

# INTRODUCTION

*Fabio Dovigo and Şule Alici*

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

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 life-long learning in sustainability (Engdahl, 2015). Engdahl'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

#### 4 Promoting Transformative Practices for Sustainability

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 (Årlemalm-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, Årlemalm-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 Alici 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, Alici 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 (Årlemalm-Hagsér & Elliott 2020; Ferreira et al., 2019). Moreover, Dymont 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 Alici'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 Årlemalm-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.

## References

- Alici, S., & Alan, H. A. (2022). Implementation of education for sustainability in Turkish pre-service teachers' practicum. *Brock Education Journal*, 31(2), 17–39. <https://doi.org/10.26522/brocked.v31i2.937>
- Alici, S., & Şahin, V. (2023). Fostering Turkish early childhood teachers' professional growth about education for sustainability through media literacy. *Education and Science*, 48(213), 143–168. <https://educationandscience.ted.org.tr/article/view/2084>

- Ardoin, N. M., & Bowers, A. W. (2020). Early childhood environmental education: A systematic review of the research literature. *Environmental Education Research, 26*(4), 519–547. <https://doi.org/10.1016/j.edurev.2020.100353>
- Ärlemalm-Hagsér, E., & Elliott, S. (2020). Analysis of historical and contemporary early childhood education theories in the Anthropocene. In S. Elliott, E. Ärlemalm-Hagsér, & J. Davis (Eds.). *Researching early childhood education for sustainability* (pp. 3–12). Routledge. <https://doi.org/10.4324/9780429446764-7>
- Bascopé, M., Perasso, P., & Reiss, K. (2019). Systematic review of education for sustainable development at an early stage: Cornerstones and pedagogical approaches for teacher professional development. *Sustainability, 11*, 719. <https://doi.org/10.3390/su11030719>
- Bitou, A., & Waller, T. (2018). Participatory research with very young children. In S. Elliott, E. Ärlemalm-Hagsér, & J. Davis (Eds.). *Researching early childhood education for sustainability* (pp. 431–445). Routledge.
- Boyd, D. (2019). Utilising place-based learning through local contexts to develop agents of change in early childhood education for sustainability. *Education 3–13, 47*(8), 983–997. <https://doi.org/10.1080/03004279.2018.1551413>
- Daries, J., Engdahl, I., Otieno, L., Pramling-Samuelson, I., Siraj-Blatchford, J., & Vallabh, P. (2009). Early childhood education for sustainability: Recommendations for development. *International Journal of Early Childhood, 41*(2), 113–117. <https://link.springer.com/article/10.1007/BF03168882>
- Davis, J. (2009). Revealing the research ‘hole’ of early childhood education for sustainability: A preliminary survey of the literature. *Environmental Education Research, 15*(2), 227–241. <https://doi.org/10.1080/13504620802710607>
- Davis, J. (2010). *Young children and the environment: Early education for sustainability*. Cambridge University Press. <https://doi.org/10.1017/cbo9781107280236.021>
- Davis, J. M., & Davis, J. E. (2020). Early childhood teacher education and education for sustainability: A review of the literature and mapping of courses. In S. Elliott, E. Ärlemalm-Hagsér, & J. Davis (Eds.). *Researching early childhood education for sustainability* (pp. 111–124). Routledge. <https://doi.org/10.4324/9780429446764-7>
- Davis, J., Engdahl, I., Otieno, L., Pramling-Samuelson, I., Siraj-Blatchford, J., & Vallabh, P. (2009). Developing education for sustainability in early childhood: Key recommendations. *Early Childhood Education Journal, 41*, 113–117. <https://doi.org/10.1007/BF03168882>
- Davis, J., & Elliott, S. (2014). *Researching early childhood education for sustainability: International perspectives and provocations*. Routledge. <https://doi.org/10.4324/9780429446764-7>
- (Eds.)Dyment, J. E., Davis, J. M., Nailon, D., Emery, S., Getenet, S., McCrea, N., & Hill, A. (2014). The impact of professional development on early childhood educators’ confidence, understanding and knowledge of education for sustainability. *Environmental Education Research, 20*(5), 660–679. <https://dx.doi.org/10.1080/13504622.2013.833591>
- Elliott, S., Carr, V., Ärlemalm-Hagsér, E., & Park, E. (2017). Examining curriculum policy and pedagogy across borders: re-imagining socially transformative learning in early childhood education. In P. B., Corcoran, J. P., Weakland, & A. E. Wals (Eds.). *Envisioning futures for environmental and sustainability education* (pp. 205–216). Wageningen Academic. [https://doi.org/10.3920/978-90-8686-846-9\\_14](https://doi.org/10.3920/978-90-8686-846-9_14)
- Elliott, S., & Davis, J. (2018). Moving forward from the margins: Education for sustainability in Australian early childhood contexts. In *International perspectives on the theory and practice of Environmental Education: A reader* (pp. 163–178). <https://researchportal.scu.edu.au/esploro/outputs/bookChapter/Moving-forward-from-the-margins-education/991012822200402368>

- Elliott, S., & Young, T. (2016). Nature by default in early childhood education for sustainability. *Australian Journal of Environmental Education*, 32(1), 57–64. <https://doi.org/10.1017/ae.2015.44>
- Engdahl, I. (2015). Early childhood education for sustainability: The OMEP world project. *International Journal of Early Childhood*, 47(1), 19–31. <https://doi.org/10.1007/s13158-015-0149-6>
- Evans, N., Barwood, D., Furu, A. C., & Alıcı, S. (2022). Challenges in reorienting early childhood education for sustainability in initial teacher education: Transforming, creating and expanding. *Australian Journal of Teacher Education (Online)*, 47(5), 1–14. <https://doi.org/10.14221/ajte.2022v47n5.1>
- Ferreira, J. A., Neus (Snowy), Evans, Davis, J. M., & Stevenson, R. (2019). *Learning to embed sustainability in teacher education*. Singapore, Singapore: Springer.
- Grindheim, L. T., Bakken, Y., Hauge, K. H., & Heggen, M. P. (2019). Early childhood education for sustainability through contradicting and overlapping dimensions. *European Early Childhood Education Research Journal*, 2(4), 419–430. <https://journals.sagepub.com/doi/full/10.1177/2096531119893479>
- Harwood, D., Yazbeck, S., & Blair, H. (2018). Harwood, D., Whitty, P., Green, C., & Elliot, E. (2020). Unsettling settlers' ideas of land and relearning land with Indigenous ways of knowing in ECEfS. In S. Elliott, E. Årlemalm-Hagsér, & J. Davis (Eds.). (2020). *Researching early childhood education for sustainability* (pp. 25–37). Routledge. <https://doi.org/10.4324/9780429446764-7>
- Hedefalk, M., Almqvist, J., & Östman, L. (2015). Education for sustainable development in early childhood education: A review of the research literature. *Environmental Education Research*, 21(7), 975–990. <https://doi.org/10.1080/13504622.2014.971716>
- Hirst, N. (2019). Education for sustainability within early childhood studies: Collaboration and inquiry through projects with children. *Education 3–13*, 47(2), 233–246. <https://doi.org/10.1080/03004279.2018.1430843>
- Inoue, M. (2018). Fostering an ecological worldview in children: Rethinking children and nature in early childhood education from a Japanese perspective. In A. Cutter-Mackenzie, K. Malone, & E. Barratt Hacking (Eds.). *Research handbook on childhood nature*. Springer (pp. 1–31). [https://doi.org/10.1007/978-3-319-51949-4\\_55-1](https://doi.org/10.1007/978-3-319-51949-4_55-1)
- Inoue, M., O'Gorman, L., Davis, J., & Okjong, L. (2017). An International comparison of early childhood educators' understandings and practices in education for sustainability in Japan, Australia, and Korea. *International Journal of Early Childhood*, 49(1), 131–146. <https://doi.org/10.1007/s13158-017-0205-5>
- Kim, S., & Dreamson, N. (2020). Culturally inclusive early childhood education for sustainability: A comparative document analysis between Australian and Korean curricula. *European Early Childhood Education Research Journal*, 28(5), 712–730. <https://doi.org/10.1080/1350293X.2020.1817242>
- Knight, S., & Luff, P. (2017). The contribution of forest school to early childhood education for sustainability. In V. Huggins & D. Evans (Eds.). *Early childhood education and care for sustainability* (pp. 113–123). Routledge. <https://doi.org/10.4324/9781315295855>
- Li, M., Zhang, Y., Yuan, L., & Birkeland, Å. (2019). A critical analysis of education for sustainability in early childhood curriculum documents in China and Norway. *ECNU Review of Education*, 2(4), 441–457. <https://doi.org/10.1177/2096531119893483>
- Mérida-Serrano, R., González-Alfaya, M. E., Olivares-García, M. A., Rodríguez-Carrillo, J., & Muñoz-Moya, M. (2020). Sustainable development goals in early childhood education. Empowering young girls to bridge the gender gap in science. *Sustainability*, 12(22), 9312. <https://doi.org/10.3390/su12229312>

- Miller, M. G. (2014). Intercultural dialogues in early childhood education for sustainability: embedding indigenous perspectives. In J. Davis, & S. Elliott (Eds.). *Research in early childhood education for sustainability* (pp. 63–78). Routledge. <https://doi.org/10.4324/9781315767499-14>
- Nxumalo, F. (2019). *Decolonizing place in early childhood education*. Routledge. <https://doi.org/10.4324/9780429427480>
- Pramling Samuelsson, I., & Kaga, Y. (2008). *The contribution of early childhood education to a sustainable society* (pp. 1–136). UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000159355>
- Pramling Samuelsson, I., Park, E. (2017). How to educate children for sustainable learning and for a sustainable world. *International Journal of Early Childhood*, 49, 273–285. <https://doi.org/10.1007/s13158-017-0197-1>
- Somerville, M., & Williams, C. (2015). Sustainability education in early childhood: An updated review of research in the field. *Contemporary Issues in Early Childhood*, 16(2), 102–117. <https://doi.org/10.1177/1463949115585658>
- Weldemariam, K., Boyd, D., Hirst, N., Sageidet, B. M., Browder, J. K., Grogan, L., & Hughes, F. (2017). A critical analysis of concepts associated with sustainability in early childhood curriculum frameworks across five national contexts. *International Journal of Early Childhood*, 49, 333–351. <https://doi.org/10.1007/s13158-017-0202-8>
- Weldemariam, K., & Wals, A. (2020). From autonomous child to a child entangled within an agentic world: Implications for early childhood education for sustainability. In E. Årlemalm-Hagsér & S. Elliott (Eds.). *Researching early childhood education for sustainability: International perspectives and provocations* (pp. 13–29). Routledge. <https://doi.org/10.4324/9780429446764-7>