Early Childhood Research (Bertram et al., 2025). I ensured that participation in the research was based on voluntary, informed consent. All those involved were provided with full and honest information about the content, purpose and process of the research and were given the opportunity to agree or disagree to participate in light of this information. Copies of the survey, rating scale and interview questions were provided in advance to the participants. The participants had the right to withdraw from the research at any point. Moreover, I recognised all individual's right to privacy by ensuring confidentiality and anonymity of research participants at all stages of the research, from data collection to analysis and publication. All copies of data have been kept in a secure format and location so that anonymity and confidentiality cannot be breached. To comply with the participant's right to receive feedback on the research process and outcomes, I debriefed them at significant points in the research process and at the conclusion of the research, and I committed to providing copies of any reports or publications resulting from their participation.

Findings

The workshops, structured into five three hours sessions over 10 months, were held at a botanical garden. The activities were organised with brief introductory sessions followed by small group work with the help of facilitators. During each meeting, participants rotated among the groups to promote the exchange of information and value each person's contribution. Each workshop was preceded and followed by parallel activities within the kindergartens, according to a double helix structure (See Figure 2.1). In this way, the new knowledge generated in the workshops was not only shared with the kindergartens but also actively involved colleagues and children. This engagement allowed them to both contribute to the workshop activities and be inspired to help develop the local gardens.

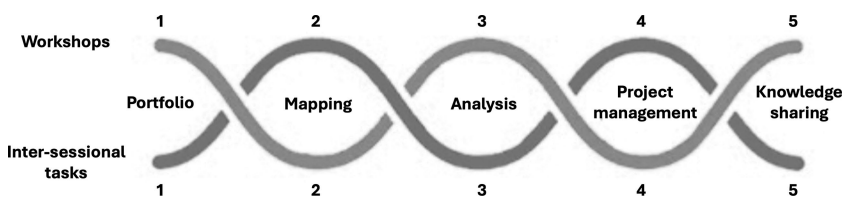

FIGURE 2.1 The research design.

First Meeting (Portfolio)

Before the meeting, participants were provided with a portfolio of materials to facilitate the initiation of sensory garden project development. The portfolio included:

- A summary from the scientific literature on research about sensory gardens and their impact on children's learning and well-being, particularly for those with disabilities;
- Guidelines for the design and implementation of sensory gardens in kindergartens (Bazaid, 2024).

During the meeting, after the initial presentation phase, participants reviewed and discussed the portfolio materials in small groups. They were then invited to freely develop their ideas through a brainstorming session. The meeting concluded with a visit to the sensory garden located within the botanical garden, where the workshops were held.

Second Meeting (Mapping)

Before the meeting, participants were provided with examples of good practices, illustrated by texts, images and floor plans, accompanied by comments from teachers and children regarding sensory gardens implemented in kindergartens in various countries.

During the meeting, participants were shown how to map the outdoor spaces identified as potential sites for sensory gardens within each kindergarten. The exercise included:

- An introduction to Photovoice, an approach that enables children and adults to take pictures of what is important to them and select the most meaningful ones to convey their stories about the places represented (Butschi & Hedderich, 2021; Herrick et al., 2022). Sharing photos as physical manifestations of the children's and adults' interests helps spark further conversations and opportunities for future development plans.
- Photographing the spaces from different angles to obtain a complete survey of the identified area.
- Using a web platform with aerial maps to locate the survey within the kindergarten and its surrounding context.
- Producing a map of the area in the form of a sketch on A2 paper.

The exercise was conducted in small groups within the botanical garden that hosted the workshops.

Third Meeting (Analysis)

In preparation for the meeting, participants were invited to carry out the mapping process in their own kindergartens, involving children and colleagues through the

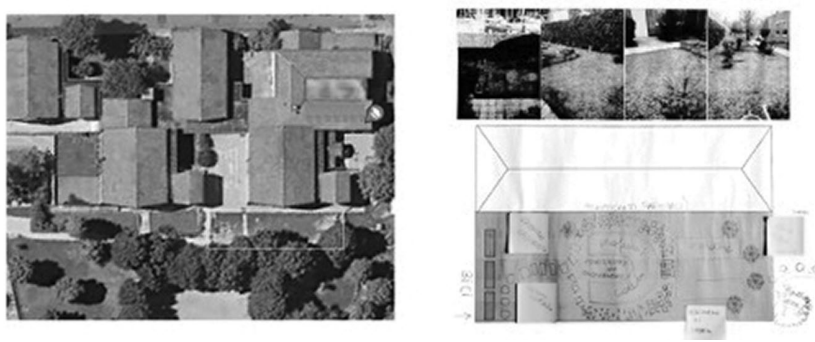

FIGURE 2.2 An example of A2 map developed.

use of Photovoice. The comments collected were used to outline an initial map of the area identified for the creation of the sensory garden.

During the meeting, based on the materials provided in the portfolio and the mapping of the kindergartens carried out with the help of children and colleagues, participants were asked to analyse in small groups the barriers and enablers present in each of the identified spaces, taking into account the comments and suggestions received through Photovoice. To further facilitate the analysis, the following were provided:

- The list of indicators B.1.11 ('The buildings and grounds are developed to support the participation of all') from the Index for Inclusion (Booth & Ainscow, 2011);
- Vignettes containing descriptions of cases of children with special needs are to be analysed as potential references for the design of a sensory garden.

Based on the analysis and the knowledge developed in the previous meetings, participants then developed the possible design for each kindergarten using the A2 maps (see Figure 2.2 for an example).

Fourth Meeting (Project Management)

In preparation for the meeting, participants were invited to display the maps created during the previous workshop in the entrance area of each kindergarten. This was done to gather additional ideas and suggestions from colleagues and children and to extend the consultation process to families using stickers and Post-it notes.

During the meeting, participants were shown how the process of creating a sensory garden can be developed in a series of steps. They were then provided with a simplified project management template so that they could identify the essential elements for realising the project, starting from the enriched maps with ideas and suggestions gathered at the kindergartens. In small groups, participants discussed and identified objectives, resources, responsibilities, timelines and phases for the

creation of each garden. This process helped pinpoint each project's specific needs and challenges and possible strategies to address them by leveraging the existing resources within the kindergarten and its community.

Fifth Meeting (Knowledge Sharing)

In preparation for the meeting, participants were asked to draft and share online a database of the needs and resources identified using the template for their projects. They were then invited to recognise common needs and resources among several kindergartens and compile a list of possible aspects to work on together to increase the chances of project success.

During the meeting, based on the experience gained in the sensory garden development process, the common list of needs and resources was used as a starting point for organising a networking activity among the participants and, more broadly, their kindergartens. The currently available alternatives that allow network members to stay in contact in a flexible and sustainable way were presented and discussed. This approach aims to follow the evolution of the projects and, if possible, provide support through information and experience exchange. To this end, participants experimented with using an open-access online platform (La Digitale, 2024) that allows documentation and knowledge sharing regarding future activities in building sensory gardens in the kindergartens involved in the initiative.

The investigation conducted through SNA allowed us to evaluate the frequency of interactions between participants and their evolution from the beginning to the end of the workshops. The overall network structure was analysed in terms of density, connectedness and betweenness. Density measures the number of connections divided by the total possible connections, connectedness measures the number of connections one node has to other nodes, and betweenness measures if a node stands between other nodes. These measures helped us understand how many relationships the participants established among themselves during the workshops, which participants had the highest number of relationships, and how they operated as brokers in fostering the development of relationships within the group. Diagrams 1 and 2 show the evolution of the participants' network (See Figure 2.3).

The results show that the number of relationships between participants increased and/or significantly strengthened during the workshops. At the same time, the number of isolated participants (small groups on the periphery of the network) decreased. The diagrams also indicate that some participants significantly increased their number of relationships. Additionally, while initially only one participant played a clear bridging role, by the end of the workshops, the number of brokers had increased, leading to more evenly and effectively distributed leadership within the network.

The results of the ERS-SDEC rating scale, administered at the beginning and end of the workshops, also show significant changes in participants' attitudes towards

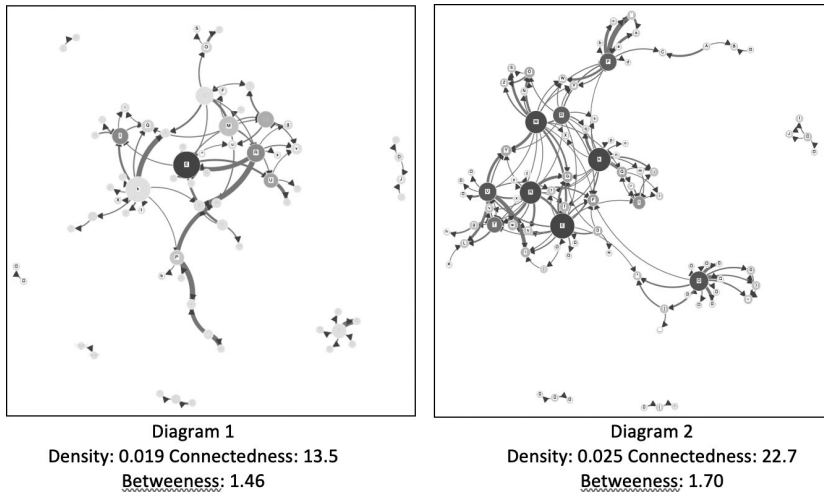

FIGURE 2.3 The evolution of the participants' networks.

sustainability as a central theme for developing educational activities within kindergartens. Overall, the comparison of the average scores before and after the workshops highlights an improvement in the evaluation of the three areas analysed (see Table 2.1). More specifically, the improvement is moderate in the area of environmental sustainability and more pronounced in both the socio-cultural and economic sustainability areas. It is also interesting to note that the positive changes mainly concern the indicators 'Collaboration beyond the ECE setting', 'Budgeting and money' and 'Sharing resources'. The latter two are particularly significant because they indicate a change in the economic area, which research has identified as typically less represented among the three considered (Fermín-González & Echenique-Arginzones, 2022; Višnjić-Jevtić et al., 2022). However, it should be noted that the scale results were evaluated based on a pre-experimental design. While this allowed us to verify whether the changes between the beginning and the end of the workshops were significant, the absence of a control group did not allow us to infer whether the cause of these changes was directly attributable to the activities performed.

The findings were subsequently explored in greater depth through semi-structured interviews with 12 workshop participants. The thematic analysis of the interviews using NVivo allowed for the identification of several particularly relevant aspects highlighted by the participants in reference to the reflections that emerged during the workshops*: the connection between sustainability and the economy*; *the role of sustainability within the curriculum*; *the creation of welcoming spaces*; *the relationship with dirt*; *sustainability as regeneration*; and *the importance of collaboration*. Below are some particularly significant excerpts from the interviews.

Economy

As already noted, previous studies show that the economic dimension of sustainability is generally the most undervalued by kindergarten staff. In this regard, a teacher commented:

> I like the idea of creating a small garden to explore with the senses in the kindergarten. But I also like to think that children can see how this garden, if cared for, can regenerate itself every year. We have learned that every plant in the garden can not only be used but also recycled, for example, becoming compost. Nothing is wasted. […] This is an important message for our kindergarten as well, because we are far from having zero impact. I think about food or detergents, for example. There is still a lot we should do to avoid wasting resources and to think about self-sustainability.

Curriculum

The need to understand the role of sustainability within the curriculum was a recurring theme among the workshop participants. Recalling the discussions had with colleagues on this topic, an educator said:

> I have been working in preschool for six years. Two years ago, I completed my master's degree and started working more steadily. There is a lot of talk about sustainability today, especially with children, but my knowledge is limited, and no one at my kindergarten has a green thumb. […] The national guidelines (the curriculum for kindergartens in Italy) only say generic things about it. Even in the master's program, there was no specific course that addressed the issue. […] The workshops have been helpful, especially the practical exercises. They gave me a bit more confidence in trying to design some activities with the children that go beyond the usual patterns. There is a real need for this, you know.

Welcoming

A significant group of workshop participants consisted of support teachers. They were particularly interested in exploring the possible uses of the sensory garden as a place capable of welcoming children with special needs. One of them recounted:

> This thing about the sensory garden intrigued me because I am a support teacher. For the past two years, I have been working with a child on the autism spectrum, quite severe. At first, it was very tough. Now that we know each other a little better, it's going better, but it's always difficult. When something disturbs him [child's name], he wants to leave the classroom. Sometimes he even runs away, and I chase after him, and almost always we end up going outside. It's

more relaxing for him. […] If we could make this sensory garden, it would be wonderful. I mean for him, of course, but also for all the other children. A place where everyone feels welcomed and well, even the adults.

Dirt

A somewhat expected topic that emerged during the workshops is the particular reluctance that characterises Italian kindergartens regarding outdoor activities with children. This aspect was linked by some participants to the more general theme of 'dirt' and its potential educational role:

During the workshops, we often commented on how it is difficult to go outside with the children here. On the one hand, going outside is challenging because you have to help the children dress and undress, you have to be more careful because the space is larger, and you can lose sight of the children. Above all, there is this widespread culture that you can only go out if the weather is perfect. This is also because families don't want their children to get dirty. […] It all needs to be rethought in my opinion. The garden should not just be 'pretty' to look at. It should be an opportunity for small and large adventures. To learn not to be afraid to get their hands in the dirt, touch an insect, observe the plants growing, and listen to the birds. The greenery cannot always be 'clean,' quite the opposite…

Regenerate

One element emphasised multiple times by participants during the workshops is the need to move beyond a purely decorative or technical view of sustainability 'ticking boxes'. A teacher was particularly clear about the importance of asking real questions that help children and adults reflect on our future and the need for regeneration:

I see that there is an increasing belief, even among many colleagues, that promoting sustainability means turning off the tap properly or planting flowers with the children for Mother's Day. Let me be clear, I have nothing against these activities, but the real question in my opinion is: do they truly make the planet better or just make us feel better? […] I argue that we need to review our activities as a whole and involve families in this too. Fewer cell phones given to very young children to keep them quiet. Fewer children being driven right to the kindergarten door with the excuse that the car is electric. More questions about what kind of world we want to leave to these children: better or worse than the one we found? […] It's not about giving up, but rather about purifying and regenerating ourselves and the children. I know it's asking a lot, but that's how I see it.

Collaborate

One aspect that sparked particular interest among some workshop participants is the dimension of interaction with others promoted through the various activities. In evaluating this experience positively, a teacher expressed the hope for a more collaborative approach within her own kindergarten:

> I really liked that in the workshops we almost always worked together with other teachers. It's something that, at least in my kindergarten, happens quite rarely. Each person is responsible for their own class, and the moments of co-presence are few. Moreover, when we have meetings, we spend most of the time talking about the children or problematic families, and very little about what we would like to do to improve the kindergarten. Certainly, it's good to discuss problems. But this way, activities are almost always repetitive or isolated. […] [The workshops] reminded me that when you put your energy together with others to do something stimulating, like the sensory garden, something interesting always happens and the energy multiplies, if that makes sense… It's like with the children. If you take them seriously, they give you a lot. I was pleased that we were taken seriously here.

Overall, the findings indicate that the workshops significantly promoted collaboration and relationship-building among participants, as shown by the SNA results, which revealed strengthened connections and a decrease in isolated members within the network. The ERS-SDEC rating scale results also demonstrated positive changes in participants' attitudes towards sustainability, with moderate improvements in environmental sustainability and more pronounced progress in socio-cultural and economic aspects, particularly in collaboration, budgeting and resource sharing. The thematic analysis from interviews further highlighted key areas of impact, including integrating sustainability within the curriculum, developing welcoming spaces, embracing nature and dirt in learning and recognising the need for regenerative practices and increased collaboration.

Discussion

The participatory design of outdoor spaces in kindergartens has demonstrated significant potential in fostering a paradigm shift in ECEfS. By engaging children, educators and the community in the design and implementation of sensory gardens, this approach has facilitated not only environmental but also social and cultural sustainability.

A key finding of this study is the enhancement of environmental agency among young children. Immersive experiences in nature, such as those provided by sensory gardens, have been shown to foster a deep connection to nature, which is crucial for developing lifelong environmental responsibility. This aligns with previous research highlighting the benefits of nature-based education, including increased physical activity, improved social skills and enhanced emotional well-being (Johnston et al., 2022).

Moreover, the participatory approach has reinforced the concept of community within educational settings. The collaborative nature of designing sensory gardens has strengthened relationships among children, educators and parents, promoting a sense of belonging and mutual responsibility. This community-focused approach is vital for addressing the broader socio-cultural dimensions of sustainability, such as equity, inclusion and cultural heritage.

Despite these positive outcomes, several challenges remain. Implementing outdoor play and nature-based activities in urban settings often encounters obstacles, such as limited resources, safety concerns and insufficient training for educators. These barriers can restrict the opportunities for children to engage in meaningful outdoor experiences. Creative solutions, such as partnerships with local organisations and the use of virtual experiences, are necessary to overcome these challenges and provide equitable access to nature-rich learning environments.

Furthermore, the integration of sustainability into early childhood education requires a holistic approach. It is not enough to focus solely on environmental aspects; social and economic dimensions must also be addressed. This includes fostering skills such as collaboration, critical thinking and problem-solving, which are essential for sustainable development (Chapman & O'Gorman, 2022).

Conclusion

The participatory design of outdoor spaces in kindergartens represents a promising approach to integrating sustainability into early childhood education. By involving children, educators and the community in the design process, this approach promotes environmental stewardship, social cohesion and cultural sustainability. The findings of this study suggest that immersive nature experiences and collaborative projects can significantly enhance children's connection to nature and their understanding of sustainability.

However, for these initiatives to be successful, several factors must be addressed. Ensuring adequate resources, providing training for educators and overcoming urban constraints are critical for implementing effective nature-based education programmes. Additionally, a comprehensive approach that includes social and economic dimensions of sustainability is essential for fostering a holistic understanding of sustainable development in young children.

Future research should continue to explore the long-term impacts of participatory design projects on children's environmental attitudes and behaviours. There is a need to investigate how these projects can be scaled and adapted to different contexts, particularly in urban areas with limited access to natural spaces. Moreover, further studies should examine the role of policy and institutional support in sustaining these initiatives over time. By addressing these areas, we can better understand how to create inclusive and effective sustainability education programmes that benefit all children.

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3

WHOLE CENTRE APPROACHES IN ECEfS

Time for Transformative Leadership and Change

Eva Ärlemalm-Hagsér and Sue Elliott

Introduction

Over recent decades research on sustainability and education has raised questions about what fundamental aspects are to be taught or learnt pedagogically. Also, how the wicked problems of climate change, biodiversity loss and pollution can be addressed (Jicking & Sterling, 2017), as well as social sustainability concerns of poverty, inequality and health (UNICEF, 2021). Children the world over are affected by these issues, with potentially lifelong consequences (Clark et al., 2020; UNICEF, 2023). As researchers in the field of Early Childhood Education (ECE) we and others have long argued that ECE has a prominent role to play addressing sustainability issues (Elliott et al., 2020; Pramling Samuelsson & Kaga, 2008). ECE has a tradition of working with social, economic and environmental matters in relation to care for self, others and the planet (Ärlemalm-Hagsér, 2013). Researchers in the field of Early Childhood Education for Sustainability (ECEfS) have instigated discussions about how ECEfS can be understood in relation to ECE philosophy, curriculum and pedagogy as well how holistic and integrated views of sustainability (Davis, 2008, 2015) can be developed and established in ECE. In this chapter, we begin by reflecting on the history of whole 'centre' approaches (WCA) in ECEfS and aspects of Mathie and Wals current whole school approach (WSA) model (2022). Then, we explore contemporary ECEfS tenets and principles of transformative leadership, plus offer two illustrative early childhood case studies from Sweden and Australia. These explorations have informed our revision and retailoring of WSA as a WCA model for ECEfS. We anticipate this revised WCA model will resonate more strongly with early childhood educators and promote a systemic and integrated approach to ECEfS.

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Whole 'Centre' Approaches in ECEfS and WSA

In 2005, Julie Davis and colleagues wrote a chapter about how a preschool in Australia worked with a WCA (Davis et al., 2005). She defined this work as embedding 'cultures of sustainability' where the ECE centre staff embraced an integrated and holistic view of sustainability. This was developed by examining everyday practices and mainstreaming sustainability across ECE centre management, teaching pedagogies and the physical environment, as well as through opportunities for children's play and learning. Later, the chapter authors connected with this initial chapter continued to explore this approach in an ECE centre (Pratt, 2010, 2015). For example, Pratt (2010) originally identified three central elements to their ECEfS model including curriculum, the physical environment and culture/philosophy. This model was further supported by aspects of the built environment, natural environment and daily practices, experiences and interactions. In addition, a whole school or centre approach rated brief mentions across several chapters in Boyd et al. (2018) and Davis and Elliott (2024). Most recently, Borg et al. (2024) have explored the alignments between the 'wholeness' of Nordic preschool education drawn from a global citizenship stance and WSA. Beyond these references, there appears to be limited in-depth discussion of WSA in ECE contexts.

Internationally, the concept of WSA applied to sustainability is not new, Henderson and Tilbury (2004) identified that schools began using this systemic change approach in the early 1990s. They characterised WSA as relevant, resourced, reflective, responsive and reformative, characteristics that still resonate well today. Interestingly, WSA has now been applied to other school matters in need of systemic change such as student mental and physical health (Jones et al., 2022; Spencer et al., 2022). In the last decade, the WSA as applied to sustainability has been further developed by Mathie and Wals (2022) as a colourful flower shaped model. They argue that in re-orienting education towards a WSA, education needs to involve all aspects from school management to pedagogy, curriculum and as well as connecting to the community. The model is a systemic 'thinking tool' for all school stakeholders and depicted as five integral aspects (Institutional practices, Capacity-building, Community connections, Curriculum, Pedagogy and learning) surrounding the Vision, Ethos Leadership and Co-ordination as central to implementing change.

In addition, Forssten Seiser et al. (2023) propose that an important aspect for improving WSA uptake is to promote capacity building through *specific practice architectures* within the school. Pivotal to WSA implementation, issues of time and endurance were reported in their study. They identified three WSA uptake phases, namely initiation, implementation and institutionalisation. The latter was significantly important, a phase where all school participants state that sustainability is embedded and simply *is the way people do things here*. Hence, essential to WSA implementation is an evolving chronology of contextualised steps over time.

Contemporary Tenets of ECEfS

The notion of holistic and integrated WSA approaches reflect a fundamental philosophical stance in ECE where the whole child is considered and learning is integrated across varied developmental domains and discipline areas (Borg et al., 2024; Elliott & Davis, 2023). For early childhood educators, a holistic and integrated approach as advocated by WSA is not new, but the implementation with sustainability as a focus certainly is. While there are aspects of the above WSA discussion that well align with ECEfS, here we briefly reiterate some contemporary tenets of ECEfS prior to retailoring the WSA for ECE.

Research in the field of sustainability (Ardoin & Bowers, 2020; Elliott et al., 2020) emphasises that children have rights, competencies and the ability to be agents of change. It also points out that a courageous, radical, creative and imaginative education prioritising ethical planetary issues is now required (Jickling & Sterling, 2017; Kopnina, 2020). In particular, Jickling (2017) argues for approaches to education that are disruptive:

> As humans, we have the capacity to feel, empathize, love, and mourn loss … We need to pay attention … creating educational experiences that are held, felt, and disruptive might just be the basis for learning that is, indeed, transformational. *(p. 28)*

An education that challenges how the Earth's resources are utilised and creates understandings of how interconnected humanity is with a sustainable planet (Kopnina, 2020). This means that ECE educators must be tasked to explore and challenge unsustainable ways of acting and thinking when implementing ECEfS and create explicit links to economic, social and ecological sustainability together with children. Transformative practices aim to develop the skills and dispositions for reflective and critical thinking about everyday practice. The clear intent is to challenge un-sustainable mindsets and ways of being and acting in ECE. We call on all educators to be creative in using a broad spectrum of theories to revise worldviews and imagine alternative futures with children across all aspects of sustainability.

Over the past decade, research on ECE and sustainability has challenged dominant anthropocentric understandings of the world and offered alternative ways of understanding and promoting sustainability (Cutter-Mackenzie-Knowles, Malone & Barratt Hacking, 2020; Ritchie, 2016; Taylor, 2017; Weldemariam & Wals, 2020). According to these researchers, the human entanglement with the non-human world is crucial. Children's experiences in and knowledge of nature can together with building respectful nature relationships create deeper connections to the Earth and the non-human world. Rooney and Blaise (2023) have raised ethical engagement as a significant aspect in rethinking human relations with nature, specifically the weather. They state this 'involves more than learning about

things, and rather requires a willingness to (un)think and (un)learn, to challenge the framings we (adults) have grown up with and take for granted, and to shift our orientation to learning with worlds' (p. 9). In essence, critically reflective practice is significant, alongside transformative teaching and learning, where children's participatory rights are recognised together with new understandings about the agency of more-than-human. Weldemariam and Wals (2020) challenge, from posthumanist and post-anthropocentric perspectives, the last decade's view of children as agents of change in education for sustainability. Not that children are inactive agents, but because the starting point is seen as anthropocentric, where human needs and interests are central, and separate from nature. They argue that the non-human world should be regarded as an active agent and not merely a passive background. Such ponderings invite us to explore more ethically coherent, although somewhat more uncomfortable approaches, in ECE.

Transformative Leadership and ECEfS

In both in research and policy, a proactive leadership has been raised as one of the most important aspects for implementing and developing a holistic and integrated view of EfS (Borg & Vinterek, 2020; Mogren & Gericke, 2017). Shields (2025) has argued for transformative rather than transformational leadership and here we align with her definition of transformative leadership as 'critical, adaptive, and activist' (p. xi). Further her definition is informed by two principles: 'individuals are included, respected, and valued'; and, collective living in a democratic society (p. xii). In addition, eight tenets are outlined including deep and equitable change, addressing inequitable distributions of power and interdependence, interconnectedness and global awareness, as well as moral courage (p. xii).

Shifting more towards a sustainability practice approach, Verhelst et al. (2020) have identified eight characteristics of an effective school organisation for sustainable development: notably, (1) sustainable leadership; (2) school resources; (3) pluralistic communication; (4) supportive relations; (5) collective efficacy; (6) adaptability; (7) democratic decision-making; and, (8) shared vision. Below we identify these characteristics, with some adaptation and rewording to effectively align with ECEfS.

- *Sustainable leadership:* develop a long-term goal for ongoing improvement recognising the past, but seeking innovation and leading with transactional and transformative strategies for a successful ECE service for sustainability;
- *ECE service resources:* allocate resources including staff time and both professional and physical infrastructure for facilitating ECEfS across the whole service;
- *Pluralistic communication*: engage in participatory dialogues and learn from others' experiences, viewpoints and arguments, plus recognise different starting points and create opportunities for shared ECE service reflection about sustainability;

- *Supportive relationships*: generate feelings of being supported by other members of the ECE service and those beyond it to foster more integrated ways of working and to potentially overcome any sustainability challenges;
- *Collective efficacy:* create high expectations of what the ECE service can achieve and a sense of preparedness to work together for effective sustainability outcomes;
- *Adaptability:* recognise internal and external influential ECE service factors and be responsive to opportunities, plus adopt a holistic perspective towards change where valuable past aspects are critically reflected upon while investigating the transformative potential for more sustainable futures;
- *Democratic decision-making:* share decision-making between stakeholders both within and beyond the ECE service and practice distributed leadership to involve all, including children, educators, parents and community members; and,
- *Shared vision:* create common and shared understandings of what the ECE service means by sustainability, why this is critical and what the ECE service hopes to achieve by implementing ECEfS (adapted from Verhelst et al., 2020).

We argue these eight characteristics have much potential for informing holistic ECEfS leadership approaches and to be supportive of practice.

ECE leadership can be problematised on several levels, firstly through the legislative documents and how leadership is defined with what mandates are accorded to the different parts of the ECE service. Commonly, national curricula and/or national quality assurance documents will stipulate leadership parameters for ECE services. For example, in Australia the National Quality Standard (NQS) (ACECQA, 2017) incorporates Quality Area 7: Leadership and service management which encompasses descriptors about effective leadership and designated educational leader roles. While the policy focus is mostly instrumental about regulation, reporting requirements and record keeping, an ethos of continuous improvement informed by shared reflective practice is promoted. However, sustainability is not mentioned in the NQS and is only inferred by a single entry about 'environmental responsibility' within Quality Area 3: Physical Environment (ACECQA, 2017). Thus, there is limited guidance here for aspiring *Sustainability Leaders* in ECE services. In contrast, the recently updated national early childhood curriculum (AGDE, 2022) incorporates a new sustainability principle, hence in Australia we see a policy anomaly yet to be addressed.

In Sweden, the preschool principal or head leads and manages the everyday pedagogical activities and is the designated head of the preschool teachers and other staff. According to the Swedish Education Act (SFS, 2010, p. 800) and the Swedish National Curriculum for Preschool (Swedish National Agency for Education, 2019), the principal has the overall responsibility for the preschool and its ongoing development. This means that how the principal interprets their tasks for leading ECEfS considerably influences how sustainability is embedded in Swedish

ECE service practice. According to Borg and Vinterek (2020), Swedish preschool principals considered education for sustainable development (ESD) to be crucial in ECE and stressed the need for integration into preschool education. In their study, comparing eco-certified preschools with non-eco-certified preschools, not unexpectedly, sustainability issues were more highly prioritised in the daily education programmes of the eco-certified preschools.

Lastly, we acknowledge irrespective of policy documents, designated leadership roles or eco-certification programmes, educators' personal relations, commitments and epistemological beliefs have great importance for how they lead and how sustainability is enacted in ECE services. For example, all educators are urged to develop strong relations as integral to their leadership roles around children, parents and colleagues. Relationships that strengthen trustworthiness and respect among all stakeholders are essential when endeavouring to facilitate change towards sustainable futures. In addition, McCrea (2015) offers insights about educator's embodied commitment to lead sustainably and Brownlee et al. (2010) argue that transformational leadership is linked to epistemological beliefs that knowledge is evolving and open to ongoing critique and evaluation. Essential beliefs for addressing dynamic global sustainability matters; and, we argue it is these least tangible aspects of leadership that underpin explicit leading transformative roles.

In summary, we argue transformative leadership is key to implementing ECEfS, here we have offered some points for consideration. However, notions of leadership for sustainability must be further developed to promote educational change in these critical global times. Boyd and Palethorpe (2024) offer significant theoretical and practical insights with reference to distributive, collaborative and intentional leadership for sustainability, while O'Sullivan and Sakr (2022) promote social leadership informed by social equity in the early years. Steering documents such as curricula and quality criteria, plus leadership strategies for change across all ECE levels are required. We now offer two case studies to exemplify the potential of WSA in ECE services.

Australian and Swedish Case Studies and WSA

These case studies illustrate the potential of WSA for creating change towards sustainable futures in ECE services.

Australian Case: Improving Sustainable Practices in Early Childhood Education – Using a Whole-School Approach to Create Change by Sara Betts and Emma Rattenbury

Kids' Uni North is an early learning service located on the University of Wollongong (UOW) campus, 80 km south of Sydney and nestled under Grandmother Mountain, Geera (Mount Keira). The service is one of four not-for-profit services owned by UOW Pulse. Kids' Uni North enrols 100 children from the families

of university staff, students and the local community with diverse cultural backgrounds. The service provides long day care for children from 12 weeks to 6 years of age in three separate age-based groupings: birth-2 years, 2–3 years and 3–6 years.

A total of 59 children attend daily, with approximately 17 educators across each day. For the purposes of this case study, the term 'educator' refers to all staff working with children. Educators employed at this service hold a range of qualifications from certificate to degree level and have varying amounts of experience within the early learning sector. In addition, a Service Director specifically manages Kids' Uni North, and an overarching Pedagogy and Curriculum Support Teacher and Head of Early Education support all four UOW services.

At Kids' Uni North, we are a group of dedicated educators who continually strive to strengthen sustainable practices across all service areas. In addition, we engage in ongoing work towards Reconciliation and authentic connections with Aboriginal and Torres Strait Islander peoples and culture. Over a period of two to three years, this vision has resulted in critical reflections amongst the team, children and families, adaptations to practice and collaborative work with local Aboriginal Elders.

All early learning services in Australia work under the National Quality Framework, which comprises both a National Quality Standard (ACECQA, 2017) and Belonging Being Becoming: The Early Years Learning Framework for Australia (EYLFv2) (AGDE, 2022). In February 2023, the EYLFv2 was released for services and incorporated a new principle focused entirely on sustainability. The framework defined sustainability as multi-dimensional and provoked all educators to look beyond environmental goals, such as recycling and water conservation. With this framework change, and in conjunction with our team goals and philosophical views, Kids' Uni North educators have increasingly altered their pedagogies and practices in a multitude of ways to ensure we are working sustainably, whilst empowering children's voices to drive future change.

To promote the commitment to sustainability and ensure quantifiable outcomes within our service, the Kids' Uni North leadership team committed to investing time and resources in a designated *Sustainability Leader* role. The *Sustainability Leader* is regularly provided with additional time outside the classroom to engage in research, setting goals and actioning plans. The Service Director works in collaboration with the *Sustainability Leader* to drive the embedding of service-wide practice changes towards more sustainable outcomes. A key component of this has included the creation of a Sustainability Action Plan (SAP) in which the various stakeholders are held accountable for actions relevant to their ECE service roles (see Table 3.1).

The *Sustainability Leader* role began in 2020 and prompted significant progress across the service towards achieving sustainability goals. Prior to the release of the EYLF V2.0 (AGDE, 2022), the key focus had been on environmental sustainability, with three of the seven Rs of recycling (Golden Plains Shire, 2016) as a

TABLE 3.1 Excerpt from the centre Sustainability Action Plan (SAP)

Goal/Outcome	*Who?*	*Strategies*	*Timeframe*	*Progress notes*
Organic waste bin. (Food Organics and Garden Organics, FOGO)	All educators	Bins and bags provided by contracted waste disposal service. Signage on bins to remind educators and children of which material goes in which bin.	2022 – ongoing	July 2022 – All rooms have their own FOGO bin. This is being used during meal times. July 2023 – Running smoothly across the service. Families, staff and children donating FOGO bags. ** Achieved July 2023 – to post to families for donations if/when supply becomes low.

focal point. This involved embedding service-wide standards around the Reducing, Reusing and Recycling of materials and resources. Since the release of the revised EYLF V2.0 (AGDE, 2022) framework, the focus has broadened to encapsulate goals across not only the environmental dimension but also the social and economic dimensions of sustainability. We now outline our ongoing work with links to the elements of the WSA (Mathie & Wals, 2022).

Mapping elements to a Whole School Approach to sustainability (Mathie & Wals, 2022)

1 Visions, Ethos, Leadership and Co-ordination
The vision at Kids' Uni North, was to make significant change to strengthen our sustainable practices. In addition, these changes were made in consultation with and alongside children to maintain their rights to be involved and build their capacities to embed sustainable practices within their current and future lives. In practice, this looked like:

- Taking a co-ordinated service approach driven by our *Sustainability Leader* with set monthly sustainability planning and reflection sessions;
- Updating the service philosophy to incorporate 'Caring for Country' as a key theme. This document plays a pivotal role in guiding reflection and underpinning practice;
- Embedding future goals within the service ACECQA mandated Quality Improvement Plan, a document that lists current goals and corresponding strategies; and,

- Connecting with and engaging Dr Sue Elliott, a sustainability specialist, to provide educator training and guided practice sessions.

2 Institutional practices for change
Within Kids' Uni North, we aim to foster a workplace culture of critical reflection and accountability. When engaging in practice change, this involves:

- Working collaboratively to determine appropriate goals/next steps – this is undertaken in group discussions either in person (at meetings) or on the online documentation platform used within the service;
- Addressing any potential barriers and forming plans and systems to minimise impacts of decisions made; and,
- Continuing to address barriers as they arise when enacting any practice changes, creating new or altering existing plans and systems to ensure this can be maintained.

During group discussions, open and honest conversations occurred as to how individuals could ensure that sustainability changes can be effective. For example, if a goal had 'All educators' under the 'Who' heading of the SAP, the 'Strategies' section would highlight specific strategies as to how this would be maintained and communicated to educators not present at the initial decision-making discussions. Ensuring that planning encapsulated this level of specificity and consideration of potential barriers assisted in ensuring goals could be maintained long-term.

3 Capacity building
The Kids' Uni North's *Sustainability Leader* and the Service Director engaged in consistent communication with staff members who were not directly working with children. Barriers with regards to the implementation of the SAP goals had arisen when these communications were previously limited to only the educators employed by the service. This has been minimised by:

- Alerting the head of cleaning via email of changes relevant to their team;
- Informing the head of maintenance of changes and researching alternate ideas when new work proposals occur within the service;
- Ensuring the kitchen staff are kept abreast of changes to practices and bin usage;
- Inviting the kitchen staff and administration team to sustainability professional development to promote their contribution; and,
- Engaging with the gardener to direct their work within the service to align with the sustainability philosophy and goals of Kids' Uni North.

4 Pedagogy
Our team strongly believes children have the right to be included in all facets of pedagogical planning and implementation. Educators, especially in the 3–6 years space, implemented many small group discussions and experiences to assess children's knowledge, understanding and opinions about what sustainability

means to them and their world. In addition, the educators embedded multiple opportunities within the day for children to participate and contribute to sustainable practices. Pedagogical learning for children included:

- Creating systems with children to recycle, reuse and compost food scraps;
- Filming a local recycling centre to show children the process within that particular facility; and,
- Embedding a range of intentional learning processes, such as exploration, collaboration and inquiry-based experiences, our daily Acknowledgement of Country, welcoming parents to repair broken resources alongside children and exploring the benefits of donating books.

5 Curriculum

The new Principle in the EYLFv2 (AGDE, 2022) clearly states the importance of viewing sustainability as looking beyond environmental sustainability. Utilising UNESCO's Sustainable Development Goals (UNESCO, 2015), the Pedagogy and Curriculum Support Teacher encouraged the Kids' Uni North team to unpack each goal. More specifically, the educators explored ways in which we currently plan for and document children's understandings around each individual goal. Upon reflection, the educators observed that children were currently exploring early concepts within each goal. Additionally, our curriculum was embedding a whole service/school approach through:

- Sharing educator's and children's sustainability ideas across the service groupings through our online documentation platform;
- Conducting consistent critical reflection during individual and group educator programming sessions and meetings underpinned by a sustainability ethos; and,
- Sharing all documented learning with families to provide ideas and evidence of the work educators and children are doing in consultation to promote sustainability.

6 Community-connections

The Kids' Uni North team values inclusive, respectful relationships as essential in providing high-quality education and care. This includes relationships within the service as well as establishing and maintaining relationships with the broader community.

- Establishing and maintaining relationships with local Aboriginal Elders who have spent time with the children and contributed to decision-making where possible/relevant, including consultation around the service's Bush Tucker Garden and Reconciliation Action Plan;
- Involving the children in community initiatives such as 'Bread Tags for Wheelchairs', pen and marker recycling, battery recycling and 'Return and Earn'. These initiatives saw families beginning to contribute from their homes and volunteering to take turns in assisting by delivering collections to relevant locations;

- Engaging the children in spending time within the University campus, in particular for cultural events, such as NAIDOC Week, Indigenous Literacy Day, Reconciliation Week, Lunar New Year and Live Art Week, in which the children are active participants;
- Participating in the state Return and Earn initiative led to the children opting to save the money made from taking their recyclables to collection points and donating this to a local organisation which helps homeless people. A representative from this organisation came to talk to the children over a period of 2 years about the outcomes of their donations; and,
- Saving kitchen leftover meals for families and offering these to families experiencing hardship; alternatively, this offering is shared through the online documentation platform.

In conclusion, the Kids' Uni North team plans to continue to invest in a *Sustainability Leader* to drive the SAP, despite the pressures of significant staffing shortages in ECE over recent years. This has presented a significant barrier around providing the amount of time and resources which the service aims to invest in the *Sustainability Leader* role. We will continue to address this and put in place strategies to minimise the staffing effects on the service for achieving a fully embedded whole 'service' approach that well illustrates the SDGs in practice.

Swedish Case: Working with Sustainability in Swedish Preschools

ECE in Sweden (preschool) is generically labelled preschool and is the first step in the Swedish education system. Swedish preschools are full day services for children aged 1 to 5 years and the percentages of children enrolled are: aged 1 year: 51 %, age 2 years: 91%, age 3 years: 95%, age 4 years: 96% and age 5 years: 96% (Swedish National Agency for Education, 2024). Swedish preschools are under the auspices of the Ministry of Education, and the Education Act (SFS 2010:800) and both the law and the National Curriculum for Preschool (Swedish National Agency for Education, 2019) guide preschool programmes. In the Swedish preschool curriculum, sustainable development (this term is used in all Swedish legislation) has become an important fundamental value. The curriculum states that ECE should 'lay the foundation for a growing interest and responsibility among children for active participation in civic life and for sustainable development' (Swedish National Agency for Education, 2019, p. 5). Three new goals for connecting with sustainability were added in the most recent curriculum review, namely:

- a growing responsibility for and interest in sustainable development and active participation in society;
- an understanding of how different choices people make in everyday life can contribute to sustainable development; and

- create conditions for children to understand how their own actions can affect the environment and contribute to sustainable development (Swedish National Agency for Education, 2019, pp. 13, 15).

Swedish preschools have a long tradition of working in the context of social, economic, ecological and political sustainability issues (Ärlemalm-Hagsér, 2013). This is evident from the now historical pedagogical work during preschool formation in the mid-1850s. From the beginning, this work included individual health, lifestyle issues and competence, with children viewed as key actors shaping a better future society characterised by social stability, health and economic progress.

The Case Study: The Sustainable Preschool by Eva Ärlemalm-Hagsér, Ingrid Pramling Samuelsson and Ingrid Engdahl

This Swedish case study was a large 3-year (2021–2024) research and development programme entitled *Sustainable Preschool* led by the Ifous (innovation and research development in school and preschool, hereafter Ifous, 2021) together with the interested municipalities, preschool providers and our research team. The programme goals were to capture how preschool teachers may transform their curriculum and pedagogy towards sustainability, and how the leaders (preschool education principals and operational managers) can change their policies and conditions to enhance children's potential learning about sustainable development. Altogether in the programme, there were 300 participants, including 200 preschool teachers and 100 preschool leaders across eight different municipalities and one private preschool provider aiming to implement ECEfS in their preschools.

The programme involved creating a community of learners where all had responsibilities in the construction of multiple new knowledges. The programme had a recurring pattern of one meeting and a two-day seminar each semester. The latter included lectures and group dialogues where preschool teachers and principals could meet with their counterparts from different municipalities. The group dialogues focused on different sustainability topics and adhered to a structure that enabled all to participate. The principals also engaged in a one-day seminar each semester with lectures and discussions for building leadership skills. The overall programme steering group, including Ifous representatives, municipal/providers representatives and the research team, met approximately three times each semester. Finally, there were three process leaders' meetings each semester, where every participating municipality offered one or two people to support their participating preschools.

Our research project embedded within the Ifous programme was to investigate the multiple knowledges and competencies of preschool teachers, preschool principals and operational managers around how they organised, led and developed ECEfS in their preschools. The research questions were:

- What disciplinary foundations and examples of proven experience (best practice) appear in the preschools' work with sustainability across the participating

ECE providers of preschool education (eight municipalities and one independent national provider)?
- What teaching and working methods and content are visible in the operational managers, principals and preschool staff descriptions of their work with learning for sustainability in the preschool?
- How do the operational managers, principals and preschool staff work at different organisational levels with leadership and mainstreaming EfS in preschools? What does quality ECEfS leadership mean for them?
- What changes in conceptual understandings and knowledge development in relation to education and teaching for sustainability appear during the project?

During the development and research programme, we, as researchers, designed tasks around the programme aim and research questions. All participants, principals and preschool teachers, were invited to complete different tasks to generate data each semester. The completed tasks were uploaded to a secure site at Mälardalen University with only researcher access. Some findings from three of these tasks are now shared and further detail is published elsewhere (Engdahl, Pramling Samuelsson & Ärlemalm-Hagsér, 2021; Engdahl, Pramling Samuelsson & Ärlemalm-Hagsér, 2024).

In the first task, we sought descriptions of the ESD work underway in the preschools. As the National Curriculum for Preschool (Swedish National Agency for Education, 2019) uses the concept of sustainable development, we used this concept in the description of the tasks at the beginning of the programme. Nevertheless, in the analysis of the material, we as researchers employed EfS and ECEfS. A questionnaire with four open-ended questions was devised addressing how the preschool teachers had implemented ESD in: (1) the physical environment; (2) the overall education; and (3) their teaching process. As a final question, the teachers were also asked to elaborate (4) their reasons why preschools should work with ESD. As presented by Engdahl, Pramling Samuelsson and Ärlemalm-Hagsér (2021) responses to the first three questions showed a tendency to describe ECEfS as 'business-as-usual', and that EfS was not new to the participating teachers. However, they described that after the national curriculum revision that (Swedish National Agency for Education, 2019) they had made both physical and pedagogical changes in their preschool programmes. Most physical environment changes seemed to result from overarching larger organisational priorities, e.g., reducing plastic usage and recycling food waste. A few teachers described education as including transformative change, plus a common trend was to describe content and activities aligned with the three dimensions of sustainability. However, there were few connections made to the UN Sustainable Development Goals (UN, 2015) or the COVID-19 pandemic.

The fourth question elicited a wide range of reasons. For example, to counteract unsustainable lifestyles, follow the governing documents, take responsibility for a sustainable present and future and equip children for the future. The teacher questionnaire responses also revealed that teaching for sustainability included

developing knowledge, creativity, problem-solving skills, critical thinking, action skills, innovative thinking and change. Children's participation for a sustainable present and future was also shared as pivotal for change.

In the second task, instigated in January 2022, the participating preschool teachers and principals (Engdahl, Pramling Samuelsson & Ärlemalm-Hagsér, 2024) were asked to evaluate their practice with the OMEP ESD Rating Scale (Siraj-Blatchford, Mogharreban & Park, 2016). Firstly, the preschool teachers individually evaluated their practice and then, in a second step, each preschool team discussed their individual ratings and negotiated a joint preschool rating. Thirdly, the rating prompted creation of a preschool theme or strategy for enhancing EfS in collaboration with the preschool principal. We were interested in which preschool areas were rated the highest and which were rated as the lowest and their reasoning. The findings demonstrated that the content areas of budget and money or economic sustainability were rated lowly by the majority of teachers. On the other hand, social and environmental sustainability was rated highly by the majority of the teachers. The ratings were supported by many examples, such as children were not included in the economic decisions of the preschool, especially infants and toddlers. On the other hand, social sustainability was supported by the teachers' active approach to promoting inclusive and democratic values for counteracting any discriminatory attitudes and behaviours.

A third task was implemented in May 2022, specifically, the preschool teachers were invited to initiate, record and transcribe three systematic dialogues with children about some aspects of sustainability. The task was constructed as an intentional communication, seen as important when working in ECEfS with children (Pramling, 1988). We asked the preschool teachers to investigate how the children had understood or made sense of something they had experienced in the preschool related to sustainability. The findings illustrated large variations in the teachers' communicative competencies. Three different approaches were identified: (1) joint creation of meaning; (2) question and answer, focusing on remembering facts; and (3) following the children's communication interest. In the first approach, the communication showed a shared focus and mutual dialogue, with space and possibilities for the child to share ideas, thinking, and experience. In the second approach, the teacher asked the child questions, and the child responded as an apparent check to see if the child had remembered any preschool experiences. In the third approach, the child seemed to take the communication lead with the teacher following and listening to the child, but the content often became unclear and focused on what the child wanted to talk about generally. The dialogues demonstrated that to establish communication for supporting and developing ECEfS, a key factor seems to be creating a shared inter-subjective atmosphere among children and teachers, thus making possible the introduction of new or slightly changed perspectives for the dialogue to continue and deepen (Engdahl et al., 2023).

Further tasks and reporting of the findings are beyond this chapter's scope, however, we share here one example of preschool provider change provoked by their research engagement and guided by the Whole School/Centre Approach in ECEfS.

After taking part in the *Sustainable Preschools* programme, the private provider decided to develop a sustainability strategy. This was applied to all of the private providers' preschools throughout Sweden, notably over 100 preschools. The strategy was described as follows:

> The strategy will help to support children's and adults' knowledge development, participation, competence and agency for a sustainable present and future. It's about making visible that there are many different perspectives on sustainability issues and almost never any ready-made or "correct" answers.
>
> *(Strategy Plan, 2023)*

The preschool principals were urged to support their staff to develop knowledge about sustainability issues according to four guiding strategies:

- Create an understanding of the three dimensions of sustainability.
- Identify something sustainable you need to strengthen! Identify something unsustainable you need to disturb!
- Talk and argue for different points of view based on the three dimensions. Which action is the most sustainable?
- Concretise, act and change! (Strategy Plan, 2023).

At the time of writing, the implementation of these sustainability strategies had commenced with the preschool principals and all staff supported by Swedish ECEfS research (Hedefalk et al., 2022; Pramling Samuelsson et al., 2021; Uhrqvist et al., 2023) and policy documents (UN, 2015), as well as the OMEP sustainability rating scale (OMEP, 2020). The private provider is aiming to develop a *culture of sustainability* or WSA from the level of operational managers to the preschool principals, teachers and other staff. The focus is to develop in-depth knowledge amongst all staff and leadership for transformation through stressing the need for change towards the habits and actions of sustainability.

Creating a shared vision (or as a shared strategy, as above), as suggested by Verhelst et al. (2020), along with related strategies, was seen as important to direct this transformative work. In addition, the leadership will continue to implement national and local goals to realise their distinctive vision for the private provider preschools. As researchers, we interpreted this as the beginnings of a WSA for this private provider organisation.

Re-Tailoring the WSA for ECE Centres

Drawing on the limited discussion around WSA in ECE and the case studies offered here, we are inspired by Mathie and Wals (2022), to revise and re-tailor the WSA model as a WCA model for ECEfS. At a time when the climate crisis is pressing and increasingly children's health and sustainable futures are at stake, as

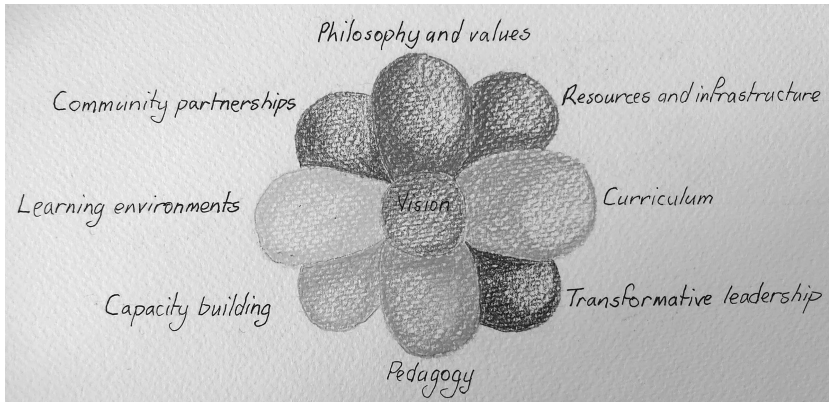

FIGURE 3.1 A whole centre approach (WCA) adapted from Mathie and Wals (2022, p. 6).

ECEfS advocates, we are compelled to generate a revised model specifically to promote ECEfS uptake. We recognise that systems theory has long been promoted in Davis's ECEfS publications (Davis, 2010, 2015), and as previously mentioned, working from a holistic and integrated stance is familiar for early childhood educators (Borg et al., 2024). We begin by addressing some perceived misalignments between WSA and ECEfS. At times, this is simply a matter of word choice, but we also see some gaps. Then, we share a re-tailored WCA model (see Figure 3.1).

Addressing Some Perceived Misalignments and Gaps

- In our experience, early childhood educators are often asked to adapt 'down' school-focused plans or resources, so we argue the term 'school' can lead to early childhood educators feeling disinclined to explore the WSA model. We have deliberately chosen 'centre' to differentiate our re-tailored model as WCA.
- Both ECE philosophies and sustainability worldviews and values are pivotal to facilitating ECEfS, and we argue these need to be explicitly noted in any model and linked back to the tenets of ECEfS previously outlined.
- The 'capacity building' of the WSA model has merit in targeting professional learning, but the Australian and Swedish case studies offer inclusive communication to build capacity so all stakeholders are informed. There is also potential for seeing 'capacity building' as including children in peer mentoring and more strongly recognising children as valid contributors to the learning environment.
- Regarding the WSA term 'institutional practices', early childhood centres are not commonly referred to as institutions and practices appear to be open to varied interpretations. For example, the Australian case study refers to cultural and relational practices for change rather than sustainable infrastructure practices as outlined by Mathie and Wals (2022). We see merit in incorporating both interpretations in aspects of the re-tailored WCA model.

- The planning and development of the learning environment, both indoors and outdoors, to facilitate play-based learning is critical in ECE centres but appears to be a gap in the WSA model. The learning environment can be created to demonstrate sustainability worldviews and values through material and equipment choices and offer opportunities for children to engage in daily sustainable practices and ongoing projects.
- Leadership in ECE is most often described as distributive, where all are involved as potential leaders, and in ECEfS, leadership must be transformative. We argue for a more decentralised positioning of the term 'leadership' to better reflect ECE in a WCA and align with Shields (2025).
- The term 'curriculum' is defined in the WSA model from a school subject stance, which contrasts with ECE, where the curriculum is more often a framework of broad principles and learning outcomes with inbuilt flexibility to respond to children's learning interests, needs and local community settings. In addition, the term 'assessment' is often value-laden and in ECE, more contextualised and formative ways of documenting children's learning are typical.

WCA Model

The re-tailored WCA model comprises four inner and four outer petals around a central vision. The vision should be a collaborative team endeavour and promote climate-resilient ECE centres for inspiring sustainable futures with all children. The four inner petals that we consider core to any ECE programme include philosophy/values, curriculum, pedagogy and learning environments. The four outer petals are essential in supporting a systemic whole centre approach to change, namely transformative leadership, resources and infrastructure, community partnerships and in the broadest sense, capacity building (see Figure 3.1). We briefly elaborate on each petal in the text.

- Philosophy/values: Shared perspectives about the child as a rights holder with an active participatory role in co-constructing sustainable futures are fundamental. We value children's experiential play-based learning for sustainability that is authentic, accessible and aesthetically inviting. Also, we argue for recognition of the varied perspectives about human-nature relationalities and a willingness to explore the more-than-human as essential to sustainable ways of being.
- Curriculum: Internationally the interpretation of curriculum is varied; curriculum can be a policy steering document for the constructed curriculum that is contextualised for each early childhood centre and their sustainability priorities. As we have previously argued, ECE is built on holistic learning and the agency and interests and needs of the child. The learning curriculum content is drawn from interdisciplinary knowledges and multi-dimensional understandings of sustainability to enhance children's learning.

- Pedagogy: Alternative pedagogies, such as transformative pedagogies for creating change or inquiry or place-based pedagogies for investigating local issues, are paramount. Alongside these, relationally informed pedagogies promote collaboration for collective change with children, educators and families. Also, educators have a role in actively scaffolding learning and intentionally teaching to promote children's agency in daily sustainable practices, as well as tackling the socio-political dimensions of sustainability around ethical issues and values.
- Learning environments: A healthy and sustainable environment, both indoors and outdoors, can be a provocation for learning. Educators' choices of materials and equipment reflect sustainability values. In addition, local community and natural spaces can be engaging learning environments for authentically exploring local sustainability concerns.
- Transformative leadership: Leadership for sustainability is transformative; it is about critically reflecting and working collectively to facilitate change. There can be multiple *Sustainability Leaders* with a shared vision for sustainable futures. Effective co-ordination, democratic decision-making and communication strategies are essential to promote the involvement of all stakeholders.
- Resources and infrastructure: Beyond the curriculum, early childhood centre resources and infrastructure can offer a readily visible mission statement about sustainability. Sustainable building design and construction can promote energy/water efficiencies and the modelling of best practice. Retrofitting for sustainable centre operation and sustainable purchasing and cleaning policies ensure a whole system approach to change.
- Community partnerships: Working in partnership with community members can offer new avenues for exploring sustainability with children. A sense of belonging and shared purpose in sustainability are possible when wider community links are strengthened.
- Capacity building: Capacity building is about sharing sustainability knowledge and skills along with advocacy and leadership skills. Everyone can be involved in ongoing learning for sustainability and the learning modes may vary from formalised training to peer mentoring, action research projects or professional networking.

Conclusion

In this chapter, our aim was to develop contemporary insights, both theoretical and practical, to both understand and enhance the WSA from an ECE perspective, thus a re-tailored WCA. We suggest in relation to ECE philosophies and values, children's participatory rights, alongside holistic understandings of children's play, learning and development, and the rights of the more-than-human in human-nature interconnectedness offer important ECEfS foundations. A WCA also acknowledges EfS leadership in ECE as transformative and relational, this informs how everyday sustainability issues can be collectively and culturally embedded by not

only designated leaders, but educators, families and children working together. We propose that this re-tailored WCA offers a systemic guide for embracing change towards sustainable futures in early childhood centres.

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PART II

Evaluating ECEfS Practices through Children's Rights, Agency, and Well-Being

4

ARE YOU A BIRD RESCUER?

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Introduction

In Sweden, ESD has been a focus for 15 years, albeit not common content across all preschool settings and not a political priority. The *UN Sustainable Development Goals* (2015) and *Agenda 2030* (UN, 2015) have accelerated a transformative process, and since 2019, sustainable development has been explicitly stated as a fundamental value in the Swedish National Curriculum for the Preschool (National Agency for Education, 2019). This chapter is co-authored by two experienced Early Childhood Education and Care (ECEC) teachers with a special interest in ESD pedagogy and two early childhood researchers with a special interest in ESD. We found each other during a research and development programme, *Sustainable Preschools* (IFOUS, 2021). In this chapter, we focus on high-quality ESD and our data was derived from a preschool project story entitled *We are all bird rescuers.*

Background

It all started during one of the usual preschool walks to a nearby forest in northwestern Stockholm. The children's talk was about the litter they observed in nature, which becomes a danger to animals and particularly birds. It awakened a desire among the children to do something, to act. This desire for action became the starting point for a long project in which 38 preschool children and their six educators tackled questions about the consequences of litter in nature and how to care for birds and animals. The children named this project *We are all bird rescuers*.

Parallel to the bird rescue project, the revised National Curriculum for the Preschool – Lpfö18 (National Agency for Education, 2019) was launched, in which new definitions of education and teaching were introduced. For the researchers and

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teachers, this meant working on how we understand and approach the concepts of education and teaching in preschool. Together, we decided to use the story about becoming a bird rescuer to analyse high-quality ESD.

ECEC settings can potentially act decisively to contribute to society's efforts around *Agenda 2030* (UN, 2015). We argue it is crucial that ESD is based on child participation. The children of today – not us – will live through most of the 21st century.

Research and Policy

ESD in early childhood is a growing field originating from environmental education two decades ago (Davis, 2009), and there have been several influential factors. For example, within the Transnational Dialogues for Early Childhood Education for Sustainability research network (TND), vibrant interchanges have developed, describing the field as *Early Childhood Education for Sustainability* (ECEfS). UNESCO is the UN organisation responsible for policy development around *Education for Sustainable Development* (ESD). This reflects a pragmatic view and stands for a wider inclusive perspective, not particularly aligning with any one theoretical position. For teachers implementing ESD, both research and policy are inspirational and a means for professional development (Pramling Samuelsson, 2011). However, sometimes the language employed distances policy from teachers' practice, and there is a need for didactic texts and tools (Engdahl & Furu, 2022).

To shift society towards sustainable worldviews, research is not enough, many stakeholders must be involved and UNESCO is one of the largest. Since 2005, UNESCO has implemented various initiatives. In addition, OMEP (the World Organisation for Early Childhood Education/www.omepworld.org/) has worked with ESD since 2008, often related to the UNESCO initiatives. For example, SDG 4.2 specifically points out the right to pre-primary education for the youngest children, while SDG 4.7 highlights sustainability and global citizenship – content that should permeate education at all ages.

To work with this agenda, the content needs to be communicated and lived in everyday life, in the same way that the *UN Convention on the Rights of the Child* (UN, 1989, hereafter UNCRC) needs to be experienced by children (Pramling Samuelsson et al., 2021; Višnjić-Jevtić et al., 2021).

To promote the necessary change, UNESCO writes about holistic and transformative approaches. Transformative change is a concept central in sustainability work and described in different ways, for instance as a process engaging head, hands and heart (Sipos et al., 2008). Similarly, Mezirow (2009) writes about transforming problematic frames of reference (mindsets, habits of mind, meaning perspectives) to generate beliefs and opinions that will prove true or justified to guide action and Yacek and Ijaz (2020) highlight transformative change as a process of re-nativation with two experiential moments: articulation and aspiration.

In our experience, most ECEC teachers do show interest and seem to recognise that we all need to do something for the planet, children and our futures. ESD

has become a prioritised field both in research and policy and is looked upon as a powerful means to address threats from climate change, biodiversity loss and environmental degradation. However, without new knowledge from research or accessible policies or programmes, we argue education often bounces back to 'business as usual' (Ärlemalm-Hagsér & Pramling Samuelsson, 2021; Engdahl et al., 2021). There is a risk that one does what one has always done in preschools. For example, visiting nature, growing plants and picking up garbage may exemplify common old content, but this is now called ESD. A review of global, regional and national policy documents has indicated that they are important for guiding teachers implementing ESD (Furu et al., 2023). Plus, the inclusion of ESD in the Swedish National Agency for Education in 2019 has led to an increase in professional training and teachers' daily implementation of ESD (Engdahl et al., 2024).

There are also initiatives where research has developed didactic ESD tools for teachers, thus combining research with policy. The *OMEP ESD Rating Scale* invites a quality assessment of ESD as well as broader understandings of sustainable development and a stronger professional language (Engdahl et al., 2021; Siraj-Blatchford et al., 2016). Another common ground is to combine ESD with the UNCRC, as mutually supportive documents (UNICEF, 2016). A didactic tool that combines the UNCRC and ESD is the online course *Sustainability from the Start* (edChild, et al., 2024). These tools draw on a solid research base, child participation and the significant role ESD can play in promoting high-quality ECEC.

Acknowledging that both research and policy are available and helpful for teachers who want to integrate ESD in their curricula, this chapter sets out to contribute to increased knowledge about teaching for sustainable development in preschool settings. By highlighting parts of the project focused on sustainability issues, we share knowledge about how child participation can be a driving force for high-quality education for sustainability.

Aims and Research Questions

In this chapter, we explore ESD in preschool settings, more specifically how children's involvement through ideas, questions and negotiations is critical. The objective was to make visible how teachers can enable didactic pathways where teaching is balanced between the teachers' goal-directed planning and children's interests, perhaps as a playing-learning continuum. The following research questions guided the study:

Which didactic tools become visible during the ESD project?

Which teaching strategies are used in the ESD project?

National Policy in Sweden

Swedish preschools welcome children aged 1–5 years, and the preschools are governed primarily by the Education Act (SFS 2010:800) and the national curriculum

through fundamental values, tasks, goals and guidelines (National Agency for Education, 2019). The Education Act (Ch. 1, 3§) defines teaching as 'processes such as in lessons or other learning activities led by teachers or preschool teachers towards goals specified in ordinances and other regulations annexed to this Act, aimed at development and learning by children or students'. Thus, teaching is a relational concept, which in preschool presupposes that a preschool teacher is someone who explicitly teaches something. This relationship is stated as:

> Education in the preschool should lay the foundations for life-long learning. It should be enjoyable, secure and rich in learning for all children. […] Education includes teaching. Teaching means stimulating and challenging the children, taking the goals of the curriculum as a starting point and direction, and is aimed at encouraging development and learning among the children. Teaching should be based on content that is planned or appears spontaneously, as children's development and learning take place at all times.
>
> *(National Agency for Education, 2019, p. 7)*

The concept 'teaching' has been widely discussed and researched, since many teachers in Sweden and worldwide associate teaching with the world of the primary and secondary school. With the new curriculum, it became clear that we needed to explore, describe and develop an understanding of high-quality teaching in preschools. Over time, the concept of teaching has become more accepted (Berg, 2022). The introduction of 'teaching' has forced preschool teachers to put into words how their teaching is conducted, which ultimately contributes to an increased awareness of the preschool teacher's pedagogical actions and professional language.

Another change integral to the new preschool curriculum was the introduction of ESD:

> Education should be undertaken in democratic forms and lay the foundation for a growing interest and responsibility among children for active participation in civic life and for sustainable development – not only economic, but also social and environmental. Both long-term and global future perspectives should be made explicit in education.
>
> *(National Agency for Education, 2019, p. 5)*

This overall objective is followed by specific goals for the preschool teachers, who are responsible for giving each child the conditions to develop:

- a growing responsibility for and interest in sustainable development and active participation in society,
- an understanding of relationships in nature and different cycles in nature, and how people, nature and society affect each other,

- an understanding of how different choices people make in everyday life can contribute to sustainable development, and
- an interest in and an ability to express thoughts and opinions so that they can influence their situation. (National Agency for Education, 2019, pp. 12–16):

Such clear ESD goals are uncommon in national curricula (Furu et al., 2023). UNESCO's Berlin Declaration (2022) points out that National Curricula are important for influencing education away from limited subject content to comprehensive everyday sustainability goals. The ambition is for ESD and transformative actions to be linked to everyone's daily life, generating a sense of involvement.

Theoretical Framework and Methodology

Play-Responsive Teaching and Learning

In this research study, we were guided by a holistic view of the preschool's mission and task, where play, learning and care are combined, what has come to be called educare in English. Pramling Samuelsson and Asplund Carlsson, presented in the early 2000s a coherent pedagogical theory for ECEC – *Developmental pedagogy* (Pramling & Pramling Samuelsson, 2011; Pramling Samuelsson & Asplund Carlsson, 2014). The theory of *play-responsive teaching and learning* (hereafter PRECEC) builds on this foundation and on socio-cultural perspectives. It is in the communication during play between children and adults and with a shared, common focus that teaching best takes place. Important concepts in this theory are inter-subjectivity, alterity, metacommunication and children's perspectives. Crucial in achieving consensus is that the adults develop a responsive approach, so children and adults feel welcome to respond to each other's perspectives. *Responsiveness* and being responsive means to confirm and take the child seriously as a participant in joint activities. There is thus an underlying or inherent ethic of care when working according to PRECEC (Pramling et al., 2019).

Narrative play is highlighted in PRECEC because it provides ample opportunities for meta-communication and learning. In play, the preschool teacher and the children can switch between reality (*as it is*) and fantasy (*as if it were in another way*). The ability to imagine is described as the basis for being an actor, and thus, it becomes a necessary ability in the development of a democratic citizen in society. An inclusive perspective on play also means that play is defined by the participants. They know if they are playing or not.

Supporting children's play, or their learning, is often referred to as scaffolding (Wertsch, 1993). Scaffolding is about providing support for 'learning something that has a clear goal, a definite end point' (Wallerstedt & Pramling, 2023, p. 79). But within imaginative and narrative play, highlighted by PRECEC, the fantasy can be about, for example, building a space rocket or planning a holiday. The adult's support then becomes more open, rather than an activity with definite and limited

learning. The adults can invite fantasising and engage themselves in the exploration of wicked, unpredictable or unexpected problems. These different forms of open support are referred to as *triggering* (Wallerstedt & Pramling, 2023, p. 78ff).

Methods, Context and Ethical Considerations

This is a case study based on one project from practice. The four co-authors of this chapter, two researchers (Ingrid P & Ingrid E) and two preschool teachers (Sofie & Susanna), first met as participants in the *Sustainable Preschools* research programme (Ifous, 2021). The programme's focus was to develop ESD understandings and methods to inspire transformative change towards sustainable development. The co-authors met during seminars and Zoom meetings over a 3-year period.

The municipal preschool was located in an upper-middle-class area of north-western Stockholm. It was also part of a management unit comprising eight preschools that had focused on ESD for several years. The study participants were the two preschool teachers (co-authors) and their four colleagues (child minders with secondary school training). Around 40 children, aged 3–5 years, participated in the activities, and over the years, the group changed as some children left the preschool and others enrolled. The preschool was organised with several educators working together in a team, and the children were organised into smaller groups during the day. A story about the preschool project *We are all bird rescuers* became the data for analysis. The project evolved as integral to the typical programme, and the teachers had ongoing communication with the parents about the project activities.

The parents were informed about this book chapter reporting on the project. However, as no names or identifiable pictures are shared, the co-authors decided that there was no need for additional individual parent consent. For the teachers in the *Sustainable Preschools* programme (Ifous, 2021), Swedish ethical guidelines were followed (The Swedish Act, 2003:460) and the research was accepted by the Swedish Ethical Review Authority. All participants gave written participatory consent and were informed about the possibility to withdraw at any time (Uppsala University, 2021). In addition, as young children were involved, the researchers approached the study in accordance with the EECERA Ethical Code (2015).

Analysis

Content analysis (Braun & Clark, 2006) was applied to the project story written by the preschool teachers. There are multiple methods to arrange for teaching and learning following PRECEC, according to Wallerstedt and Pramling (2023), such as:

- Create space for children to become co-creators in the stories, in the play
- Respond to the children's initiatives in play so that they become legitimate

- Meta-communicate what is happening in the game
- Ask questions that challenge reality – the as-is and what-if dimensions

In a first round of analysis, the above methods, as well as PRECEC concepts previously outlined, were used to identify actions and methods related to ESD. Here, five didactic tools were identified. A second round of meta-level analysis was applied to identify some recurrent project strategies, and three were identified.

The Story – 'We Are Bird Rescuers'

The story is written, authentically, using 'we' and 'our' and a narrative language. It is presented in five parts, which summarise the major project happenings. The story presents the activities implemented to garner children's perspectives and revisit what was said and done over time. There was a deliberate choice to explore the children's world (Sommer et al., 2011), and this was captured through continued pedagogical documentation by the team of teachers and child minders.

Step 1: Summer Task as a Starter

The beginning of the preschool year is important and contributes to setting the tone for the culture we strive for in our educational setting. Thus, for years, we have given children a summer task, a task we use to promote meaningful learning.

Based on the spring semester evaluation, the summer task was to: *Take photos of something that you don't think belongs in nature.* The task reflected our preschool's common theme: How do we build a sustainable future together? Through the task design, we planned to focus on an area that could contribute to the teaching content.

Our purpose in giving the families a task was to have something that we can share and be curious about together, and hopefully, it will raise investigative questions. As teachers, we had a clear idea of the collective way we should relate to the images. We actively chose to see the images as a whole, which is what they become together.

It was important to think about how to present the images and where they should be available for all. During the initial reflection around the images, we listened, collected and considered the children's reflections and questions. What activities should we offer the children? We chose to work with four groups and purposefully mixed the children in different constellations to inspire each other with the thoughts the summer task evoked.

Initially, we placed the children's images on a documentation wall in the preschool studio but also displayed a copy of all the images on the morning meeting carpet. By presenting all images together, we sought to raise questions, thoughts and feelings within a joint ownership, thus avoiding a sense of individual image

ownership. While gathering around the images, we strived for a reflective atmosphere where you can think out loud together and create a free flow where children's thoughts can connect. We wanted to be comfortable together, create energy and commitment.

Since many images depicted litter, much of the children's reflections were about what can happen when litter ends up in nature, that litter can become a danger to the animals and above all to the birds. We saw that the children's thoughts about the litter impacts aroused emotions and commitment, it united and energised the group.

The questions and thoughts the images raised kept the children well occupied. For example, there were different forms of creation, building and construction, and we utilised inside and outside spaces to ultimately reflect about making the children's questions, thoughts and theories visible (Figure 4.1).

When the children pursued various creative activities together, they focused on how to solve the problem of litter in nature, as it was dangerous for the animals. Two main avenues emerged, some children wanted to build robots that picked up litter and recycled it into new things, others wanted to pick up litter in the neighbourhood, warn the birds and talk to people about what might happen if their animals eat litter. By gathering in different constellations, the children frequently shared with each other what they did in the different groups.

During one of these meetings, some children named themselves 'Bird Rescuers'. Then one child said: "I want to be a Bird Rescuer too!". Another replied: "You are! We are all Bird Rescuers, although we do different things". The project was born.

FIGURE 4.1 The children's ideas were visible on one documentation wall.

Step 2: We became Bird Rescuers

Once the project content was established, in Step 2, the question occupying the children was: How do we prevent birds from eating litter and from dying?

- What do we want to describe? Not only humans need knowledge of what can happen if the 'animals' eat litter, but also the birds need to know. How can we get to know more about birds?

Together we did an in-depth investigation with many questions about birds; how do they live, what do they look like? How does it feel to be a bird? How should we approach birds on birds' terms? Camouflage, bird's nests, their language and how to attract birds to us. Birds' rights, security, healthcare, school, food, play, there was no end to what the children were keen to explore.

The word Bird Rescuer aroused curiosity and charged the whole group with a sense of guilt, which also united us in a common goal: 'We must save all birds from eating litter and dying!' The commitment of a few children was infective and the task unifying. The community and tackling this issue together, now became very important for the children and grew into an action commitment. They wanted to go into nature, get close to the birds, pick up litter and show others that there is a big problem when litter is in nature.

One day, when we were out bird watching, the children discovered a dead bird. Together, we buried the bird, and after this experience, the care and respect for birds became central. We returned to the grave many times, which prompted reflection and relational questions about the birds' lives. The funeral also raised questions about our own impact on nature. We put up a graveside memorial plaque, and it was made of paper and plastic, but the children became afraid this could harm both animals and nature. This evoked an interest in how they could communicate with birds in bird language, and the children decided it was important to have enough language skills so as not to give the wrong message. One child said: "What if we say or write incorrectly, what if we say like 'Come all the birds and eat litter'" (Figure 4.2).

Our morning meetings became filled with thoughts about litter and birds, and the discussions were heated. The children made observations that contributed to the group's planning for the day. They made agreements on how to warn birds that approached litter and how litter picking would be done. This was the beginning of a long period in which the children made in-depth investigations, trying to understand and rethink what a bird is. How do we prevent birds from eating litter? How can we approach birds on their terms?

Here it became important to support the children's questions and investigations by arranging the preschool environment in such a way that the investigative processes could live throughout the day. These included constructions, in play and design, and creation with different materials and techniques. The children

FIGURE 4.2 Studying carefully and creating birds, to get to know them.

converted one of the preschool rooms to a bird salon, with their own documentation wall of images and drawings. The educators chose to introduce various journals, for instance, *Plastic Exterminators* and *Stockholm Wild Birds' Rehab*. These showed how others had worked to reduce the litter problem in nature and how to help harmed or injured birds.

At the same time, we spent much time in the neighbourhood, getting closer to the birds and picking up litter. The children noted that the littering never ended, and they began to express that there must be more people who can help. Are there more bird rescuers, and how can we become many? (Figure 4.3).

Step 3: We Must Be More Bird Rescuers

Being able to share the work of other bird rescuers gave hope and energy to the children and their discussions. 'We can do it together. It goes faster if we do it together!'

FIGURE 4.3 Children in hiding to come closer to the birds and to serve them some food.

Drawing, as a language, offered children the opportunity to formulate thoughts and ideas individually and together. In drawings, the educators could see stories as sequences of events and to promote visibility, the children were introduced to drawing in series, as in comic strips. Mind maps also became an important tool for gathering the children's ideas about how they could recruit more Bird Rescuers. Some of the children's ideas were to call on people in nearby houses, put up signs, write letters and tell everyone we know, who then in turn could tell everyone they knew.

During a morning meeting when the children were talking about recruiting more Bird Rescuers, one child said: 'We can be in the newspaper, just like the Plastic Exterminators'. Another replied: 'I guess we can make our own newspaper, so everyone will know!' This marked the start of spreading the message through the children's own Bird Rescue Magazine. Predominantly, the older 5-year-olds took on the magazine work.

The children chose the content, which included facts about plastic in the sea, humorous stories, comics and the litter problem. To make this possible, the educator team introduced suitable digital tools, enabling the children to work with text, images and layout. The children also included a page addressed directly to birds, written in bird language. The magazine included an introduction describing what it means to be a bird rescuer, and why it is important.

It was essential that the entire group's work as Bird Rescuers was presented in the Magazine; thus, all the children looked upon it as theirs and they owned it together.

The Magazine purpose was to share the Bird Rescuers message, and therefore, there was much focus on how the paper should be distributed. We decided together with the children to present the Magazine to the various schools, where the oldest

children were next enrolling. We also contacted the library and the nearest grocery store and sent a copy to the Stockholm Wild Bird Rehab. The children wrote *Send forward* on each copy, to ensure that it would be read by as many people as possible.

Parallel to the Magazine production, there were other activities such as addressing the problem of local litter. One day, the children saw a magpie picking litter out of the dustbin in their playground. The children became worried and immediately wanted to act. 'We have to stop the bird!' One child went directly to the atelier, the workshop area, to make a bird alarm to place on the dustbin. With this incident, another major part of the project started: to bird-proof the municipal dustbins in our immediate neighbourhood.

Step 4: We Want to Make the Dustbins Safe for the Birds

When we went out into the neighbourhood to take a closer look at all the bins, the children discovered different models and designs. 'The birds can get their beaks stuck in the little holes, and they can fly into the dustbin and eat garbage and DIE!' During these explorations, the children took photographs and close-ups of details they believed could pose a danger to birds. The children's documentation became a basis for reflection and discussion at our morning meetings (Figure 4.4).

FIGURE 4.4 In depth reasoning about dustbin details during a morning meeting.

When the children started the process of creating dustbins with different materials, they twisted and turned the problem from many viewpoints. They began formulating ideas about solving the problem, and proposals emerged. Half the group wanted to warn the birds, and the other half focused on how the bins could be improved to be less dangerous to birds. They delved into bin construction, which dangers they posed and formulated ideas for different measures. In addition to the risk of a too large hole, where the litter is thrown, the children saw another risk that birds could get stuck with their beaks in the small holes (for putting out cigarettes) on top of some bins. The children were determined to find solutions and began testing ideas with experiments. After each experiment, the children evaluated, analysed and drew conclusions to see if their idea was viable or not.

The children who focused on warning the birds decided to bird-proof a number of nearby dustbins by putting up bird alarms, similar to the one they had placed on the preschool bin. The children chose tape, string, paper, sticks and wood in their bird alarm creation and took on the task with joy. When the bird alarms were finished, we gathered the children to see what thoughts it had aroused. We considered it important to stop and invite the children to reflect together on the constructions and think about the next step. When the children saw the bird alarms next to each other, they began to problematise the very constructions. They saw that some could become a danger to the birds instead of helping them. 'The birds can get stuck in the tape and the strings!' These reflections led to a decision not to place these bird alarms and instead make new ones. This time, focusing on bird-friendly materials such as reeds and mud and wooden signs to communicate with people and the birds that possibly could read. When all the bird alarms and signs were finished, the time-consuming work of placing them on the bins began. The children were proud of their work, and many brought their families to talk about bird-proofing the bins.

However, after a couple of weeks, we discovered that all the bird alarms had been removed. This aroused strong feelings; the children were upset and wondered why. Disappointed, they noted that the idea did not work all the way and began to think about whether it would be best to remove all the bins instead, because then at least no birds could be harmed by the bad bin construction. But, who owns the bins? This took us to the next step.

Step 5: The Decision Makers Must Make Decisions

So, again, out into the neighbourhood to find out who owned the bins. The children never asked the educators about who owned the bins, perhaps they thought we were on these issues together. We saw that the question created excitement among the children, like detective work to try to find an answer.

They used multiple approaches to find out about the ownership: asking passers-by, knocking on the nearby houses and writing letters to their families. They also found out about *citizens' proposals*, where any citizen can write to politicians about something. All submitted proposals must be listened to by those who decide, and the proposal and their answers are reported. EVERYONE has the right

to submit a citizen's proposal, the children really liked this right! This gave energy and engagement, and the children immediately started.

How do you write a citizens' proposal and where should it be submitted? These were questions we needed to find out first. The content, what the children wanted to achieve with the citizens' proposal, was already clear to them. So, the children put together a proposal with text, a drawing of what a bird-proof bin should look like, and pictures of all the bad bins in the local area. The children were inspired by a bin they had seen that they thought met most of their bird safety requirements. It had a pedal, a lid and could talk. They developed this in their own bin drawings, but added surveillance cameras, alarms and waving arms.

The proposal was adopted by the political board, who decided to proceed because it was interesting and rich in detail. Thus, a collaboration with Stockholm's park administration began. The children's goal was to replace all hazardous bins in the area, however, the municipality's budget only allowed for one new bin. The educators decided to lead the process of deciding which bin should be replaced, informed by the children's documentation. The common choice, a bin considered to be the most dangerous for birds, was located in a nearby playground. The children had seen birds pull food and plastic out of this bin on several occasions. The park administration worked quickly, and within a week, the bin was removed.

The park administration was open to a dialogue with the children, they wanted to hear their thoughts and opinions about the new bin construction. As educators, we were to ensure that the children's thoughts and opinions were conveyed. The new bin would be as bird-proof as possible, and the children responded thoroughly about the design, supported by the teachers. They commented in writing about the proposed design, for instance, they opposed the suggestion to illustrate the bin with a bird (Donald Duck). Bird Rescuers are people!

Finally, it was time for the inauguration of the new bin. The opening was solemn with speeches and ribbon-cutting, and a tribute to the children's work as Bird Rescuers. Food for the birds was also hung up in trees and bushes, in honour of the day.

Soon after the new bin was in place, several children noticed that there was no longer any rubbish lying around in the park for the birds to eat and die from. The children saw that their work was rewarded; they had made a difference!

Results

In this result section, we will present the results in two sections, answering the two research questions: Which didactic tools become visible during the ESD project? and Which teaching strategies are used in the ESD project?

Which Didactic Tools become Visible During the ESD Project?

The analysis of the story about the project resulted in identifying five different didactic tools that were consciously chosen and used by the teachers: summer

assignments, morning meetings, assigning groups for exchange and learning, creative arts and the preschool environment.

- **Summer assignments**
  By giving the children's families a summer assignment, the teachers invited them to participate. The discussions invited children's perspectives, and the gatherings became meaningful for all.

- **The morning meeting**
  One common preschool routine in a preschool is some sort of morning meeting or circle time. Throughout the story, the morning meetings stand out as important. This is when the children's thoughts and questions, from their play and their activities, are connected. This type of morning meetings is identified as a didactic tool that contribute to giving the children direct influence over both schedule and activities.

- **Assigning groups for exchange and learning**
  Another didactic tool was the choice to continue to mix and change the groups, not to divide the children into fixed groups. This promoted the collective group spirit and a welcoming of many ideas and different ways of thinking. Addressing the multiplicity of thoughts brought energy to the group.

- **Creative arts**
  The children were invited to try out their ideas, learning the birds' languages or creating warning signs for birds, in an allowing and empowering atmosphere, where the children, for instance, developed pretend bird languages. Here, creative arts stand out as a didactic tool that was available throughout the day and exposed in the preschool environment.

The Preschool Environment.

Both inside and outside, the educators prepared offers in various ways to enable a continued and in-depth investigation based on the children's questions, thoughts and ideas. With the help of pedagogical documentation, the various processes and traces, big and small, that are going on among the children were made visible, and thereby, it became possible to spread the knowledge from individual to group and from group to individual.

Which Teaching Strategies Were Used in the ESD Project?

A second round of meta-analysis of the story was made in order to identify possible teaching strategies. Three strategies were found: choosing the content, child participation and taking action.

Choosing the Content

The teachers were careful in their choice of summer assignment, choosing an assignment *Take photos of something that you don't think belongs in nature* that could align with their overall policy of the preschools in the area: *How do we build a sustainable future together?*

The teachers continued to offer input to the content, as the newspaper articles and the introduction to a *citizens' proposal*, where the children could also have the opportunity to use their democratic rights as citizens on a societal level.

Child Participation

The children's voices were listened to in various ways. They were involved and influential throughout the project. Many of the children's thoughts and questions came out during the morning meetings but also during the visits to nature, the arts and in pedagogical documentations. Sometimes, the children went back and forth between fantasy and reality in their comments. Furthermore, the teachers were prepared for the unexpected, that is, that a new question or idea popped up, and these inputs were welcomed, empowering the children's self-esteem and group sense. Critical thinking was central to the project. When allowing and giving place for critical thinking, it contributed to more dynamic discussions.

Taking Action

A key idea in the teaching was to let the children be in the process and try out their ideas, big or small, but also to let children use both reality and imagination. These processes could continue all day, and for the children it was a constant switch between playing, creating, learning and communication. With this approach, the children got to take action, to be actors and make a difference in issues that were important to them. From a larger perspective, the project contributes with knowledge that children at a young age are able to participate and think about issues that are included in the UN SDGs and Agenda 2030. The holistic approach to playing and learning became a teaching strategy to let the children be part of working for a sustainable future and having the space to make a difference. The teachers in this study let the children be in their processes for as long as they wanted and needed, sometimes for months.

Discussion

Throughout the project, participation for both children and educators had a central role as indicated in the previous sections. It was the most important ingredient and the teaching strategy that laid the foundation for all teaching and education in this preschool. The National Curriculum supports children's right to participation and having influence over working methods and content in the activities (National

Agency for Education, 2019, p. 16). ESD-related content covers a broad field in Swedish preschools (Pramling Samuelsson et al., 2025).

By prioritising *children's influence* in their everyday lives and what happens at the preschool, we identified how ESD can be a project focus and driver. Working with issues around sustainability requires children's commitment and invites their often unexpected perspectives. A critical approach where the children may challenge each other's perspectives on the issues that concern them aligns with the educational principles of UNESCO (2020). For education to be imbued with participation, everyone's contribution needs to be considered (Engdahl et al., 2023).

The educators placed great emphasis on *empowerment,* inviting children to identify a problem, create solutions, try these out, evaluate and draw conclusions. Most importantly, the children took action to be actors and make a difference about issues that were of importance to them, an identified success factor in ESD (Engdahl & Furu, 2022). The results also illustrated how taking action enabled the children to deepen their meaningful and joyful playing and learning (Simson et al., 2008; Wertsch et al., 1993). The children became co-creators in the stories and play, which for PRECEC is crucial (Pramling et al., 2019).

The summer task was an important didactic tool for a planned start of the preschool year and laid the foundation for various processes, a means for the whole group to be comfortable together. A clear purpose for the summer task as a project starting point was critical, and it became a tool for inviting all children and families to participate, creating energy, commitment and curiosity. By collectively addressing the children's images, the summer task became a common treasure of knowledge, where the children and the preschool team shared ownership. While the summer task was a didactic tool limited to the semester start, it was always accessible through open documentation. Thus, the children were often reminded of how the project started, but it also inspired meta-communication around what was happening, which is of importance for learning to occur (Björklund & Pramling Samuelsson, 2020).

The morning meeting was a natural and recurring arena for reflection, discussion, argumentation and planning, which created space and opportunity for the children to be within these learning processes and discuss their solutions. The morning meetings enabled voice, place, audience and influence, a UNCRC Article 12 requirement (See Lundy, 2007). According to PRECEC, asking questions that challenge reality and invite critical thinking contributes to playful learning (Wallerstedt & Pramling, 2023). Morning meeting as a didactic tool enabled *child participation*, in decision-making and democratic processes, giving them real influence over the activities (Lundy, 2007).

Furthermore, the results showed that *multiple actions* enabled the children to make their voices heard in different ways. It is important to respond to children's initiatives in play, so that they become legitimate (Višnjić-Jevtić et al., 2021; Wallerstedt & Pramling, 2023). The teachers' affirmative approach to the children's

desire to take action seemed to have been crucial. In step 4, through the citizens' proposal, the children had the opportunity to collaborate with decision-makers and be involved on a political level, reflecting SDG 4.7 (UN, 2015) about education for global citizenship. The results demonstrated that when the children themselves were allowed to be actors, and afforded room for action in the learning processes, the teaching and learning aligned with the national curriculum goal, to develop: "a growing responsibility for and interest in sustainable development and active participation in society" (National Agency for Education, 2019, p. 12).

The consistent visualisation via pedagogical documentation in the preschool environment reminded both children and educators about the project focus and to continue with their learning activities. Various ongoing processes and tracks, big and small, were made visible enabling knowledge to mutually shared between individuals and groups. When the documentation effectively captures what the children say and do, individual and collective reflections are made possible, as well as metacommunication (Pramling & Pramling Samuelsson, 2011, 2025). This offers input about how and what could be the next initiatives for the children's learning processes.

The results also depicted the importance of *a well-coordinated team of educators*. This enabled a joint project direction and shared activity focus for playing and learning throughout the day, guided by the children's questions and processes and accorded time and space. The preschool teachers' responsibility was to lead the preschool teaching, but it is the entire team that enabled the holistic approach. A shared pedagogical idea and attitude towards children's learning, playing and participation is foundational (Engdahl et al., 2023). The design of the pedagogical environment is also an important teaching tool that may support the pedagogical ideas and project direction. A well-thought-out educational environment that safeguards children's participation needs to be transcendent, changeable, inspiring and permissive, to support exploration and contribute to children's learning.

Study Strengths and Limitations

In our study the detailed story description enabled the reader to step into the preschool and follow the teaching and learning. Thus, the story stands on its own, however inspirational, it is but one case. However, the content analysis identified didactic tools and strategies that may transcend the actual preschool. The consistency of the three strategies, choosing content for transformative change, empowering child participation across all steps and encouraging the children to act on their ideas, exemplifies a high-quality ESD project. The five didactic tools may be thought of as common in ECE and in ESD. However, it is in combination with the strategies that the tools are most productive. The story, didactic tools and strategies are inspirational and may be helpful for teachers who are determined to implement ESD in their curriculum with young children.

Conclusion

Our chapter intent was to increase knowledge about Early Childhood Education for Sustainability (ECEfS). We aimed to explore teaching for sustainable development in preschool settings, more specifically how children's involvement, ideas, questions and negotiations, can become the driving forces in ECEfS. The study showcased relevant strategies and didactical tools, and the following conclusions are drawn:

Child participation and teacher involvement, together with the pedagogical environment, are crucial teaching strategies foundational in high-quality early education. It is when these teaching strategies are aligned with identified didactic tools that goal- and process-oriented teaching can occur. Building on children's commitment and questions around sustainability paves the way for transformative projects and learning.

Adopting a critical approach further invites the unexpected perspectives often surfaced by children. Within a secure and critical approach, children may challenge each other and their educators and bring other perspectives, not least on the issues that directly concern them.

Taking action is another decisive factor in ESD. Sustainability issues are wicked and complex, and we need both to concretise them and invite children to explore and investigate in ways where it becomes possible for children to take action and make a difference, big or small. With children, integrated processes and engaging head, hands and heart support action potential (Sipos et al., 2008).

Finally, we ask: Are we really listening to the children's voices? They who will live in the future, but in what type of cities, societies? As researchers, as teachers, we would like you to reflect on some of the following questions:

In what ways does this project or daily routine contribute to sustainability?

What examples of unsustainability do the children give, do they want to tackle?

How can children and educators together start an ESD project for transformative change?

What didactic tools would be most useful to realise children's right to play and participate in ESD?

How can the wider community be involved in ESD?

This is a final question for you: Are you a Bird Rescuer?

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5

SUSTAINABILITY, WELL-BEING AND PRAXIS WITH CHILDREN AND STUDENTS

Nicky Hirst, Aisling Culshaw, Heather J. Ray and Ange Garden

Introduction

This chapter examines how university classrooms can act as critical spaces for students enrolled on Education and Early Childhood programmes. As potential educators, students are constantly being challenged in their advocacy for children as they work to make sense of theoretical ideas in a complex and changing world. Opportunities to work alongside children are afforded through placements, observations of children in their education environment, internships and volunteering for projects. We have presented case studies to analyse, explore and illustrate how Freirean concepts helped to reframe pedagogical approaches related to mental health and well-being and wider sustainability concepts with children in the primary phase of their education journey.

Students are cognisant of the UNESCO Sustainable Development Goals, otherwise referred to as the 2030 Agenda (United Nations, 2015). As they worked alongside school class teachers, tutors from their programmes, and the founder of My Well-being School Australia, Heather J Ray, they engaged in legitimate peripheral participation (Lave & Wenger, 1991) while undertaking tasks with the children. The adults involved were not trained health professionals, nor were they qualified to diagnose mental health difficulties or deliver psychological interventions. The children, aged 8–11 years, acted as reading buddies for younger children in the school, enacting a wide range of competencies and participating in assisted social practices within a developing community of practice (Barron, 2005). The workshops fostered trusting relationships and encouraged the children to embrace self-care, empathy for others and education for sustainability as they explored and analysed alternative epistemologies and developed connections within a diverse network (Tillmans, 2017). In this chapter, we embrace the paradigm shift noted by the culture of the World Organisation of United Cities and Local Governments

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(UCLG) to include *culture* as a recognisable pillar of sustainability. This recognition blends to create a natural synthesis to Freirean ideas and his assertion that 'human beings create culture' (Smidt, 2014, p. 16).

At a time when quality early childhood education indicators under SDG4 (4.2) (United Nations, 2015) are measured by quantitative participation rates, with children developmentally on track (King, 2017), working with children outside this paradigm helped cultivate a relational approach, where the intent was to foster meaningful dialogue rather than merely transmitting information within the student, teacher and child interactions. This complemented the ethical approval granted by the university, positioning both adults and children as active participants. The research with the children was informed by the Mosaic approach (Clark, 2017), emphasising a framework for listening to older children who would ultimately scaffold and support younger peers. This resonates with Clark and Moss' (2001) brief exploration of 'children by children research', where they state that children's perceptions of what is important for their peers, 'may be nearer than the best efforts of adults' (pp. 22–23). This framework was further enhanced by the Photovoice approach developed by Wang and Burris (1997) and later by De Lange et al. (2007). The Photovoice approach engages participants in processes such as social learning and analysis, aiming to empower individuals, aligning coherently with Freirean action research (Rose, 2016). The visual imagery considered during the research was evident in the reading of the story *My Bare Feet* (Heather J Ray) and in the *Thinking Strong and Feeling Smart* journal entries, allowing for 'pedagogical improvisation' (Clark, 2017, p. 27) with the children each week. There is an ongoing relationship with the children and the wider school community, which embodies the notion of 'cumulative work with groups of people that takes place over time' (Rose, 2016, p. 315).

During 2023–2024, the school had 22% of pupils on the SEND profile and 68% of pupils were classified as having English as an additional language (EAL), and in June 2024, the school completed the Inclusion Quality Mark award and were awarded an additional award as a Centre of Excellence for Inclusion, celebrating their inclusive practice. This practice included work with our university as part of the local community, and these ongoing collaborations are illustrated in the following case studies, where Freire's principles (1970) of the importance of family history and culture connect with education for sustainability principles.

Case Study 1

UNCOVERING DEEPER LAYERS READING MY BARE FEET WITH CHILDREN FROM PLEASANT STREET PRIMARY SCHOOL

The 15 primary school children who came to Liverpool John Moores University Library ranged from ages 8–11. These children were bright sparks, and as reading buddies, they assisted younger students with their reading skills. My

initial thoughts were that My Bare Feet would be too young for these students, and I was apprehensive about 'reading down to them', so I framed the book as something they could read with their reading buddies. Conversation flowed from the beginning, and on each page, the students and I enjoyed discussing how walking through different surfaces and settings makes us feel.

After the reading, we looked at the reflexology chart at the back of the book, and the students took off their shoes and gave each other or themselves a foot massage. They observed how pressing on different parts of their feet affected other parts of their body. Feedback from one girl was that it made her so relaxed, she would use foot massage before her exams to calm her down. Another boy in the front row who was sceptical initially about the scientific backing of reflexology, became the expert when he started telling me that footballers actually use a similar method to release tension in their bodies, which led to a great conversation around the power of grounding and connecting to our feet to release stress and anxiety that builds up in our mind and body.

The book reading session is now being used with the students of Liverpool John Moores University, School of Education, to examine interactions with children when reading a story, to involve the children as active participants. Helping children relate what they are reading to their own lived experiences is a powerful tool of literature. One of the most profound comments we had during the discussion was from a girl who said the crunching sounds that walking through snow makes remind her of home. She is from Pakistan and was referring to the sounds she remembers on the streets from people sieving beans, apparently.

After all these beautiful conversations, I realised that the more mature the students are, the deeper we can engage in discussions around grounding, self-awareness and stress relief techniques, and I fell in love a little more with my picture book, My Bare Feet.

Read the full blog by Heather J Ray, November 2023, with images and a short video:

https://www.mywellbeingschool.com/blog/how-i-came-to-understand-the-deeper-layers-of-the-book-my-bare-feet-from-a-reading-with-pleasant-street-primary-school

Commentary

As Heather J Ray from My Well-being School Australia poignantly illustrates in her blog, the reading session was part of a broader collaborative process with the children from the local city centre, a multicultural primary school. A large proportion of this group of children have EAL, and this diversity brought inevitable change and transformation for the community of students, staff and pupils in the school community. The reading buddies walked together with their teachers from school to the university campus library and shared their reading preferences related

to sustainability concepts with students from the undergraduate BA (hons) Early Childhood Studies programme, before settling to listen to the author Heather J Ray reading her story *My Bare Feet.* The reading buddies who were aged between 8–11 years, support younger children in the school and the notion of 'uncovering deeper layers' (Heather J Ray) requires a reframing of expectations related to the familiar Western ages and stages approach to understanding children's competencies. Barron (2005) argues that this reframing can be seen in the work of Bronfenbrenner (1979), Lave and Wenger (1991) and Foucault (1998), and we also add to this cannon to acknowledge Freire (1970) with his 'major contributions to teaching and learning, human rights and social justice' (Quintero, 2017, p. 168).

The Subject benchmark statements for BA (hons) Early Childhood Studies programmes illustrate the need for students to be 'knowledgeable about the requirements of social justice, children's rights, children's culture and equality, diversity and inclusion and ensure that this encompasses supporting the development, well-being, participation and learning for multiple childhoods' (QAA, 2022, p. 11). Education for sustainable development was also included in the revised benchmarks (QAA, 2022) with students cited as 'agents of change within a sustainability agenda' (p. 5) and this reorientation towards change agency for sustainability marries with the bold approaches adopted in the Early Childhood Studies degree programme and associated research conducted within an early childhood education for sustainability (ECEfS) frame. Indeed, in 2020, Elliot & Ärlemalm-Hagsér noted how 'ECEfS research has arrived at a new benchmark, and this is a timely provocation for radical change as global sustainability pressures mount' (p. 7).

Students studying Early Childhood Studies were keen to understand the potential for fruitful pedagogical interactions and the power of children's literature to examine visions of sustainability concepts as they crafted their own story books for young children for a module assessment (see Hirst & Wilkinson, 2021 for earlier iterations of this assessment). The students observed the reading of My Bare Feet, including the authentic interactions, and with consent from the children and teachers, the session was video recorded for further reflexive scrutiny in class sessions. Students are familiar with the work of Vygotsky and the cognitive aspects of language acquisition (Vygotsky, 1978), and they were able to make coherent connections to the value of the interactions and the characteristics of effective learning from the English Early Years Foundation Stage (DfE, 2024b). The visualisation of the blog and the recorded interactions supported a deeper dive into the concept of ongoing dialogue and Vygotskian sustained shared thinking (Hirst & Culshaw, 2024). The juxtaposition of a Freirean lens encouraged adults to visualise how praxis is actualised when children are acknowledged as 'knowledgeable equals within the context of multi-directional conversations' with a Freirean focus on analysing language and linking this to equity (Smidt, 2014, p. 63).

One of the signifying features authors often use to create meaning is intertextual reference (Gamble, 2019) and Heather cited the 'deeper layers' she recognised in her simple picture book when reflecting on the sophisticated and engaging

responses from the children. One of the books we use to discuss children's anxiety is *Into the Forest* by Anthony Browne (2004), where the reader is taken on 'an unforgettable journey into a forest full of fairy tale allusions where, typically nothing is as it appears' (Blurb, Browne, 2004). The story can be read in its own right, with little knowledge of the related fairy tales; however, encouraging students and the children to make connections between textual references opens possibilities of what reading can be (Gamble, 2019). Reading My Bare Feet as a group led to the physical exploration of foot massage and well-being conversations related to anxiety. This gateway for new discourses around well-being allowed children to mark their 'cultural territory' (Bourdieu, 1993) and normalise dialogic encounters where 'artefactual literacies' helped to anchor children's imaginations to the concrete world (Clark, 2017, p. 160). Clark (2017) argues that encouraging children to talk in this natural way helps to build 'a mosaic of perspectives' (p160), and she also keenly postulates the value of applying a Mosaic approach to work with adults. In this sense, reflections on the reading and subsequent interactions with students were akin to Freirean praxis (Freire, 1972) as they crafted their own stories to come together to reflect critically on sustainability concerns and craft their own stories for conversations with children.

Our university has made credible attempts over recent years to acknowledge the global sustainable development goals or SDGs (United Nations, 2015), also referred to as the 2030 Agenda, and the all-encompassing goals have gained more overt attention than the previous Millennium Development Goals (MDGs) with visuals of the goals, juxtaposed with bold statements highlighting how the university commits to each goal. The 17 goals include 169 targets promoting prosperity, peace and partnership at the same time as protecting people and the planet. For students on a multidisciplinary undergraduate degree programme, the goals on the university screens can appear as a series of encyclopaedic colourful images with little consideration in the discourse related to ethical considerations. The Earth charter (2000) was a result of worldwide collaborations and remains a principal guide in moving towards ethical, informed practices in education for sustainability. In 2014, Wals considered the international declaration as offering 'more bio-centric and eco-centric perspectives' (p. 13) and at the same time, Davis (2014) argued for a revisioning of rights 'more potently aligned with global sustainability ambitions' (Elliot & Ärlemalm- Hagsér, 2020, p. 8). This revisioning includes foundational rights UNCRC, agentic participation rights, collective rights, intergenerational rights and bio/ecocentric rights (Davis, 2014, p. 23).

Revisiting the recording of the interactive reading session with the students, it was possible to see how the banking concept of knowledge, which Freire (1970) criticised, can be counterbalanced with a funds of knowledge perspective (Moll & Gonzalez, 1994). Here, students considered their own funds of knowledge and together, through a process of transformation and praxis (Freire, 1970), they were able to integrate this into their own assessments. Hirst and Culshaw (2024) captured this in a chapter, which focuses on the specific area *Understanding the world*

in the English Early Years Foundation Stage (DfE, 2024b) noting how one student cited Siraj-Blatchford et al. (2016) to highlight the importance of education about cultural difference without making the 'other' appear exotic. Reyes et al. (2016) looked at the academic demands placed on children in schools and considered how preservice teachers could be supported to work with a strengths-based approach with children with EAL, and in terms of ethics in sustainability education, it would be easy to assume an indoctrination approach to lectures (Tan, 2008 cited in Tillmans, 2017) rather than a preferred 'Socratic inquiry' where students can be encouraged to 'identify and question their own values that underpin non-sustainable practices' (Tillmans, 2017, p. 49).

The story My Bare Feet (Heather J Ray) depicts a solitary child exploring multiple environments with her bare feet and the onomatopoeia, for example, the crunching of the snow, adds a sensory layer to the writing alongside the illustrations. With an Early Childhood Education for Sustainability (ECEfS) lens, the story imagines encounters with the natural world, with the child experiencing the sensory feelings of grass, sand, leaves, water and snow. These recognisable environments are relatable for ECS students who have developed their understanding of pioneering ideas and nature pedagogies, however the intertextual responses from the children elevated the children as experts (Clark, 2017), who scaffolded (Bruner, 1977) the adults and encouraged an examination of the 'deeper layers' (Heather J Ray).

The child who Heather cited as likening the sound of crunching snow to the sound of sieving beans in her home country of Pakistan, encouraged some of the students to create their own bilingual storybooks for their assessments. One student highlighted how her Welsh cultural heritage, which was at the forefront of her primary education, was watered down in her secondary education and 'missing' as a hidden part of her identity in her initial experiences in higher education. An equivalent celebration was captured when a student from Pakistan crafted her story book in Urdu and English, and another student crafted her story around her experience with her sister, who had selected mutism. For the first time, this student was able to vocalise how she believed that her sister had a voice in different guises and in different contexts, and she could share this with other students who explored ideas around rights, voice and participation, bringing the Mosaic approach (Clark, 2017) to life. Blaisdell (2012) suggests there could be a risk of false representation by researchers adopting the mosaic approach, which could result in the child being seen as a 'neutral entity' (p. 13); however, the emergence of student, teacher and child interactions championed the approach as 'sensitive to adults' and children's abilities, needs and context to allow them to construct multiple mosaics' (Clark, 2017, p. 160) and advocate for environmental, economic and social/cultural sustainability. The normalisation of multiple languages was profound for the students who were respectful and celebratory when reading their stories to each other and here students were able to visualise some of Freire's major concepts (1970) as they observed interactions with children, and recognition of the value he attributed to

the child's individual experience of creating meaning from experience, relationships and learning. They were also able to consider how the English Early Years Foundation Stage (DfE, 2024a) has consistently maintained the principle of the unique child but saw how the interactions transferred to communal, collaborative learning in an exemplification of Freire's critical transformation (1970).

The story My Bare Feet segues seamlessly from the familiarity of natural environments and asks the reader: 'Have you ever walked barefoot through the streets?' The background image suggests a stark change in environment with gloomy grey buildings and the child sitting on the edge of a bridge with a dirty dress and feet. The child remains alone and the students made connections to the story, My Name is Not Refugee by Kate Milner (Milner, 2017), endorsed by Amnesty International UK as a story which 'shows why the human rights to home, safety and dignity are so important'. Gastaldo & De Figueiredo- Cowen (1995) suggest that one of the most striking features of Freire's work is its 'contextualisation of education in historical, cultural, political and social perspective' (p. 1). Freire argued that it is simply not enough to come together in dialogue to learn about one's own social reality, but, according to Quintero (2017), he asserted that they must come together for dialogue to reflect critically upon their reality, then act together to transform it for self and others. Freire posited that reading the word is important, and it certainly was important to our pupil/reading buddies, but as Freire advocated, the words are only meaningful if they also involve teaching about how to read the world (Hirst & Culshaw, 2024). Indeed, for the student learners, the reading of My Bare Feet was dependent on the social reality of the reader or listener and this conscientisation through the repetitive retelling of the story could be seen as recursive praxis that generated more learning (Quintero, 2017). This natural bedfellow can be viewed in sustainability terms as the opposite of sustainability indoctrination, and more in keeping with authentic, Socratic dialogue (Tillmans, 2017).

The child from Brazil who Heather cited as 'sceptical initially about the scientific backing of reflexology' who then 'became the expert', or in Vygotskian terms, the More Knowledgeable Other (Vygotsky, 1978), shared his fascinating knowledge of footballers, and how they use a similar method to release tension from their feet for training. Students wanted to learn positive and useful approaches to working with children, and in the process, they realised that pedagogical approaches are not a bag of tricks, or even an armoury of activities for the classroom. Rather, in Freirean terms, the spaces where the adults (including some teachers) and children interacted were 'first of all a political one' (Gastaldo & De Figueiredo- Cowen, 1995, p. 7) uncovering 'inequitable, dehumanising states of affairs', thus, 'developing means of enabling humans to act as agents of transformation and production of new, more equitable social arrangements' (Kress, 1995, p. 38).

The following case study explores a well-being project with children from the same school as they worked with a beautifully illustrated well-being journal titled, *Thinking Strong and Feeling Smart* (Heather J Ray).

Case Study 2

EMPOWERING WELL-BEING A FLEXIBLE FRAMEWORK FOR MINDFUL LEARNING AND INNOVATION IN THE *THINKING STRONG AND FEELING SMART* WORKSHOPS BY HEATHER J RAY FOUNDER OF MY WELL-BEING SCHOOL AUSTRALIA.

Well-being education is multidimensional and needs a fluid framework that offers skills, not rules. This was the foundation behind the *Thinking Strong and Feeling Smart* workshops, offering principles and applied skills such as meditation, which allowed the children to practice and explore what it felt like to meditate in a safe space. Many of the children may never meditate again, but as they grow and the world at large continues to change, they have practised and learnt skills that they can pull out of their toolbox when needed.

From the outset, we aimed to create workshops that were centred around the children. They were given the freedom to choose the learning models and their sequence, aligning with the Sustainable Development Agenda and promoting innovative thinking and action. An initial challenge of offering pre-recorded virtual video lessons to accompany the workbook journals meant I had no direct dialogue with the children for immediate feedback on their engagement, and therefore, I couldn't adjust the pace and direction of the lessons accordingly.

Following Team meetings with the university staff and students involved in the projects, the focus shifted to how we could offer the children maximum participation and ownership over their learning in this environment, which led to the creation of eight short, snappy videos. We handed the reins over to the children and encouraged them to participate in the video lessons selected each week, which gave more engagement and ownership over their learning process and allowed for a dialogue within the framework of the video lessons to come alive.

The journaling workbook was meticulously designed to foster a relaxed learning environment. From the soothing colour palette of muted tones to the visual images that represented each idea, every element was chosen to help children ease into their work, helping them feel safe and relaxed in their learning. We aimed to release them from the constraints of a right and wrong, one-size-fits-all, left-to-right answer of what well-being is. Instead, we empowered them to move within an evolving framework, offering reflection and reflexivity, which is vital in a personal and global context with all the associated uncertainties of the future.

Commentary

This second case study draws from a collaborative project set up to maintain continuity as we worked with children from the local primary school in various contexts. The particular focus was to encourage students from Education and Early Childhood programmes to work with the children to develop a shared confidence and experience and to support the children to explore concepts related to their own health and well-being through their interactions with the *Thinking Strong and Feeling Smart* workshop journals (Heather J Ray). Students are familiar with the UNESCO Sustainable Development Goals as they complete various assessments related directly to sustainability concepts (see Hirst & Wilkinson, 2021; Hirst, 2022; Hirst and Culshaw, 2024 ; Daly, 2023) and the interactions with the children helped them to visualise ideas associated with sustainability, including a more holistic reading of the SDGs as they adopted the notion of listening to the children 'combining the visual with the verbal' (Clark, 2017, p. 24).

Facilitation and Participatory Processes

As Heather J Ray highlights in the case study, the workshops sought to prioritise child-centred practices, positioning educators as facilitators rather than directors of learning. The idea of culture and Freirean cultural circles (Freire, 1970) supported this approach, allowing for 'liberatory education' (Akkari & Mesquida, 2008, p. 330) through 'problem-posing' (Freire, 1970, p. 12), empowering children as active participants in their learning. Blaisdell (2012) posits the need for children to be seen as autonomous agents, and it is at this point that they become experts in their own lives, which is also a key tenet in the Mosaic approach (Clark, 2017). The short video 'I will be a hummingbird' by Wangari Maathai was shared as part of the mosaic and built on the sustainability themed storytelling with students and children and helped to challenge 'anthropocentric' views of human agency and served to avoid a 'perpetuation of the divide between human and non-human' (Weldemariam & Wals, 2020, p. 14) when thinking about the well-being of humans and more broadly, the well-being of planet earth.

Freeman et al. (2020) describe cultural circles as a recursive process that begins with understanding the lives and contexts of participants, allowing for the creation of themes that reflect shared experiences, and this process fosters dialogue and reflection. During the workshops, Heather initiated discussions on well-being via video link, reminding children that their feelings and emotions guided the sessions, and the well-being journal served as an expressive tool to help validate and liberate their emotions. Monteiro et al. (2015) define cultural circles as dynamic spheres of knowledge that value both individual and collective experiences in knowledge construction, through 'privileging the subject's experiences' (p. 168), committing to the transformation of reality.

With adult facilitation, children created visual representations of their thoughts and feelings, which served as reference points for further discussion within the cultural circles. This led to children problematising some visual representations, for example, the journal page indicating 'things outside my control' (Figure 5.1).

Mayall (2002) investigates the idea of children as social actors, and she extends this to encourage adults to see children as social agents; thus, 'the term agent

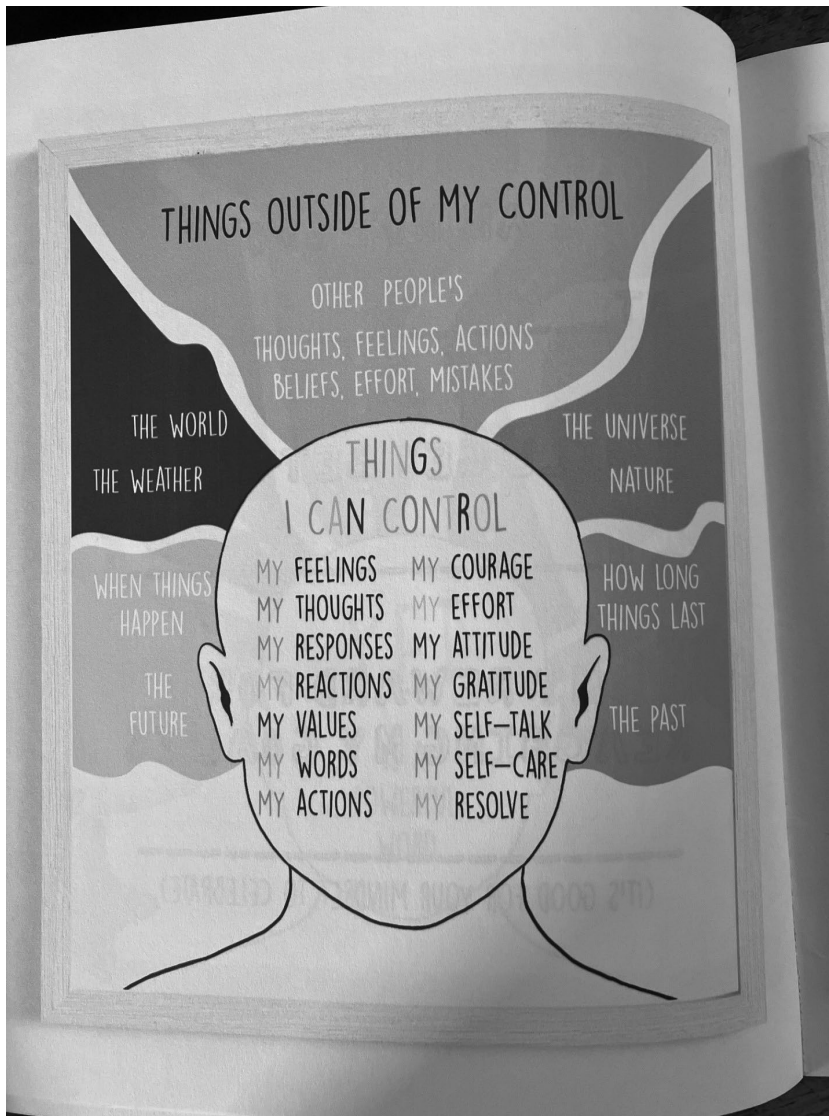

FIGURE 5.1 Invitational journal page exploring 'things outside my control' in the cultural circles.

suggests a further dimension; negotiation with others, with the effect that the interaction makes a difference' (2002, p. 21). In a Freirean sense, 'a dialogue presumes equality among participants…who need to trust each other and there must be mutual respect and shared commitment. Each person must question what he or she "knows" and realise that through dialogue existing thoughts will change and new knowledge will be created' (Freire, 1973, cited in Quintero, 2017, p. 169). Glazzard and Bligh (2018) identify what they term 'appropriate' and gentle encouragement for children to engage in situations or conversations which may make them anxious, and this, they argue, has the potential to develop their social, emotional and intellectual capacity. Tillmans (2017) employed the idea of disruptive learning in her doctoral research with students and argued that 'disruptive learning is the facilitation of disruption, creating experiences that cause dissonance within learners, leading them to a heightened awareness of, or even questioning their existing frames of reference, values or belief systems' (p. 193). The adults and children engaged in problem posing related to 'things outside my control' with cognisance of the value of opportunities to 'practice and develop competence' (McDowall Clark, 2013, p. 113) (Figure 5.2).

Opportunities for expressing emotion were captured in the journal with an invitation to draw 'how you are feeling' and 'write as many words as you can to describe your feelings' and children were engaged in storytelling between themselves and adults to discuss how their feelings influenced their perceptions of the world. This conscious recognition of how experiences contribute to how children are feeling resonates with the importance of good health and well-being of children, and whilst the sustainable development goals (UNESCO, https://www.unesco.org/en/education) refer to health and well-being (SDG 3), there is a lack of emphasis on the importance of promoting such themes in childhood. Freire (2008) identified dialogue and problematisation as essential elements of cultural circles, inviting children to confront their life experiences. The children identified where they felt in control, and in equal measure, they explored 'things outside my control' with recognition of real-world global issues, for example, 'climate change' and how this may influence their own future. This relates to the idea of social perspective-taking, where children start to mentally adopt, understand and consider other people's points of view, which includes their thoughts, beliefs, emotions and values. In Freirean terms, when 'human beings create culture, they have a right to name the world', which means they have the capacity to look critically at the world (Smidt, 2014, p. 16). By naming and talking about the things which trouble them, children, students and staff could use this critical lens to act collaboratively and as Smidt (2014) explains, this means that 'nothing is predetermined [and people] collectively have the capacity to change the world' (p. 16) (Figures 5.3 and 5.4).

Throughout the workshops, in a bid to create a more inclusive and effective learning environment, children were invited to share feedback which the facilitators used to engage in ongoing reflection of the sessions. This enabled a more dynamic process, where children could use problem posing to co-create effective

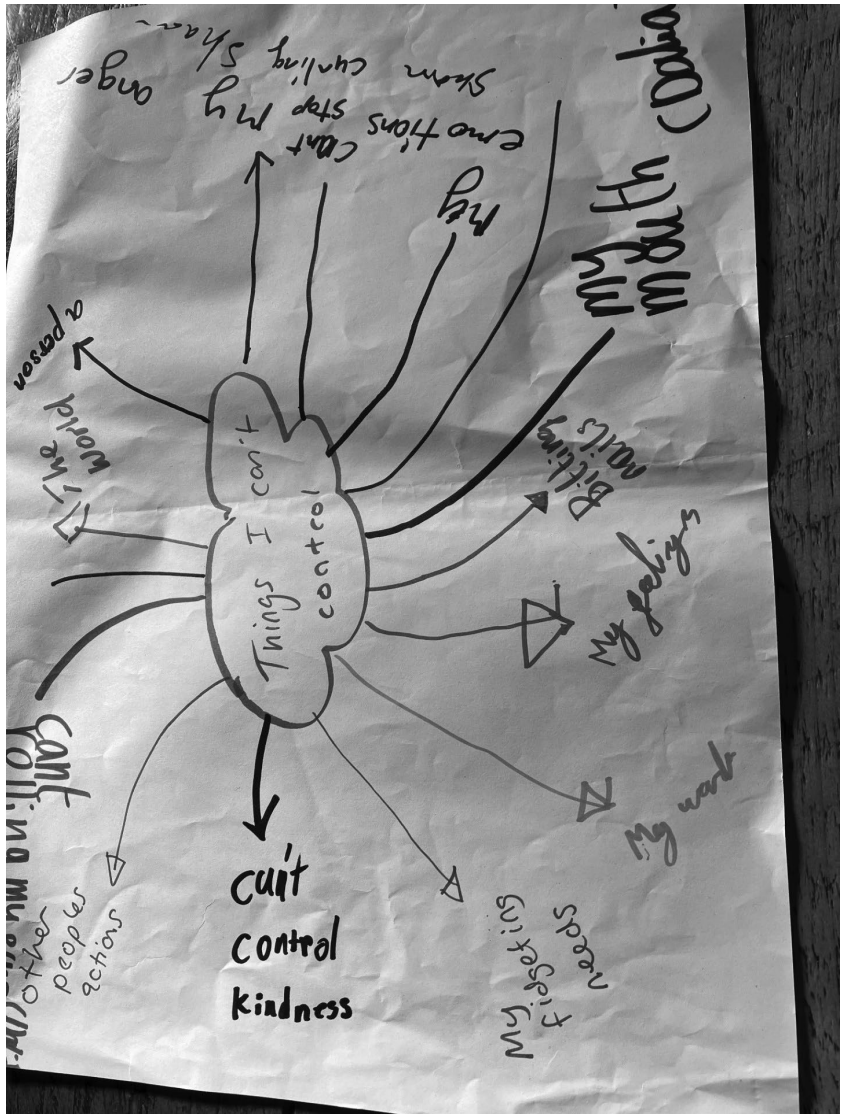

FIGURE 5.2 Collective dialogue illustrated.

learning experiences through critical dialogue (Smidt, 2014). According to the Children's Rights International Network (2015),

> the SDGs unfortunately left out goals and targets that explicitly address the rights of children, and the adopted agenda neglects a rights framework, failing to appropriately reference children and individuals as rights holders. More recently, Elliot and Ärlemalm- Hagsér (2020) offer a reminder of the expanded

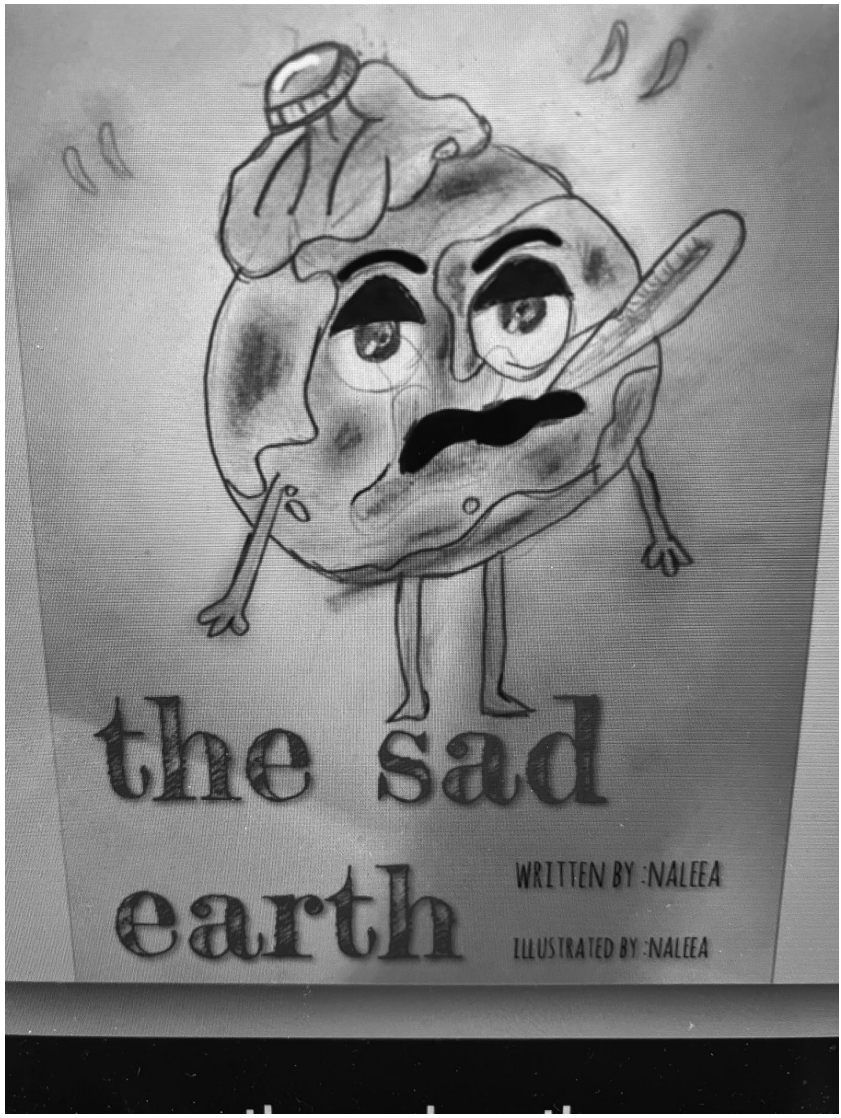

FIGURE 5.3 The Sad Earth draft illustration by one of the children for a story to share with the younger children.

rights framework posited by Davis in 2014. Here, they advocate for this reframing with a reminder of 'a strongly biocentric revisioning of rights more potently aligned with global sustainability ambitions.

While foundational human rights remained evident in her (Davis, 2014) revision, agentic participation, collective, intergenerational and eco-centric rights are also

FIGURE 5.4 Journal entry during the cultural circles.

given prominence' (Elliot & Ärlemalm- Hagsér, 2020, p. 8). The emphasis during the workshops was listening as an *active process,* and this conscious approach speaks to the Mosaic approach, and the necessity of listening to children's perspectives, whilst also respecting the silences as they crafted entries into their journals as a personal space (Clark, 2017). Facilitators, including both staff and students, reflected on the importance of being mindful to listen intently to capture children's authentic voices to avoid a reliance on adult interpretation. Gallacher and Gallagher (2008) remind us that children become experts in their own lives as they become autonomous agents, where time to think, reflect and act must be provided to allow these skills to develop. Indeed, adopting a child-led approach is integral to the process of 'listening intently', even when applying the methodology of the mosaic approach, as Cocks (2006) states, despite Clark and Moss' intention to design an inclusive methodology, the Mosaic approach can rely on 'adult-centric autonomous behaviour' (p. 257) (Figure 5.5).

The university classroom can (and should be) a critical space where theory and practice can come together, and for the well-being workshops, we hoped to share the university classroom as an alternative space to the school classroom. In terms of physicality, we furnished the room with soft lighting in the guise of electric tea-lights on the tables and the pedagogical design was consciously different to familiar classroom discourse where 'implicit didactic contracts are [often] established and

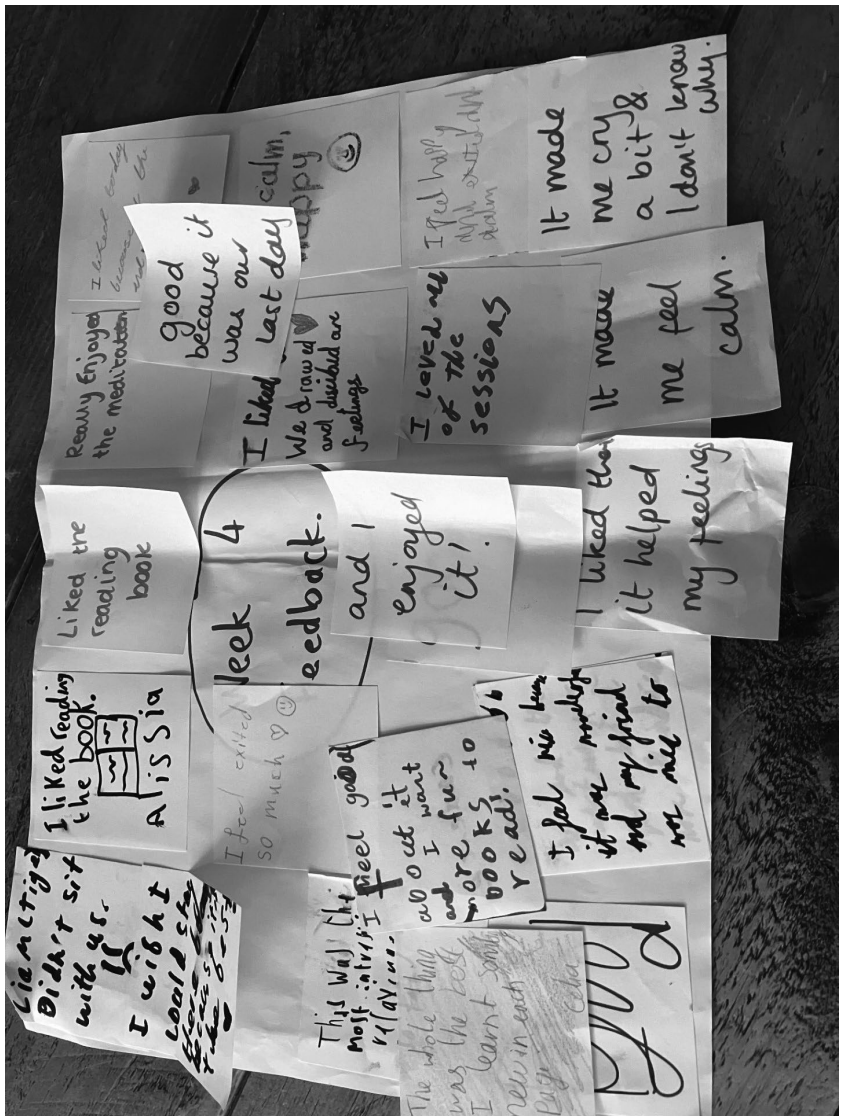

FIGURE 5.5 Weekly documentation of children's feedback.

maintained, [sometimes] constraining meaning, discourse and thinking' (Oates & Grayson, 2004, p. 325).

As the children settled into university as a new and exciting place for learning, we introduced a mantra from the journal noted in Figure 5.6 to establish the idea of safe places and spaces to engage in dialogue. This idea of place-based pedagogies as essential is highlighted by Gruenewald (2003) as 'pedagogies so that the

FIGURE 5.6 'In this space' from the *Thinking Strong and Feeling Smart* journal.

education of citizens might have some direct bearing on the well-being of the social and ecological places people actually inhabit' (p. 3). The value of place and belonging in education has been of wider concern post-pandemic, where the National Education Union (2020) found that 1 in 4 young people feel that they do not belong in schools, where children from marginalised groups are twice as likely to feel this way. Proshansky and Fabian (1987) examined the importance of belonging and

state that place identify derives from purpose and meaning in physical environments, and how 'serve to define who the person is' (p. 22).

An initial journal entry encouraged the children to identify a safe place where they feel comfortable, resulting in drawings that depicted physical spaces, such as cosy illustrations of 'my bedroom' or 'here in your classroom'. This aligns with Clark's (2017) recognition of the strong connection's children form with their environments and the notion of 'a material turn' (Clark, 2017, p. 73) in the theoretical frameworks concerning children. We conceptualise this experience as a mosaic, viewed as a kaleidoscope of moving parts rather than a static composition (Clark, 2017). Furthermore, we recognise the children within the university classroom as components of open-ended assemblages (Weldemariam & Wals, 2020), engaging with the journals in distinct and individual ways. It was intended that the practice of well-being in the workshops and supporting journals would continue when children returned to their school, further emphasising connection and collaboration between the place of university and school for the child. As teachers noted that they were short in terms of time and journals were used only during 'wet play time' between sessions, it was apparent that barriers to the natural implementation of well-being opportunities within schools in general may also be linked to the already time poor environment of schools, where performativity and bureaucratic demands (Kilinç et al., 2016) means that aspects such as well-being and mindfulness are less prioritised (Lanas & Brunila, 2019). Graham et al. (2011) investigated teacher's perspectives on student mental health and mental health promotion in schools, as teachers are expected to respond to a variety of student needs and may not be able to cope with these kinds of challenges effectively. They concluded that there is a gap in the interpretations and standards on what schools should effectively offer, in terms of mental health promotion and prevention, and that there should be more of a focus in initial teacher training on how to deal with the challenges and realities that teachers encounter today.

As the dialogue had a direct connection to children's realities, it enabled problem-posing (Freire, 1970), where they could unveil their reactions, including feelings and emotions. Clark (2017) refers to the initial listening to young children study from 1999 to 2000 (p. 32), and she validates adopting the approach with older children as long as adults (and older children) remain conscious of the principles, which include recognition of the children as experts in their own lives, playing to the participants strengths (as opposed to playing to the strengths of 'researchers') and a willingness to construct a platform of communication for children and adults to discuss meanings together (Clark, 2017, p. 161). The complexity of adopting this platform cannot be underestimated, and as Oates and Grayson (2004) argue, there is a very specific classroom discourse in school contexts where teachers are assumed to have all the answers. The freedom the children experienced during the sessions afforded opportunities for some unique and idiosyncratic responses, and the release of various emotions acted as a bridge to foster shifts in perspectives (Tillmans, 2017).

Within the cultural circles children discussed their self-portraits and chosen words and as Smidt (2014) notes, 'in all cultures throughout the world people have developed ways of representing their thoughts and feelings through using symbolic means' and 'Freire would refer to this contemplating as becoming conscious' (p. 55) and from this exercise of 'codification' children began to discuss ways in which they seek to address and overcome some feelings. The need to welcome expression of feelings and emotions within early childhood have never been greater, with the ongoing rise of mental health and well-being concerns in children where NHS England (2023) statistics state that 1 in 5 children and young people have a probable mental health condition, which has risen from 1 in 9 in 2017. Skovdal and Campbell (2015) discuss the need for schools to support and protect children, and to take seriously their role in reducing inequalities and actively addressing well-being beyond academic progress, such as considering the impact of hardship and disadvantage. Codification creates meaningful dialogue, critical thinking, liberation and social justice, which is grounded in the experiences and languages of the learners, aspects that will enable children to see their value. By doing so, children gain a deeper understanding of their realities and foster their ability to act within them (Jerome & Starkey, 2022). Throughout the workshops, the children actively expressed their enjoyment of having a voice and participating in the sessions, particularly relishing the 'freedom to choose the learning models and their sequence', highlighting the value of agency in their educational experiences.

The journals acted as a foundation for children to explore and reflect on their well-being with peer and adult support. Designed with the child in mind, the journal, storytelling and meditation sessions sought to connect with their realities. These representations of children's lives resonate with Freire's notion of codification (Akkari & Mesquida, 2008), creating a space for validation and enabling children to articulate their feelings and emotions. Alongside the workshop facilitators, this process empowers children to engage with questions and challenges. Peckham (2003) describes the Freirean concept of codification as a gateway to unearthing deeper meanings, likening it to "turning walls into windows" (p. 227). Through codification, children can gain clarity and understanding, using it as a lens to examine complex themes such as resilience, health and well-being, ultimately highlighting the value of meditation and reflective practices in their lives.

Freire's notion of conscientisation (Freire, 1970), which Smidt (2014) defines as 'almost synonymous with critical consciousness and/or consciousness raising' (p. 15), where through praxis, or reflection and action, individuals can develop an awareness of their social reality. As the focus of the workshops was to raise children's consciousness of themselves through their feelings and emotions, children were invited to engage in a meditation session at the end of every week. The rationale for the meditation sessions was to promote self-awareness and mindfulness, aspects that are essential ingredients of conscientisation (Freire, 1970) where from inner awareness the prerequisite for recognising and considering broader societal contexts are borne (Smidt, 2014), which in Freirean terms can lead to transformation in how children view themselves and the world around them (Freire, 1970a).

A research study by De Zouza et al. (2014) considers the effects of meditation with children in a primary school and discusses how mindfulness meditation allows children to understand the processes of the mind, for example, how we think and feel. This study found that a benefit for children taking part in mindfulness meditation was that they became calmer and more respectful towards others and demonstrated positive social and learning behaviours, such as helping one another and listening attentively (De Zouza et al., 2014) (Figures 5.7 and 5.8).

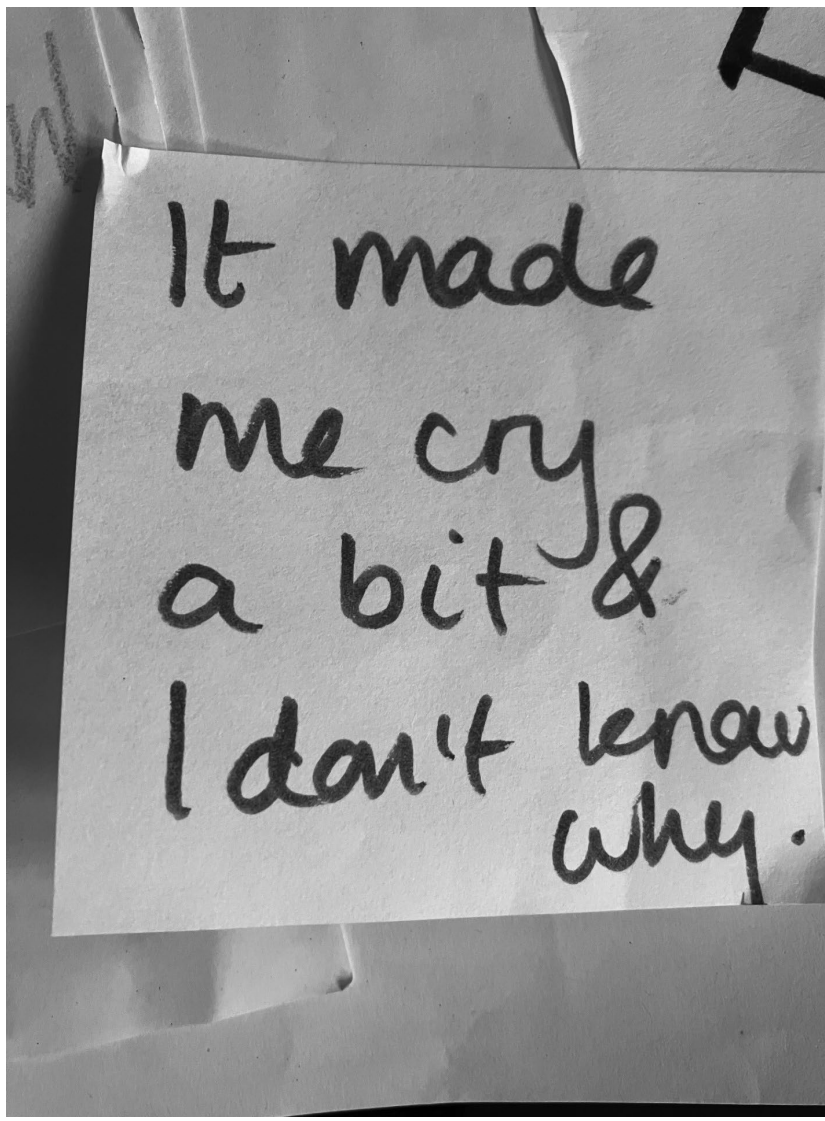

FIGURE 5.7 Post-it note response to the meditations.

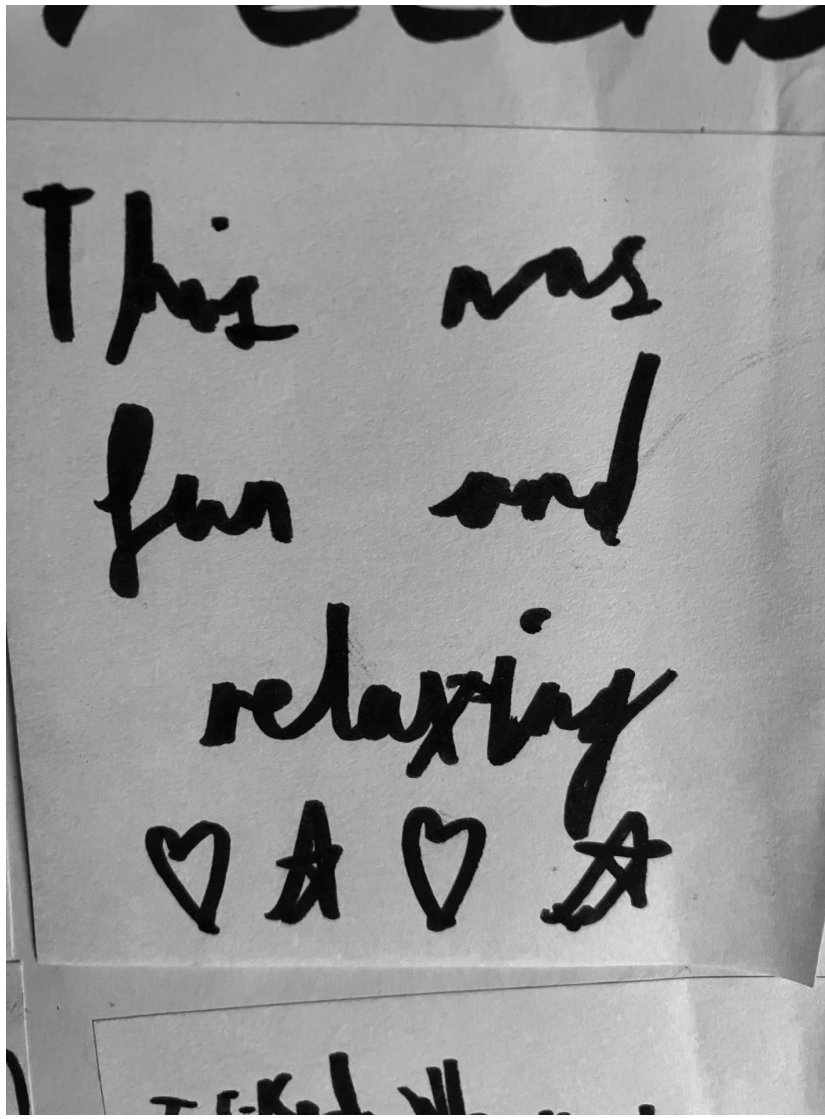

FIGURE 5.8 Post-it note response to the meditations.

The process of conscientisation translated to the adults as well as children during the workshops, where Freire's problem-posing pedagogy was used to conduct a critical understanding and deep examination of their societal position and how that might differentiate to others, such as access to socioeconomic resources and opportunities (Sleeter et al., 2004). Through conscientisation facilitators could unveil, 'myths created by the oppressors to maintain the status quo' (Sleeter

et al., 2004, p. 82). At the end of every workshop, facilitators met to reflect upon the process and to consider making changes to ensure the following session remained focused on the needs of the children. One such aspect was that it was observed that children were not given enough time to examine and 'decode' their feelings and emotions within the cultural circles where some facilitators felt the need to 'keep children on task', aspects that are reflective of typical teacher training in formal education where emotional well-being in schools is often through dedicated programmes of teaching (Mc Laughlin, 2008) rather than child-led periods of reflection. The adopted pedagogical stance in the workshops resonated with problem posing education and opposed the banking concept (Freire, 1970), which Roberts (2015) describes as an assumption that the teacher knows, and students must listen and receive. Freire's preferred approach of problem-posing centred upon posing questions rather than giving answers, and it is at this point that conscientisation and emancipatory practice can flow. Freire's liberatory and transformative philosophy is what should underpin early childhood practice, where themes or codifications drawn from reality and preoccupations of the child should build upon the child's interest and abilities wherever possible (Pascal, 2003).

Conclusion

This chapter has focused on the value of sustainable collaborations with children, students and staff, and we have offered an exploration of the university classroom as a safe but critical space for students in Education and Early Childhood programmes, particularly regarding advocacy for children's well-being. We contend that the application of Freirean principles helped to reframe pedagogical approaches to mental health, well-being and sustainability in higher education and in the early childhood and primary education context. Cultural circles in the well-being workshops supported student, teacher, child interactions to encourage dialogue related to sustainability concerns, including individual and collective well-being. Freire argued that those exposed to an educational system that fails to invite them to raise questions, learn to remain silent and this 'culture of silence' (Smidt, 2014, p. 124) results in an acceptance of the status quo. The journalling workshops supported student, teacher, child interactions and empowered them to become authors of their own lives, and we join a chorus of voices to advocate for conversations for the well-being of individuals and well-being of the earth in an early childhood context and in compulsory education in the primary phase of education. Central to this exploration was Freire's notion of conscientisation (Freire, 1970), which Smidt (2014) defines as 'almost synonymous with critical consciousness and/or consciousness raising' (p. 15) and children and students displayed aspirational goals to 'be a hummingbird' by doing the best they can. This chapter has captured research where, through praxis, reflection and action, students and children were able to develop an awareness of their social reality. The workshops aimed to raise

children's consciousness of themselves through their feelings and emotions, incorporating meditation sessions to promote self-awareness and mindfulness. These elements are essential for fostering a deeper understanding of broader societal contexts, ultimately transforming how children perceive themselves and their world (Freire, 1970a). The role of education is paramount, and as educators in higher education, we feel that these authentic collaborations and exchanges are rooted in SDG 4, Quality Education and SDG 4.7, the role of transformative education.

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6

ABSENT AND PRESENT PLACES

Perspectives on Childhood, Nature and Society in Danish Early Childhood Education for Sustainability

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Introduction

What constitutes a good place for Early Childhood Education for Sustainability (ECEfS)? An untouched forest, a library, a pine tree plantation, an organic or a conventional farm, a stony beach, undulating pastoral hills, an urban park or an industrial area?

Education for sustainability in early childhood – like any other kind of education – is situated in particular places, and these places reflect the educational ambitions and socio-cultural understandings of children, just as they frame educational practices in particular ways (Dannesboe et al., 2024). In this chapter, we use place as a lens for exploring Danish ECEfS.

Danish early childhood education targets 1–6-year-old children. With its universal availability, affordability and its emphasis on child-centred approaches, children's democratic participation, free play and nature experiences, the Danish early childhood education system resembles those of other Nordic countries (Koch & Jørgensen, 2023; Broström et al., 2018). Still, in comparison to other Nordic countries, the attention to sustainability in Danish early childhood education has, until recently, been relatively limited.

At the policy level, the curriculum guides of Finland, Iceland, Norway and Sweden highlight sustainability as one of the fundamental pillars, values or aims guiding the curriculum, but this is not the case in Denmark. Furthermore, seen through the lens of a broad sustainability concept, encompassing social, economic and ecological dimensions (cf. Brundtland Commission, 1987; Hedefalk et al., 2015), the Danish curriculum guide clearly offers a rather weak frame for early childhood sustainability education compared to other Nordic countries (Norðdahl et al., 2024). The concept of sustainability is only introduced explicitly as part of

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one of the six curriculum themes, which is entitled 'Nature, outdoor life and science'. One of the educational goals of the theme is that '[t]he pedagogical learning environment should support all children in gaining specific experience with nature that will arouse their curiosity and their desire to explore nature, enable them to experience human connectedness with nature and provide them with an early-stage understanding of the importance of sustainable development' (Ministry of Children and Social Affairs, 2018, p. 45). As such, the Danish curriculum guide links the concept of sustainability to nature and environment, as well as to the question of resource use, but it does not mention social sustainability (Norðdahl et al., 2024).

The emphasis on the link between, on the one hand, children's nature experience and knowledge about nature and, on the other hand, their understandings of sustainability and/or sustainable behaviours is shared by all Nordic curriculum guides (Norðdahl et al., 2024), reflecting a strong cultural valuation of children's nature experiences in the Nordic region, with visits to outdoor places in the surroundings being part of regular activities in the daycare (Sandseter & Hagen, 2015). In public discussions on children and nature in the Danish context, it is often highlighted that children who experience and learn about nature will be able to take care of nature in the future. The relevance of emphasising children's nature experiences has been supported by research on children and nature, for instance, by the Danish Centre for Children and Nature (https://centerforboernognatur.dk), and disseminated widely in a Danish context by The Danish Outdoor Council (https://friluftsraadet.dk) among others. The research of the Centre has not directly focused on sustainability, but recently, academic attention has been directed towards new conceptualisations of children's nature formation/*Bildung* (Danish *naturdannelse*), which also address ethical questions in relation to human–nature relations (Hartmeyer & Præstholm, 2021).

Research literature on ECEfS acknowledges children's nature experiences as relevant and significant entry points to sustainability learning in early childhood (e.g. Ernst et al., 2021). However, research also highlights the risk of simplified and idealised assumptions about children and nature in nature pedagogies, as they may result in a lack of attention to social and economic aspects of sustainability (e.g. Elliott & Young, 2016; Taylor, 2013). With inspiration from the latter discussions, our own research has focused on the kind of questions addressed and not addressed in ECEfS (e.g. Husted, 2019; Husted et al., 2024) and the social inclusion and exclusion processes in ECEfS (e.g. Jørgensen et al., 2020). In this chapter, we will explore the presence and absence of different sustainability perspectives in ECEfS in the Danish context, using places and place-based pedagogical practices as the analytical lens.

The analysis is based on a participatory mapping of ECEfS activities, carried out in 2021, and involving pedagogues,[1] managers and municipal administrators in the early childhood sector in two municipalities in Denmark, one urban and one rural. The purpose of the mapping was to identify where ECEfS takes place and to examine activities, approaches, forms of involvement and challenges. In this

chapter, our ambition is to explore how the mapping brought cultural assumptions, dilemmas and potentialities related to children, places and ECEfS into notice. Through attention to absence and presence (Mandikoza & Lotz-Sisitka, 2016) in mapping processes, we suggest that Danish early childhood continues to be framed by dominant cultural assumptions of children and nature, which leave relatively little place for children's involvement in societal and political processes. Yet, there is also potential for opening the gates to new places.

Place, Maps and Absence

The concept of place has received considerable attention in environmental and sustainability education research. According to David Greenwood, attention to place in education highlights the reciprocal relationship between people and place: that places shape human identities and relationships while, simultaneously, people shape places (Greenwood, 2013, p. 93). Based on a critique of education characterised by standardised and decontextualised knowledge, and pedagogies unrelated to the everyday life of children and families and local realities, critical scholars have proposed that local places may work as openings for pedagogies of human–nature connectedness, as well as for education addressing the ways in which political, social, cultural and economic processes impact local lives (Boyd, 2019; Greenwood, 2013; Ontong & Le Grange, 2015).

A key discussion in the research on ECEfS is the balance between, on the one hand, emphasising childhood as a space which should be characterised by safety, protection and care, allowing for positive and hopeful experiences in benign nature and, on the other hand, accentuating children as members of a larger society with rights to participate in decision-making and to shape their own learning (Boyd, 2019; Hägglund & Pramling Samuelsson, 2009; Husted & Frøkjær, 2019). This discussion has also influenced research on place-based education in early childhood. Some literature emphasises children's firsthand, embodied and aesthetic experiences, and how these may strengthen human–nature connectedness, caring, empathy and respect for the world and local places (Beery & Fridberg, 2022). For instance, drawing inspiration from discussions within the research collective of wild pedagogies (Jickling et al., 2018), Jørgensen-Vittersøe et al. (2022, p. 141) highlight the relational aspects of nature experiences in outdoor places and suggest seeing nature as a 'co-teacher' and learning as a shared project involving people as well as non-human nature. Other studies underline the importance of children's engagement with a changing environment, intergenerational learning and critical historical and local-global perspectives as they appear in a given place, hence framing place-based education as education for environmental and social justice (Boyd, 2019; Duhn, 2012; Nxumalo & Cedillo, 2017).

For this project, our initial interest in place was primarily methodological. Being aware that maps are partial representations of places and do not necessarily reflect lived lives in those places (Cruz-López et al., 2021; Saija & Pappalardo,

2018), our intention was to use participatory mapping to explore more overall ideas about the distinctions, qualities and challenges characterising ECEfS. In this article, however, we also use place as an analytical lens for exploring the presences and absences in ECEfS and how they relate to cultural assumptions about relations between children, place and non-human nature. As noted by anthropologists Karen Fog Olwig and Eva Gulløv (2003), places designated for children by adults are defined by adult moral values and cultural perspectives pertaining to childhood. Just as designs of early childhood institutions and playgrounds reflect adults' understandings and moral values related to children's lives (Gulløv, 2012), places in the local community visited – and not visited – by early childhood institutions as part of educational activities point to moral or political values.

Inspired by Bhaskar's theoretical work and emancipatory ambitions (Bhaskar, 1993), educational researchers Mandikonza and Lotz-Sisitka (2016, p. 110) suggest that participatory explorations of absences – defined as features that cause connections and relations to not function appropriately, culminating in contradictions – are a way to realise empowerment and agency. Establishing absences is an approach that enables learners to critically reflect on socio-ecological conditions and contradictions framing and influencing their lives, the authors suggest. Providing learners with the possibility to reflect upon these conditions and contradictions may facilitate transgressive learning processes (Lotz-Sisitka et al., 2015), potentially disrupting the status quo.

In a discussion on social cartography as a method for mapping experiences of Education for Sustainable Development and Global Citizenship, educational researchers Laura Cruz-López, Patricia Digón-Regueiro and Rosa María Méndez-García (2021, p. 14) describe participatory mappings as powerful methodologies for making the invisible visible through the maps themselves, but also through the act of engaging with them. Drawing on Andreotti et al. (2016), Cruz-Lopez et al. suggest that mappings generate attention to and reflections on dominant narratives (Cruz-López et al., 2021; see also Saija & Pappalardo, 2022).

With inspiration from Mandikonza and Lotz-Sisitka (2016) and Cruz-López et al. (2021), we explore and discuss how participatory mappings bring attention to the places and perspectives present and absent in early childhood sustainability educational projects, thereby generating reflections on – and possibly emerging disruptions of – broader conceptualisations of and dominant approaches to sustainability in early childhood.

Methodology: Participatory Mapping of Education for Sustainability in Early Childhood Institutions

The participatory mapping discussed in this chapter involved pedagogues, pedagogical managers and municipal staff from two municipalities in Denmark. During the mapping sessions, participants identified and discussed *where*, *how* and *why* ECEfS was being implemented in the two municipalities. The design drew inspiration

from systemic action research, where actors with different perspectives participate in the collective mobilisation of knowledge about a system with the aim of revealing dynamics, structures and opportunities for action in complex systems (Burns & Worsley, 2015). In this context, the system is understood as the complex network of individuals, key stakeholders, knowledge centres, places, institutions and networks that support ECEfS. The mapping design prioritised local actors' experiences, usages and understandings of the system's components (Chambers, 1997).

The study was designed in line with engaged scholarship that aims to contribute to social change through the mobilisation of local knowledge and collaborations between practitioners and researchers (Brydon-Miller et al., 2004; Nielsen & Jørgensen, 2018). This study thus aligns with a research position concerned with enlarging spaces for children's exploration, wonder, emotions and disruptions of established ways of thinking, hereby suggesting alternative openings for sustainable practices (Grindheim et al., 2019). Hence, the mapping was guided by two research questions: (1) where, how and with which pedagogical intentions is ECEfS practised in Danish early childhood institutions, and (2) which common awareness and reflections about distinctions, qualities and dilemmas of ECEfS are generated among pedagogical employees in the participatory mapping sessions?

In the participatory mapping sessions, participants were involved in a collective investigation of the relationship between education for sustainability, places and supporting structures, using printed maps of local areas as a point of departure for discussions. In this sense, the mapping constituted a mix between a traditional mapping in geographical terms and a place-and-experience-based localisation, where participants' considerations, intentions, evaluations and hopes emerged on the geographic map and were visualised as a shared sketch, a shared project or a shared awareness of the relationships between people, places and non-human nature (Saija, 2014).

While involving children in mappings of place holds great potential (see, e.g., Thingstrup et al., 2021), the mapping exercise described in this chapter was delimited to the adult perspective.

Research Design and Methods

The mapping centred on ECEfS in two Danish municipalities. One municipality is a suburb of Copenhagen, characterised by suburban neighbourhoods, social housing, industrial areas and green belts of recreational areas. The other municipality is a rural community, characterised by small villages, small-scale industry, agriculture, coastline and green recreational areas. Both municipalities work with visions and strategies to create green and sustainable communities and, therefore, share an interest in promoting sustainable development in early childhood.

The mapping took place during two workshops, which lasted for four hours, and followed the same method (cf. Madsen et al., 2023). Workshop 1 targeted educational staff and managers of early childhood institutions in the two municipalities.

The suburban municipality was represented by four institutions, and the rural municipality by two institutions. Five of these institutions were so-called 'integrated' institutions, targeting 0–3-year-old children as well as 3–6-year-old children, while the last one targeted 3–6-year-olds only. The institutions hosted between 40 and 140 children. In total, 15 people participated in Workshop 1, including eight managers and seven pedagogical employees. Workshop 2 targeted administrators responsible for the municipalities' daycare policies, including one development consultant and one pedagogical consultant from the suburb municipality, and one district manager from the rural municipality. The participants of both workshops had volunteered to participate in the mapping through an open invitation from the municipal level, and they described themselves as professionally engaged in education for sustainability.

The workshop venue was a room with two large tables covered with long strips of paper. Large geographical maps of the two municipalities were attached to the papers, with margins for writing. As the workshop began, the research team briefly presented the background of the workshop and outlined an understanding of sustainability based on UN's definition, which highlights the environmental, economic and social dimensions of the concept (Brundtland Commission, 1987). Participants were then encouraged to reflect upon the meaning of sustainability in their professional practice and everyday life. The responses took the form of a brainstorm where answers and comments were written with visible letters on large flip charts. The purpose of this form was to invite participants to visualise and consider their own understandings of sustainability while emphasising the open and exploratory nature of the mapping.

Most of the workshop activities revolved around the geographical maps and were guided by a workshop leader from the research team. Participants were asked to identify, discuss and frame places in their municipality where they worked with education for sustainability. After this, all participants gathered around one of the maps, and the workshop leader facilitated an exploration of each point, posing the following questions:

1 Where are we? A writer from the research team drew a line from the map to the paper margin, wrote the name of the place and marked it with a red pushpin.
2 What happens in this place? The writer drew a green question mark and listed in bullet points the participants' stories about the pedagogical activities taking place at the site.
3 What do you hope children will experience/learn in this place? The writer drew a blue arrow and listed in bullet points the participants' reflections on what experiences, education and learning they hoped the activities at the site could offer children.

After this, participants were asked to assign points to each place, judging its quality and the pedagogical processes taking place at the site on a scale from one to five,

where five marks the highest quality. This 'rating-scale' was not fixed but rather a method to engage the participants in discussing and negotiating what is understood by quality in place-based ECEfS. Finally, the research team shared their own reflections of what they immediately noticed in the mapping and encouraged a common discussion. All data from both workshops were subsequently recorded in protocols, which were sent to all participants. The mapping was followed up by qualitative group interviews (Kvale, 2008), of approximately 1.5 hours each, with management and staff in one institution in each municipality, guided by a semi-structured interview guide. These group interviews supplemented the mapping with knowledge of how the two institutions worked with education for sustainability within their own premises; knowledge that the geographical mapping did not include. Furthermore, researchers asked participants to reflect upon challenges in their work with ECEfS.

Places Present on the Maps

When educators and early childhood managers brainstormed on the concept of sustainability, their examples and inputs reflected a broad understanding of the concept, encompassing social, cultural, ecological and economic dimensions. However, when later asked to draw circles on the map to identify the places where they worked with ECEfS, most of the highlighted places were outdoors and described as 'nature places': nearby parks, forests, marshes, beaches, meadows and fields. Thus, nature places were very present and visible on the maps, and the descriptions of ECEfS that emerged in the workshop were dominated by narratives of nature experiences and nature pedagogy.

Pointing to the maps, the participants described their exploration of nature places, recounting gathering berries or mushrooms, observing insects, listening to birds, smelling flowers and building huts of old branches. They hoped that, through these activities, children would gain knowledge about animals, plants, natural materials, seasons and life cycles. They also hoped that children would develop their motor-sensory skills, build strong social relationships with each other and feel calmness and presence in nature; but mainly, their comments highlighted children's experiences of learning about and caring for nature (Madsen et al., 2023; Husted et al.,2024).

The connection to sustainability was not made explicit during the mapping process, but follow-up discussions and interviews suggest that, while mapping these places, social educators worked from an understanding of sustainability as caring for nature and ecology. 'You cannot think about sustainability without thinking about nature', one pedagogue noted in a follow-up interview, his colleague adding that working with the care for nature and animal life is a 'building block' for more abstract discussions of sustainability, to be addressed when children get older.

Apart from nature places, the maps also contained a few places that invited broader considerations of sustainability than those related to caring for nature.

These were places characterised by the presence of culturally processed objects, the presence and participation of a local population or other professions and the presence of various forms of knowledge. The social and cultural processes involved in the formation and development of the places were more visible, and the relationships between people and place were more explicitly discussed. These places received high ratings in the participants' negotiations of quality points. The first example is an organic farm that pedagogues visited to show children how milk and meat are made. The second example is a small harbour, where fishing boats are moored, and where children sometimes get the opportunity to touch a fish, taste fish and talk to the old fishermen. Discussing these two places, social educators expressed hope that children would gain knowledge of animals and food, gain courage to try new foods and engage with the local community. The third example is an outdoor historical centre exhibiting Stone Age, Iron Age, Viking Age and 19th-century full-scale reconstructed houses, as well as crafts, materials, cooking and clothing practices and religious beliefs. Social educators suggested that visits to this place may strengthen children's awareness of the past, present and possible futures based on embodied, practical experiences and conversations with staff members with knowledge of history. The history centre highlights a particular local landscape history in an area marked by prehistoric burial mounds and structures, but it may also visualise other ways of living, using natural resources and relating to the natural world, and this may ignite reflection among children and adults. What educators and leaders hoped would happen to the children in these places agreed more with their initial reflections on education for sustainability, offering a clearer connection between the environmental, social and economic dimensions.

When reflecting together on the characteristics and qualities of the places found on the maps during the mapping session and in the follow-up interviews, participants brought attention to a key tension or dilemma characterising ECEfS. This dilemma relates to the role of non-human nature in education and points to a larger societal tension between people and non-human nature.

Discussing visits to nature areas in a follow-up interview, a social educator described how he and his colleagues would allow children to find and examine insects in the forest, encouraging them to learn more about the animals while, at the same time, attempt to ensure that the animals are cared for and brought back to their natural environments. This balance is not always easy, the social educator noted, suggesting a potential tension between learning and knowing nature in natural science terms and the ethics of caring for nature. This tension, in a slightly different form, also became the topic of common debate during the mapping process when, as described above, one institution pointed to the harbour as a place for ECEfS. A participant from another institution started to consider and challenge the practice of catching, slaughtering and eating fish for educational purposes rather than teaching children the value of animal life (Husted et al., 2024; Jørgensen, 2023; Pedersen, 2019).

Educational philosophers Michael Paulsen and Morten Zeithen have brought attention to different understandings of the world that underlie educational work, suggesting that we live in times characterised by a paradigmatic change of cosmological conceptions. Hence, while much education builds on conceptions of nature as a resource for human projects – economic projects, but also knowledge projects – more life-friendly understandings, emphasising interspecies relations and dialogue, are emerging in the humanities, arts and literature, agriculture and architecture, as well as in education (Paulsen, 2023; Paulsen & Ziethen, 2024). In the context of early childhood, Jørgensen-Vittersøe et al. (2022), with reference to discussions on wild pedagogies, underline the potential of allowing young children to experience places in a deeper way by spending a significant amount of time at a special place, slowing down, listening, exploring and building relationships with the more-than-human world. Embracing such relational perspectives on non-human nature brings attention to the dilemmas and ambiguities of, for instance, human-animal relations in everyday life and educational practices.

The dilemmas highlighted by participants in discussions and interviews, related to places present on the maps, suggest a potential for exploring and reflecting upon children's relations to the non-human world in early childhood education. In our ongoing, design-based research project, which aims to explore and develop the ways in which children's engagements in their surrounding world are responded to through science, mathematics, nature and sustainability education approaches in Danish early childhood education, we have seen social educators enthusiastically engaged in exploring the potentials of wild pedagogies in Danish early childhood education (Møller et al., 2025). As such, the presence of nature places on the maps points to a potential for developing a more potent nature-based Early Childhood Education for Sustainability.

Present Places, Absent Perspectives

While nature places and places of social and cultural history were present on the maps, certain perspectives or dimensions of these places were absent in the discussions about these places, namely, dimensions of social tensions and inequality. Most of the places highlighted and characterised as nature are, just as places of social and cultural history, areas that have been shaped by people, containing social histories, tensions and conflicts of interest. To a large degree, these dimensions of the places were absent during the mapping sessions. For instance, when pointing to the experiences of the sea, the beach and the harbour, there were no discussions about children experiencing or relating to rising sea levels, agricultural nitrogen discharge, industrial fishing practices or industrial pollution threatening the biodiversity of the water and the beach, as well as local fishing-related livelihoods. These absent perspectives point to cultural assumptions about children, place, nature and society, which seem to challenge the engagement with certain aspects of sustainability education in early childhood. As highlighted by several

researchers, Scandinavian early childhood education is marked by strong values and narratives concerning children's nature experiences, which place children in benign nature (Halldén, 2009; Ekman Ladru et al., 2023; Husted, 2019). Childhood research inspired by post-human, new materialist and post-colonial lines of thought has challenged such notions of children and places from the position that culture and nature are deeply entangled (e.g. Malone, 2016; Taylor, 2013). Researchers suggest that popular imaginations of the child in natural places are thoroughly classed and coloured, reproducing values of outdoor life linked to white, middle-class childhoods and overlooking that children's lives across different backgrounds are fraught with complexity in relation to socio-economic conditions as well as environmental relations (Malone, 2016; Jørgensen & Martiny-Bruun, 2020; Ekman-Ladru et al., 2023; Harju et al., 2020; Nxumalo & Cedillo, 2017). When green nature places dominate the maps, and when histories of social, political and economic tensions are omitted, this may suggest not just a lack of cultural attention to the complexity of children's nature experiences across classed and coloured backgrounds but also a reluctance or uncertainty about involving children in dialogues about the societal forces that frame social lives and nature relations in the Danish society. This interpretation is further supported by the absence of certain places in the mappings.

Absences and the Process of Making Absent Matters Present

When we took a detailed look at the maps after the mapping sessions, areas without red pushpins became obvious, i.e. places in the local area that had never been visited. In the suburban municipality, an industrial area occupied a relatively large space but featured no red pushpins. In the rural municipality, several conventional farms were found, but they were not highlighted. Relatively large local areas seemed to be off-limits; places that pedagogues would not frequent with children.

During the mapping sessions, there was only little time to discuss these absences, but they were noted in the reflections of the research team and also formed part of the protocols shared with participants after the workshops. The follow-up interviews suggested that the workshop had also sparked further reflections among the participating staff and leaders, who deliberated during interviews through the highlighting of dilemmas and contradictory situations (cf. Mandikonza & Lotz-Sisitka, 2016). Particularly, the strong presence of nature places on the maps had caused participants to reflect on the relationship between nature and sustainability. They had realised that while nature pedagogies took up a large part of their time, other dimensions of sustainability (social and economic) were less present and they had discussed the overlaps and differences between nature pedagogy and education for sustainability without coming up with clear answers.

In the interviews, participants also brought up the absence of specific places that became visible in the mapping session, and they highlighted the dilemmas

they met in more detail. On the one hand, they noted several practical concerns, suggesting that some places are difficult to access by public transport, possibly dangerous for young children to enter, or not offering activities directed at young children. For instance, according to several participants, it is impossible to get permission to bring younger children to a conventional, industrial animal farm. On the other hand, while expressing a desire to investigate the absences, they also noted several ethical dilemmas. Wondering about the possibilities and potentials of visiting a conventional agricultural farm with children, one social educator from the rural municipality noted that he found such an activity challenging and fraught with dilemmas. Organic agriculture is an abstract concept, he elaborated: 'It's damn hard to explain at a child's level'. How could one explain to children that, in conventional agriculture, farmers spray poison on the food we eat and that it is bad for nature? How would children react to seeing animals treated as units in a production chain, far from the images of agriculture presented to them in illustrated children's books (Husted, 2023)? The social educator worried that some children would become scared of eating non-organic food, that they would be emotionally stressed by the experience, and furthermore, that such an experience would cause stress for parents. These reflections mirror the discussions in early childhood sustainability education research that concern the balance between protection and participation. Should children be shielded, or do children have the right to participate in matters that affect their lives and future (Hägglund & Pramling Samuelsson, 2009)? Should the door remain closed or be opened (slightly) to the larger story of conventional and industrial processing of nature (Husted & Frøkjær, 2019)?

The mapping process and subsequent interviews suggest that pedagogues are both uncertain and intrigued about whether, how and why they should fill in the blank spots on the map. The practical barriers and ethical questions are comprehensive, far-reaching and call for further reflection. Still, the mappings generated reflections on dominant approaches, tensions and contradictions in educational practices (Mandikonza & Lotz-Sisitka, 2016; Cruz-López et al., 2021). Furthermore, social educators and educational managers reflected upon possible openings of other places related to the immediate locality of the daycare institutions, which, in their current practice, were not considered places for children. In one institution, participants discussed the possibilities of breaking down walls between the kitchen and the common room, in that way allowing children to engage in cooking and providing an opportunity for involving them in activities related to sustainable meals. Furthermore, the mapping exercise highlighted tensions related to municipal structures that hindered children's involvement in, for instance, waste sorting at the daycare premises (due to absences of containers for several waste fractions) or the reuse of rainwater. The discussions ignited an ambition to discuss these issues with representatives of the municipal administration, with the aim of beginning to open places previously closed to children, such as a waste treatment plant or a conventional farm. These first steps, while small,

may begin to disrupt taken-for-granted assumptions about children's places and children's sustainability learning.

Conclusion

The participatory mapping of places and perspectives in ECEfS in two Danish municipalities suggests that the relatively weak anchoring of sustainability in national policies and their focus on nature pedagogy is mirrored in educational practice by a strong focus on nature and outdoor life as an entry point to ecological dimensions of sustainability. This result agrees with earlier research results suggesting that nature and eco-friendly approaches dominate discussions on sustainability in Danish early childhood institutions (Husted & Frøkjær, 2019).

The mapping brought attention to the use of a wide range of nature places and nature pedagogical approaches in educational practices. Furthermore, it highlighted examples of places that appeared to have a potential for sustainability education encompassing ecological as well as social and economic dimensions due to the visibility of cultural histories in the landscape. However, the mapping also showed that questions of children's complex nature relations, and of social inequality and justice, were not immediately present in reflections and discussion (cf. Jørgensen et al., 2020). These discussions suggest that narratives about childhood and nature that leave little space for acknowledging children's entanglement in society and politics constitute important frames for ECEfS in the Danish context (cf. Ekman-Ladru et al., 2023).

Exploring with the participants the qualities of the places in relation to ECEfS generated discussion on ethical dilemmas and suggested a potential for working with ethics, care and dilemmas in relation to non-human nature. Yet, the strongest potential of the mapping seems to be the way in which it established the absence of specific perspectives and places in early childhood sustainability education practices and generated reflections on dilemmas and tensions but also on the potential for pushing boundaries.

The mapping suggests that education for sustainability is a field under development in Danish early childhood education and care, and that it may be qualified, challenged and enriched by involving local places, possibilities, dilemmas and challenges in the formulation of local answers. Participatory mappings may offer an arena for dialogues and inquiries among pedagogues and across research and practice, constituting a useful starting point for such collective reflections.

Note

1 Although the official translation of the Danish word *pædagog* is social educator, we have decided to use the concept pedagogue or pedagogical employee with reference to the specific professional tradition of pedagogues in Denmark (and other Nordic countries). Pedagogues work in early childhood, in schools, and with people with special needs, and they share a professional orientation towards wellbeing, social skills and citizenship (Thingstrup et al., 2018).

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CONCLUSION

Şule Alıcı and Fabio Dovigo

This idea of the book – *Promoting Transformative Practices for Sustainability in Early Childhood Education and Care: Cultivating Critical, Participatory and Emancipatory Educational Approaches* – derived from EECERA Sustainability in Early Childhood Education Special Interest Group (SIG)'s attempts to reach many academicians, teachers and practitioners who are interested in sustainability but not sure how to start sustainability transformation firstly in their local environment with the support of children families and community members. Therefore, we embark on sharing some praxis from different countries with the contribution of researchers having different academic and research backgrounds and experiences and maturity from junior to senior in the various countries (such as Australia, Italy, Sweden and Türkiye) in the world. In this way, readers could explore multiple countries' policies related to sustainability while reading the chapters on countries' sustainability practices. Moreover, the audiences could discover not only practices on children but also families, teachers and pre-service teachers in ECE. We believe that this discovery gives them sparking points for their future research, education and practices. In this chapter, we share the analysis and outcomes of all chapters. As the editors, we complete the chapter by presenting the highlights of the chapters to the audience.

Background of the Book

United Nations Climate Change Conference of Parties 28 (COP 28), once more, pays attention to climate change as a global society's widespread apprehension, and each country should deal with climate change effectively to keep the 1.50C goal (United Nations, 2023). In other words, time is critical for every person, especially young children, and their worlds need much more focus to enhance their lives

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(WHO-UNICEF, 2020). At this juncture, highlighted in the introduction chapter, *Promoting Transformative Practices for Sustainability in Early Childhood Education and Care: Cultivating Critical, Participatory and Emancipatory Educational Approaches* has the purpose of taking professionals' attention to the power and transformative potential of ECEfS practices to start the sustainability transformation through critical, participatory and emancipatory approaches.

To elucidate how this book's idea derived, in the introduction part, we presented a brief outlook on the literature on the importance of early years for EfS practices and how EfS emerged and its development process in ECE, EfS theoretical background and methodologies especially the whole school approach, systems thinking, action research, Indigenous knowledge and cultural praxis, the role of teacher education and the challenges and opportunities of EfS and key recommendations (e.g. learning for change, curriculum development) to overcome the challenges.

Davis (2009) conducted the first review study to describe the research on ECEFS. Although after her review study, significant improvements in the quality and quantity of the studies on ECEfS have been seen, Somerville and Williams (2015), Hedefalk, Almqvist and Östman (2015), Bascopé, Perasso and Reiss (2019) and Guler Yildiz et al. (2021) indicated that ECEfS still needs a research foundation and critique. Further, Bascopé, Perasso and Reiss (2019) highlighted that more studies on children's empowerment and agency are required since children have a huge potential for changing and transforming the world into a more sustainable place. Via this book, we also aim to share successful stories on comprehension and practices of ECEfS programmes and strategies (Ferreira & Davis, 2015), practitioners could utilise these stories as good practice exemplars to construct a more robust EfS instead of 'patchwork quilt' (Elliott, 2006, p. 1).

Moreover, we appreciate declaring this book came through EECERA Sustainability in Early Childhood Education SIG's attempts to reach many academicians, teachers and practitioners who are interested in sustainability but not sure how to start sustainability transformation firstly in their local environment with the support of children families and community members. As Sustainability in Early Childhood Education SIG co-convenors and members, we established the EECERA Sustainability SIG Position Statement in 2023 to take researchers', teachers', practitioners', policy makers' and school managers' attention to the 'globally transformative agenda' composed by The UN Global Action Programme (GAP) and the 2030 Sustainable Development Goals (SDG's) (UNESCO, 2017). To promote this agenda, the SIG has purposes to:

- Create a space for critical dialogues and collaborative research about sustainability in early childhood education;
- Develop synergies between participants from a wide range of professional and scientific contexts; and,
- Provide an academic and rigorous forum at European and international levels to develop and disseminate high-quality research on sustainability in early childhood education (p. 2).

All these inputs helped us to determine the content of the book, and we shared the book flyer via social media and e-mails to find the possible authors. Initially, 16 authors confirmed to make a contribution with a chapter to the book; however, some authors withdrew due to unexpected conditions (e.g. health issues). Even though we, editors, were exposed to challenges throughout this journey, now we have completed the book with seven significant chapters from seven countries. We desire to share the outputs of the chapters for the literature, although we are aware that each researcher, teacher and practitioner has different perspectives from ours. This also contributes to establishing 'critical dialogues and collaborative research'.

The Outputs

The analysis of the chapters indicates that a great majority of the chapters addressed SDGs, especially highlighting SDG 4 Quality Education and its targets while some of them (such as Alıcı and Hirst et al.) made connections to other SDGs (e.g. SDG 3, 5 and 12 and their targets). Mindfulness and children's health were also placed in the chapters. We also noticed that all chapters emphasised that ECEfS practices could not focus on just environmental sustainability but also encompass social, cultural, economic and political pillars of sustainability. Based on this perspective, the authors shaped their studies' theoretical background, methodology and implementations covering the other pillars except the environmental pillar. For instance, Jørgensen et al. criticised the Danish ECE curriculum for only supporting children's outdoor experiences.

Moreover, in each chapter, you can also explore each country's – where the research was conducted – policies related to sustainability, ECEfS, ECE curriculum and ECE teacher education policy. Throughout the chapters, you can perceive each country's strong and weak sides of the policy, and discover how the policy on sustainability and ECEfS development occurs, which factors and conditions are effective while shaping countries' policy, where our research place, and if any effect is there, what are our research's impacts on policy? On the other hand, if you look at another perspective, which parameters provoke us to plan, design and conduct these studies?

When we scrutinise the chapters in the light of climate change and the climate crisis in the world, which precautions could be to diminish the effect of the climate crisis and climate change as one of the leading environmental researchers, David Orr, highlighted that 'the crisis [of sustainability] cannot be solved by the same kind of education that has helped create the problems' (1994, p. 83) so we enhance alternative ones to the current ones. This could be possible by looking at another perspective, which means, critical theory. Therefore, we see that while composing their studies, the authors turn their faces to critical theory and alternative perspectives, i.e. systems thinking and alternative approach, e.g. whole school approach. Looking through critical theory, each study focuses on different target groups from children to teachers, giving importance to inclusiveness with distinctive approaches,

i.e. mosaic approach (Hirst et.al.,) and whole centre approach (Ärlemalm-Hagsér & Elliott) methodologies, such as case study (Engdahl, et al.), PAR (Dovigo) and UREs based CPAR (Alıcı). These methodologies are supported by different data collection methods, such as photovoice (Hirst, et.al., Dovigo) and mapping (Jørgensen et al.) and various implementations, such as sensory garden (Dovigo) children's books and bilingualism (Hirst, et. al.). Two chapters (Ärlemalm-Hagsér & Elliott and Hirst et al.) compared two different countries' ECEfS implementations via presenting cases. Moreover, some authors made inferences based on their research. For example, Ärlemalm-Hagsér and Elliott initially set out to investigate the Whole School Approach (WSA). However, in light of their research findings—along with insights from the literature on transformational leadership and the eight characteristics of an effective school organisation for sustainability proposed by Verhelst et al. (2022)—they re-tailored the WSA for early childhood education centres, developing what they termed the Whole Centre Approach (WCA).

Key Takeaways

As Scott and Gough (2004) emphasised, 'there is no absolute answer to the question of what is an appropriate pedagogical approach to learning' in the context of sustainable development (p. 75). Thus, the audiences who read the chapters can receive different takeaways based on their interests, needs and educational and practical background on ECEfs. However, as editors, we anticipated that audiences

- To discover each country's different perspectives and prerequisites related to ECEfS.
- To explore every country's weak and strong sides of ECEfS policies.
- To examine how ECEfS policies and researchers' background and the place shape the research or the research shape the policy.
- To describe which methodology(ies) are more suitable for their context.
- To become aware of how the other pillars of sustainability (such as social, cultural, and political) except environmental targeting various SDGs integrate into research and practices.
- To compare the authors' and their sparking points for their research and practice for lighting their roads.
- To inquire how to combat climate change issues based on SDGs by using systems thinking and action research.

Although we expected the above-mentioned, audiences' ethnographical insights and diverse experiences as researchers, educators and practitioners they can take different key points with themselves. Nonetheless, as Evans et al (2022) underlined the 'differences among the [researchers] highlight the importance of acting versus waiting for consensus' (p. 8). We having different educational and research backgrounds hope to encourage your exploration of sustainability to illuminate your road for future research, implementation and practices.

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