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New Initiatives for Building Education for Sustainability in Initial Early Childhood Teacher Education in Sweden – Critical Aspects and Noticeable Needs

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Abstract: There is an identified need for research capable of enhancing understanding of effective practice in the embedding of Education for Sustainability (EfS) in Initial Early Childhood Teacher education (IECTE). Research further finds that innovative teaching strategies are needed to build new teachers' capacity to prepare future citizens to manage critical sustainability challenges. This study meets this need by investigating how EfS is implemented in two IECTE programmes at two Swedish universities where EfS is embedded throughout the years of study, and the learning students demonstrate at the end of the programmes in relation to EfS. Findings reveal that students demonstrate a range of understandings related to EfS and the role of the early childhood teacher in EfS. Findings further suggest there is an overall need to deepen IECTE students' EfS theoretical and pedagogical content knowledge to enable them to close a gap between the theory and teaching of EfS in early childhood education settings.

Introduction

In these times, when environmental, economic, and social challenges are causing uncertainty, instability, complexity and rapid change (Lenton et al., 2019), the embedding of Education for Sustainability (EfS) into initial teacher education (ITE) is of greater importance than ever (Evans, 2016, 2019, 2020; Evans et al., 2021). However, there is growing awareness that ITE does not adequately prepare future teachers for teaching EfS (Ferreira et al., 2009), even if several examples of good practice have been presented in recent years (Evans, 2016, 2019, 2020; Ferreira et al., 2019). Innovative strategies are needed to build new teachers' capacity to prepare future citizens to manage critical sustainability challenges such as climate change, deforestation, over population and gender violence. Overall, findings from international studies identify a need for further studies capable of enhancing understanding on the effective embedding of EfS into ITE (Ferreira et al., 2019). This is particularly the case for Initial Early Childhood Teacher Education (IECTE), which is a marginalised area of research and, consequently, lagging even further behind other sectors (Davis & Davis, 2021). This study meets this need by investigating how EfS is implemented in two IECTE programmes at two Swedish universities and the learning students demonstrate at the end of

the programmes in relation to EfS. From our research and personal experiences, teacher educators working in the field of EfS and ITE share similar experiences. Hence, although this study is located in Sweden, findings will be of interest to practitioners and researchers interested in the embedding of EfS into IECTE. Below, we begin by explaining the context of IECTE and EfS in Sweden, then focus in on EfS in two IECTE programmes at the centre of this research.

IECTE in Sweden is carried out at universities and university colleges over a 3.5-year programme that leads to a bachelor's degree. According to the Swedish Higher Education Act (1992:1434, 1:5§), these institutes have a legal responsibility to ensure that EfS permeates all activities. In turn, university steering documents task departments with ensuring that each programme enhances students' ability to develop a conscientious approach to sustainability according to issues of: (1) democracy; (2) justice; (3) equity; and (4) distribution of power. Additionally, IECTE students are expected to be able to problematise the effects of power distributions on humans nationally and globally, and human relations with the environment and nature. They must also develop strong pedagogical skills for implementing EfS when they start work in early childhood settings.

However well-intentioned steering documents such as the Swedish Higher Education Act are, they are not always as effective as intended. A 2018 Swedish Higher Education Authority (UKÄ) evaluation of sustainable development in Swedish higher education points to an important gap in Sweden between national EfS directives (e.g., through the Swedish Higher Education Act) and how the directives are interpreted and implemented in practice. The evaluation found that most Swedish higher education institutions (HEIs) can provide examples of programmes or courses where sustainable development is included. But less than half have established overall sustainable development goals or targets for the integration of ESD (in Swedish legislation, the term "education for sustainable development" is used to refer to EfS) into programmes, evaluation follow-ups of the goals or targets, and provide professional development for staff. The evaluation also found that few universities consider characteristics pertaining to ESD such as pedagogy, learning environments or competencies (Finnvensen et al., 2020). The evaluation further highlighted that, when dealing with issues of sustainable development, approaches to teaching and learning offered at universities should be more process oriented.

Education for Sustainability in IECTE

Because EfS in IECTE is in the early stages of development, we begin by drawing on the broader literature on EfS in ITE to situate this study, then home in on early childhood education for sustainability (ECEfS) in Swedish ITE. In the context of embedding EfS into ITE, Evans (2019) argues that many attempts have been made, and these "have resulted in pockets of good practices but have not led to a broad-scale embedding of EfS" (p. 17). Davis and Davis (2021) observe that the process of embedding EfS into IECTE in universities has been slow and argue for greater system-wide action. Ferreira et al. (2014 a, b) highlight the importance of identifying successful and constructive methods to apply EfS in ITE. They also stress the need to problematise teacher educators' knowledge of sustainability and the role of the teacher as a leader of change and development for sustainability. Similarly, Wals and Blewitt (2010) have argued for the need to reorient teaching and learning towards what they call "third-wave" sustainability in higher education with the aim of creating spaces for transformative learning. They argue that "Third-wave sustainability in HE above all means the creation of space for transformative learning: learning that helps people transcend the 'given', the 'ordinary' and the often 'routine ways of doing' to create new dynamic and

alternative ways of seeing and doing" (p. 66). This can include developing new and alternative ways of acting and thinking in IECTE pedagogical practices. It further means being able to critically analyse preconceived notions and actions that lead to unsustainable practices. For example, unsustainable use of materials and resources, handling of issues of equality and equity, and anthropocentric relations between humans and nature taking the form of power differentials between humans and more than humans.

The Swedish research field of ECEfS and ITE is rather limited, but a few studies have been undertaken over recent years. A study by Ärlemalm-Hagsér and Larsson (2019) investigated strategies that IECTE students adopted when planning an ECEfS project. Findings uncovered two strategies, which Ärlemalm-Hagsér and Larsson named cohesive and fragmentary. Students who adopted a cohesive planning strategy designed content that was well interconnected and exhibited deep understanding of sustainability and EfS. In contrast, those who adopted a fragmentary strategy designed disconnected, standalone activities. This latter group of students additionally demonstrated limited capacity to integrate theoretical and pedagogical knowledge, and poor understanding about the roles of children and adults in ECEfS. An implication from this study is that some Swedish early childhood education (ECE) students graduate with only a partial understanding of ECEfS.

Also in the context of planning, Hedefalk et al. (2021) analysed IECTE students' conversations during the planning of an EfS teaching project. Findings highlight tensions in students' conversations related to pedagogy and curriculum. Specifically, whether learning content should be predefined and created by the teacher or respond to children's interests and experiences. The outcome of this research points to a mediated approach to teaching young children EfS which highlights the importance of teachers oscillating between teacher created and student directed content, rather than adopting any one approach.

In another study, Ärlemalm-Hagsér (2017) critically analysed how IECTE students describe their experiences of EfS within a second year Work Integrated Learning (WIL) experience in a preschool setting. Outcomes of the study depict pluralistic and divergent understandings of EfS, diverse context-dependent approaches to the implementation of EfS in early childhood settings, and an absence of transformative whole-institution approaches to EfS. The outcomes play out in a range of ways, depending on the cultural setting of the preschool, children's ages, teacher commitment to EfS. For example, the extent of engagement with cultural sustainability in preschools depended on whether the preschool was monocultural or multicultural. In some monocultural preschools, teachers did not consider cultural sustainability as an important curriculum theme. Hence, topics such as diversity and multiculturalism received limited or no attention. Age was also perceived as an obstacle to implementing EfS in some settings. Some teachers find it difficult to engage very young children in EfS and understanding how they too can have agency to act for sustainability.

Last, Hedefalk (2018), also working with IECTE students in second year, analysed how they conceptualised teaching EfS. Three discourses were identified: fact-based, where students describe sustainability issues in a factual manner that favours scientific knowledge as the central theme; normative, where students adopt EfS-friendly attitudes and behaviour; and pluralistic, where students develop their ability to critically evaluate and take a stand on environmental and sustainability issues. The study also identified tensions in IECTE students' thinking about the role that teachers should play in the teaching of EfS, including the role of the teacher and young child in EfS and whether EfS should be teacher or student led. Hedefalk (2018) found IECTE students' understanding of contemporary EfS in need of further development. Most students adopted fact-based discourses to explain sustainability issues and favoured teacher over student-led pedagogical strategies. The conclusion identified a need to develop new ways of teaching IECTE students so that they learn to adopt strategies where teachers and children explore issues of sustainability together. For example, ways that

promote children's use of creativity and imagination to enable novel solutions to sustainability problems – an aspect that has been highlighted as important in contemporary ECEfS research (O'Gorman, 2020), but is not described in IECTE students' discourses.

Together, the studies highlight that Swedish IECTE students struggle to: (1) develop sufficient knowledge and skills to handle the complexities and dilemmas of EfS; (2) apply pedagogies appropriate for teaching EfS in ECE; (3) find new ways of teaching and challenging unsustainable practices and thinking in everyday activities in ECE.

Theoretical Perspective

The theoretical framework for this study is guided by critical theory (Dahlberg & Moss, 2005; Jickling, 2017; Kopnina, 2020). This involves acknowledging that current social reality is constructed, and that the political, moral and ethical values embedded in institutional practices are created in specific historical and cultural contexts. It further involves recognising that value conflicts are inevitable when dealing with sustainability issues. It is, therefore, necessary to clarify the terms underpinning this study. In Sweden, the term "education for sustainable development" is prevalent in policy and politics. As stated in the Swedish Government Official Report (SOU) (2019, p. 13) "In Swedish legislation, the term 'sustainable development' is used in two ways: a broader definition encompasses the environmental, social and economic dimensions of sustainable development, while a second, more specific definition, focuses on the environmental dimension". In this study, we use the terms "education for sustainability" (EfS) and "early childhood education for sustainability" (ECEfS) in alignment with a critical perspective that relates economic, social and ecological sustainability to issues of environmental sustainability, human equality, and economic and social justice, as well as human interconnectedness to nature and more-than-human species (Davis, 2009; Jickling, 2017; Kopnina, 2020). As Wals et al. (2017) argue, sustainability education has developed towards emphasising a sense of place and enhancing the relationship between humans and more-than-humans, questioning hegemonic structures and values, and engaging multiple actors with conflicting views. And, in this way, creating spaces for transformative learning. There is, then, a critical need to develop innovative strategies for building new teachers' capacity to enhance future citizens' competencies to manage critical sustainability challenges (Jickling, 2017; Wals et al., 2017).

Education for Sustainability in the IECTE Programmes of two Swedish Universities

Recall, the setting for this study are two Swedish universities. University 1's profile underpins all courses and highlights opportunities offered by its distinctive geographical position:

> *University 1 is located in a UNESCO designated biosphere reserve, an area whose function is to preserve landscapes, ecosystems, species and genetic diversity, and to promote justice, economic development and ecologically and socially sustainable development. The proximity to the biosphere reserve's distinctive milieu is seen as a unique opportunity for authentic experiences and creative activity in connection with the educational contents and teaching for sustainable development. The education links environmental perspectives, democracy perspectives and societal change to a broader conception of culture and knowledge about new forms of media-based knowledge and communication (Kristianstad University, 2022).*

For the purposes of the IECTE programme, the profile has been translated into learning outcomes for all courses and EfS is implemented across all academic and WIL experiences. In the academic component, EfS content includes topics of environment, democracy, societal change, and gender. EfS is also implemented as an overall pedagogical approach across all subjects. Within the overall WIL experiences a three-week stint is dedicated to sustainable development over the 3,5 years of the program, where students are required to plan, implement, evaluate and report on an EfS project.

The approach to EfS at University 2 is similar but different. In 1999, University 2 became the first higher education institution in the world to be environmentally certified. Since then, University policies, programmes and initiatives have aimed to promote environmental, social, and economic sustainability. On 1 January 2021, the University introduced a new vision, which places sustainable development at the core:

> *A progressive and collaborative university where together we form a sustainable future …. We help shape a sustainable future. Conducted on a scientific foundation, and with an inclusive approach and long-term perspective, research and education promote social, ecological and economic sustainability (Mälardalen University, 2022).*

The vision is applied into the IECTE programme through learning outcomes that span three progressive levels of study: basic, consolidation and in-depth. At the basic level, students build knowledge and understanding about sustainable development and reflect on their own and others' understandings of ecological, economic and social sustainability in relation to ECE. At the consolidation level, students conduct investigations on environmental (ecological) sustainability. At the in-depth level, students deepen their knowledge and ability to formulate and problematise learning and teaching for EfS in ECE, as related to social, cultural, economic and ecological sustainability. They are also expected to be able to problematise relationships between humans and nature by drawing on theories that challenge anthropocentric views of nature, environment and technology. This structure is built on the idea of a gradual development of knowledge and competence over the three and a half years of the programme.

In summary, EfS at both universities is driven by EfS steering documents (a profile at University 1 and a vision at University 2) that are interpreted across programme learning outcomes. Resulting, teacher education academics are required to interpret the outcomes, and conceptualise, develop and apply content and pedagogies that can advance student knowledge, understanding and skills for EfS.

Research Methods and Data Analysis

The empirical data for this study draws on two separate studies conducted at University 1 and 2. Data from University 1 is drawn from a questionnaire administered to 106 final year IECTE students to understand the extent to which IECTE students have developed knowledge, understanding and skills for EfS over the course of their studies. The questionnaire included closed and open-ended questions. For the purposes of this study, we analysed students' responses to two open ended questions: (i) what does learning for sustainability mean to you? and (ii) describe a sustainability project that you could carry out with preschool children.

Data from University 2 is taken from an assessment completed by 79 second year IECTE students. The task requires students to interview their WIL supervisor to ascertain their thinking about EfS, critically analyse responses and write an analytical report, providing an

informed critique of their WIL preschool's approach to EfS and supervisor's understanding and practices in EfS. The data for this study is taken from the analytical reports.

The research complies with the Swedish ethical guidelines (Swedish research council, 2017). Informed consent was obtained from all participants prior to the collection of data. Students were informed about the aims, design, and methods of the study, and were assured confidentiality related to all issues reported by them. It was emphasised that their participation in the study was voluntary.

Analysis of University 1's data draws from variation theory to analyse differences in IECTE students' understanding of EfS. Variation theory is a theory of learning and experience that enables exploration of how a learner perceives, understands or experiences a phenomenon (Marton et al., 2004; Orgill, 2012). Underpinning variation theory is the proposition that individuals experience and understand the world from their own perspective (Orgill, 2012). In this case, variation theory provided a suitable framework for exploring variations in how students understand EfS, based on their university learning. Analysis involved three steps. First, data was read several times to obtain an overall sense of the whole body of data. Second, variation theory was applied to reveal students' lived EfS experience at University 1. Third, findings were categorised based on emergent student understanding and variations were investigated.

Data analysis at University 2 draws on the reflexive methodology approach by Alvesson and Sköldberg (2009). Reflexive methodology can be understood as the interpretation of interpretation that takes place during the process of data analysis, resulting from the researcher embedding reflection into the data analysis process. The approach values the researcher's subjective experience in drawing understanding from the data. In the case of University 2, reflexive methodology enabled the data to be explored from various angles through an ongoing abductive process (Alvesson & Sköldberg, 2009). Here also, data analysis involved various steps. As per University 1, students' assessment responses were first read several times to build an overview of the data. Second, data for University 2 was sorted according to the following four organisers: (i) how IECTE students understand the theory and pedagogy of EfS, (ii) how IECTE students translate theory into practice, (iii) how IECTE students perceive the role of the teacher in EfS, and (iv) how IECTE students perceive the role of the child in EfS. Several categories were developed under each organising theme. Following independent analysis, findings from the two universities were combined and analysed to discern student learning related to EfS across the two universities.

Findings

Analysis of the data revealed that students at the end of their IECTE across two Swedish universities, where EfS is embedded throughout the years of study, demonstrate a range of understandings about EfS and the role of the early childhood teacher in EfS. Below we extrapolate the findings.

IECTE Students' Understanding of EfS

Across the two universities, there are variations in the way students demonstrate understanding of EfS. However, overall, students across both universities reflect limited theoretical and pedagogical understanding. At University 1 students reflect a mostly performative take on EfS, linked to environmental sustainability and behavioural changes such as waste sorting, composting and recycling at the local scale. For example, in response

to the question describe a sustainability project that you could carry out with preschool children, students wrote "collecting rubbish", "learning about where food comes from", "waste sorting and why it is important", "recycling" and "making learning aids out of old packaging". A small number of students explained projects that could engage children in social sustainability issues of equality and values and thinking about global communities. For instance, one student included teaching children about different living conditions around the world, and another about the importance of teaching children to be a good friend.

At University 2 students demonstrate limited understanding through uncritical explanations of EfS activities and rationales for teaching EfS, which also draw on normative understandings. One student explaining the purpose of EfS, commented "the children have the right to learn how to sort trash for materials to be recycled into something new". Another stated "the most important thing in the pedagogical work with sustainable development … is to keep Sweden clean". Other students wrote about EfS activities with learning outcomes aligning with the knowledge domain of Bloom's cognitive skill level. Knowledge is the foundational cognitive skill and covers skills such as retention of discreet information. An example is the case where a student considers how they might engage children in thinking about clean drinking tap water:

> *Children can answer questions about where they think the drinking water comes from, who or what ensures that we have clean drinking water in our tap, and what they think access to clean drinking water looks like for the rest of the world. The children then have a chance to think and discuss together and come up with their own ideas and make their own hypotheses about how they think it works, before together finding out how it really works.*

Also evident in the above example is that the IECTE student is describing the role of the teacher as providing support and being attentive to children's initiatives, however, neglects to consider content knowledge (CK) and pedagogical content knowledge (PCK) (Shulman, 1986; 1987).

The Role of Early Childhood Teachers in EfS

According to the IECTE students in this study, effective EfS teachers are knowledgeable about sustainability issues, active learners and participants in sustainability, and engage children as active participants.

Knowledgeable

Across both universities, there were participants who reported that it is important for ECE teachers to have knowledge about sustainability concepts and issues and pedagogical strategies. They considered that it is important teachers "have broad knowledge about the meaning of sustainability" (University 1 IECTE student) because they "need to be able to transfer knowledge … about sustainable development" (University 2 IECTE student). It is also important to be a good pedagogist to support children's initiatives. Notable in most of the data, however, is that knowledge is limited to the ecological domain of sustainability. For example, one IECTE student considered that it is important to have "good knowledge about how and what can be done to protect the Earth" (University 1). A small number of participants reflected a more developed understanding of EfS by explaining that it is important for teachers to "learn what society looks like economically, ecologically and

socially" (University 1) so that they can address "issues of values, ethics or politics that have not been discussed with children before" (University 2).

Noticeable also above is the conception of the teacher as the knowledgeable other whose role is to transfer knowledge and teach children how to do things. Following on from the University 1 IECTE student's comment above about the teacher transferring knowledge, other students conceptualised their role in EfS is to "teach the children how to take care of our world", "giving children the tools for a responsible approach", "teaching children how to recycle" and "teaching children how to think sustainably about food and clothing" (University 1). Interestingly, IECTE students at University 2 demonstrated dissimilar understandings of the teacher's role. They conceive of the child as competent and equal and describe the importance of focusing on children's own experiences so that children can become part of the solution. As one student commented: "The preschool teacher and other educators keep their eyes and ears open to children's interests and to conflicts or other situations that can lead to important conversations with children". Another student said "the task of the preschool teacher is to start from the children's issues and interests".

In a small number of responses, students demonstrated some understanding of teacher knowledge and pedagogical content knowledge beyond the traditional didactic approach. For example, one student from University 2 explained "A conscious preschool teacher who has didactic competence, a transformative approach, and bases the teaching on a pluralistic teaching principle integrated with a fact-based and normalising one, may provide the conditions for developing the work on sustainable development". Writing about children's role in EfS, another student from University 2 recounted that:

> *Children have the right to participate and exert influence in their lives and regarding issues that concern them. Their opinions are important, and they have the right to make demands on the development of society and the environment, as well as to participate in and influence decisions. If this is taken seriously, there is a possibility of change and transformative learning.*

The quotations hint at awareness that EfS aims for change and/or transformation of business as usual and that to do so requires going beyond traditional pedagogical approaches.

Active Learner and Participant in Sustainability

IECTE students consider it important for ECE teachers to engage in ongoing learning so that they can support student learning. In one student's words:

> *To maintain their competence, it is important that the preschool teacher reads about new research and follows current developments, to be able to give the children the best opportunities to develop in social and cultural sustainability, and the other forms of sustainability that exist. By actively following developments, the preschool teacher finds new information that may be appropriate to take up with the children (University 2).*

Several IECTE students also recognise the value of participation or active citizenship for sustainability. They remarked that "all people have a responsibility to take care of the environment, each other and Earth's resources" (University 1). Others emphasised the importance of "taking responsibility" and "thinking about consequences" (University 1).

Engage Children as Active Participants with Rights

Across the two universities, students appear to prioritise children's participation and rights. There were IECTE students who argued for the importance of engaging children as active participants, capable of influencing outcomes: "[EfS] is a kind of learning where the children are co-constructors and have influence" (University 1). One student at University 2 referenced children's rights by emphasizing that:

> *Children have the right to participate and exert influence in their lives regarding issues that concern them. Their opinions are important, and they have the right to make demands on the development of society and the environment, as well as to participate in and influence decisions.*

Another student reflected that "Children should have the opportunity to influence their own learning. Children should be given the opportunity to start and plan activities at the preschool, and children should have the opportunity to evaluate their own learning after performing activities".

Discussion of Critical Aspects and Noticeable Needs for ECEFS

There are several critical aspects and noticeable needs emergent from the research that may be of interest to practitioners and teacher education academics working with or interested in ECEfS, and EfS more generally. In terms of IECTE students' understanding of EfS, students demonstrated limited theoretical and pedagogical understanding, across both universities. Although the two IECTE programmes take different approaches to the embedding of EfS, both adopt a conscientious approach whereby learning, teaching and assessment approaches and activities explicitly align with EfS theory. How, then, can limited student understanding be explained?

A critical message is that there is a need to further develop teacher educators' understanding of and skills in EfS. In general teacher educators' understanding of EfS and its potential in building capacity to manage emergent sustainability issues is at least inconsistent (Goller & Rieckman, 2022). Many teacher educators lack even a basic understanding of EfS (Mirza & Sharar, 2020). In Sweden, a gap exists between the what and the how in EfS. That is, The Swedish Education Act, university steering documents, programme and course learning outcomes outline the EfS material that should be taught, but not how to approach and implement EfS. There is also a lack of coordinated or systematic EfS professional development across higher education institutions, resulting in an overall lack of content and pedagogical content knowledge among teachers (Finnveden et al., 2020). If we consider that higher teacher knowledge and pedagogical content knowledge leads to higher student achievement (Guerriero, n.d), then this study's finding that IECTE students demonstrate limited theoretical and pedagogical understanding of EfS can be considered a reflection that teacher educators' theoretical and pedagogical EfS knowledge is underdeveloped. Hence, here is where resources must be directed – to developing teacher educators' EfS competencies.

Previous research suggests that implementing EfS requires specific competencies in the form of knowledge, skills and attitudes (Azeiteiro et al., 2015; Bertschy et al., 2013; Lambrechts et al., 2013; Pappas et al., 2015). Specifically, Azeiteiro et al.'s (2015) model for teachers in early childhood education and primary school, proposes teachers need to have sustainability-related content knowledge, pedagogical content knowledge, and motivation. Similar to Azeiteiro et al., the IECTE students in this study identified that teachers should have knowledge about sustainability issues (sustainability-related content knowledge), be

active learners and participants in sustainability (motivation) and engage children in EfS as active participants (pedagogical content knowledge).

So, what are the noticeable needs in terms of competencies that IECTE students need to develop in order to build their own students' capacities to manage future sustainability related issues? According to some scholars (e.g., Cortese, 2003; Sims & Falkenberg, 2013) in terms of content and pedagogies for teaching EfS, there is a need to move away from traditional, anthropocentric approaches towards holistic and collaborative styles of teaching. As ECE and EfS scholars, we see that IECTE has the potential to be a space for "transformative learning" where traditional education is disrupted (Jickling, 2017) and supplemented or replaced with "new dynamic and alternative ways of seeing and doing" in relation to EfS (Wals & Blewitt, 2010, p. 66). It's not clear from this study's data the extent to which such spaces were created by teacher educators within the IECTE programmes or the extent to which IECTE students developed capacity to create transformative spaces in their own classrooms. What we can tell from the data is that some students can use the language to describe EfS teaching. This points to a need for further research investigating what transformative spaces in IECTE look like in reality.

Conclusion

In this study, we investigated IECTE student EfS learning at two Swedish universities where EfS is implemented throughout the programme. Findings indicate that implementing EfS in IECTE can impact students' knowledge and understanding of EfS to differing levels. The present research suggests that there is an overall need to deepen IECTE students' EfS theoretical and pedagogical content knowledge to enable them to close a gap between the theory and teaching of EfS in ECE. The same need is applicable to teacher educators. Knowledgeable and pedagogically competent EfS teacher educators are a requirement for supporting future early childhood EfS capable teachers. Identified also is a requirement for further research capable of identifying what transformative spaces in IECTE look and feel like. Unless we enhance how we approach EfS in IECTE, future capacity to manage sustainability issues may remain elusive and social, economic and ecological degradation will continue.

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