

“Business as usual”? Or transformative and transactive teaching leading towards the Agenda 2030 goals in Swedish Early Childhood Education

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ABSTRACT

In Sweden, the national parliament has adopted objectives to implement the United Nations (UN) *2030 Agenda for Sustainable Development* (UNESCO, 2017). Sweden’s objectives are more ambitious and far-reaching in several policy areas than the targets listed in the 2030 Agenda and outlined in the report *Agenda 2030 and Sweden: Challenges and Possibilities for the Earth* (SOU 2019; UNESCO, 2017). In this article, we discuss Swedish early childhood education in relation to these new national objectives. We employ a critical perspective and recognize early childhood education as both a political and educational setting, one where major and minor politics are interconnected and embedded in practice. We discuss these interconnections as a narrative inquiry scrutinizing different transformations and transactions in Swedish early childhood education practice. Our inquiry focus is an early childhood teacher case study narrative of her everyday education for sustainability (EFS) practices and the UN, Sustainable Development Goals (SDGs). The findings revealed everyday pedagogical practices where children’s own interests, curiosities and investigations enhanced EFS as integral to transformative and transactive early childhood education. We argue that further action is required to go beyond “business as usual” and embed transformative and transactive teaching for promoting the new national objectives and global objectives as *2030 Agenda*. Such teaching for sustainability builds on pedagogical strategies where both children and teachers are engaged in a collaborative critical inquiry to challenge unsustainable thinking and actions in everyday life.

Keywords: critical theory, early childhood education for sustainability, transformative education, narrative inquiry, UN SDG:s Agenda 2030

In these times, when uncertainty, instability, complexity and rapid change are creating environmental, economic, and social challenges (Lenton et al., 2019), young children are affected by human impacts on Earth (Davis, 2014). Education, from pre-school to higher education, has been recognized as playing a crucial role in the development of life-long engagement for sustainability, now and in the future. We investigated how a teacher at an early childhood education centre co-constructed new knowledge with children while employing the SDGs (UNESCO, 2017) as a tool for creating practice transformations and transactions. This study addresses the need for further knowledge about critical transformative pedagogies with a focus on EFS (Jickling & Sterling, 2017; Jickling, 2017; Kopnina, 2020; Wals et al., 2017) and transactive teaching (Säfström & Östman, 2020) within early childhood education (Davis, 2014; Elliott et al., 2020; O’Gorman, 2020).

Transformation (e.g. structural reconfigurations or system changes to address sustainability challenges in diverse ways) is an imperative of the 2030 Agenda and the SDGs (UNESCO, 2017). It is inherent within the idea of scaling up the work of global transformation towards sustainable futures within planetary boundaries. During the later parts

of UNESCO's *Global Action Programme*, education for sustainable development (ESD) was scaled up (2015–2019) and five priority areas were highlighted: (1) advancing policy; (2) transforming learning environments; (3) building capacities of educators; (4) empowering and mobilizing youth; and, (5) accelerating local-level actions (UNESCO, 2020a). The *UNESCO Roadmap* (UNESCO, 2020b) also points out that each country needs to set its own targets in relation to national circumstances, as well as move beyond goal setting towards achieving concrete results evaluated with a well-defined monitoring process. In response to this, the Swedish Parliament resolved to incorporate the *2030 Agenda* (SOU, 2019) into the national political strategy for enhancing sustainable development work in Sweden.

Critical voices have long been raised from researchers in the fields of environmental and sustainability education (Jickling & Wals, 2008; Kopnina, 2014; Sandell & Öhman, 2013) about normative, ideological, and theoretical tensions in ESD. Firstly, there is a need for critical reflection on the idea of sustainable development and about the contradictions in the SDG rhetoric, where development, economic growth, and consumption are seen as a remedies for change. Kopnina (2020) challenges this, stressing that “it is precisely economic growth and industrial development, with associated population and consumption growth and increasing demands for natural resources that are *the* root causes of environmental unsustainability” (p. 281). Secondly, Jickling and Sterling (2017) warn that there is always a risk of such terms as “education for sustainable development” becoming “empty signifiers” with “pretensions of being salvation narratives” (p. 4) that fail to challenge taken-for-granted knowledges and approaches.

Nevertheless, despite the normative, ideological, and theoretical tensions in the SDGs, there is an urgent need for serious engagement to diminish the adverse effects of human impacts on the Earth (Jickling & Sterling, 2017). One form this could take is to equip children and youth with the critical, ethical, and leadership competencies and knowledges needed to respond to complex and wicked environmental, economic, and social challenges. As Kopnina (2020) stresses, these challenges can encourage “teaching *for* sustainability [...] that emphasizes planetary ethic and degrowth” (p. 280). As Jickling (2017) points out, it is necessary to develop post-sustainability education that is disruptive and transformative. In this article, we share the case study story of a Swedish early childhood education teacher who, together with children aged 3–5 years created transformations and transactions in practice. The story creation involved listening to her Efs experiences, especially her pedagogical practices where the SDGs were a tool for enhancing Efs.

Theoretical underpinnings

As previously mentioned, the concept of sustainability is both ambiguous and normative and comprises important ideological and theoretical tensions (Jickling & Wals, 2008; Sandell & Öhman, 2013). Thus, there is a need to clarify the terms underpinning this study. In Sweden, the term “education for sustainable development” is evident in policy and politics. As stated in a government report, “In Swedish legislation, the term ‘sustainable development’ is used in two ways: one broader definition encompasses the environmental, social and economic dimensions of sustainable development, while a second, more specific definition, focuses on the environmental dimension” (SOU, 2019, p. 13). We use the terms “education for sustainability” (Efs) and “early childhood education for sustainability” (ECEfs) aligned with a critical perspective. A 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 non-human species (Davis, 2009; Fraser, 2009; Jickling, 2017; Kopnina, 2020). As Wals et al. (2017) argue, sustainability education has developed towards a sense of place, enhancing the relationship between humans and non-humans, questioning hegemonic structures and values, and engaging multiple actors with conflicting views. Jickling (2017) proposes the term “post-sustainability”, and 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)

In this article, policy is understood in both a broader sense, as international policies such as the SDGs (major politics), and a more specific sense, as the implementation of these policies in early childhood education (minor politics), and

how they are constructed in practice as a way of “doing” policy (Dahlberg & Moss, 2005). Pedagogical transformation towards a sustainable future will not happen by default. There is a need for transformation that contests and disrupts unsustainable ways of thinking and doing (Jickling, 2017), and for new ways of action to support this. As Säfström and Östman (2020) point out, there is a need for teaching characterized by transactions and “partaking in the world”, where possibilities to contest values as well as generate new values can nurture transformative ways of thinking and doing.

Recent research in early childhood education for sustainability

The research field of Early Childhood Education for Sustainability (ECEfS) has expanded considerably since Davis’s (2009) meta-study that essentially instigated the ECEfS research field. Several research overviews have since further developed the field (Bascope et al., 2019; Boldermo & Eriksen Ødegaard, 2019; Davis & Elliott, 2014; Elliott et al., 2020; Green, 2015; Hedefalk et al., 2015; Somerville & Williams, 2015). Some studies have targeted teachers’ perceptions of ESD as EfS within early childhood education (Hedefalk et al., 2015; Larsson & Pramling Samuelsson, 2019; Weldemariam & Wals, 2020). Other studies have highlighted children’s capabilities and potentials as critical thinkers and agents for sustainability-related change, as well as their competence and capacity to be involved and participate in actions leading toward sustainable futures (Ärlemalm-Hagsér, 2014; Ärlemalm-Hagsér & Davis, 2014; Borg, 2017b; Davis & Elliott, 2014; Hägglund & Johansson, 2014; Phillips et al., 2020). There are also studies focusing on specific aspects of EfS, including social sustainability (Boldeland & Eriksen Ødegaard, 2019; Hammond et al., 2015), economic sustainability (Ärlemalm-Hagsér et al., 2018; Borg, 2017b), and environmental sustainability (Currie & Deschenes, 2016; Elliott & Pugh, 2020; O’Gorman, 2020; Ritchie, 2016; Taylor et al., 2012). Studies on early childhood education and the SDGs are still in their infancy, and although there are several practice examples (Williams, 2020) and organizations (OMEP Resource Bank for Education for Sustainable Development) that present studies on the topic, there is an urgent need for further empirical research (Elliott, Ärlemalm-Hagsér & Davis, 2020).

Education for sustainability: The context of Swedish early childhood education

We envisage Swedish early childhood education centres (preschools) as settings or places where major and minor politics meet and intertwine. As places, they are informed by their specific historical, ideological, and theoretical traditions and methods of working. They also influenced by broader political discourses in society and as contemporary understandings of children, childhood, and children’s learning (Dahlberg & Moss, 2005).

Sweden is often perceived as a pioneering country when it comes to multidimensional approaches to sustainability issues. Yet, although a large number of Swedish early childhood education centres currently work with sustainability issues (Ärlemalm-Hagsér, 2013; Borg, 2017b), there is a distinct lack of field studies (Ärlemalm-Hagsér & Hedefalk, 2018; Ärlemalm-Hagsér & Sundberg, 2016). A significant change in the last year regarding early childhood education and sustainability was the revision of the *Swedish National Early Childhood Education Curriculum* (Swedish National Agency for Education, 2018), enforced since July 2019. In this revision, the concept of sustainable development was integrated into the fundamental values espoused in the curriculum. It is stated in the revised curriculum 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, 2018, p. 5). Three new curriculum goals aligned with sustainability were included:

- to promote conditions where children may feel a growing sense of responsibility for and interest in sustainable development and active participation in society;
- to understand how different choices people make in everyday life can contribute to sustainable development; and,
- to understand how their own actions can affect the environment and contribute to sustainable development (Swedish National Agency for Education, 2018, p.13,15).

Another significant change in Swedish society since January 1, 2020 has been the incorporation of the *United Nations Convention on the Rights of the Child* (UNICEF, 1989) into Swedish law. This means the view of children as active

social agents with the right to participate in decision-making about matters relevant now prevails with the support of the Swedish Government. This progress is also reflected in the revised Swedish national preschool curriculum, which emphasises that children are important actors for creating change leading toward a sustainable Swedish (and global) society (Swedish National Agency for Education, 2018). The points outlined above demonstrate how the Swedish political agenda has strongly and very recently addressed EfS in early childhood education. Furthermore, children's agency and participation are highly valued, both for improving EfS pedagogical practices and building sustainable societies.

Narrative inquiry – A case study

Narrative inquiry is a particular type of qualitative inquiry oft described as both a methodology and a method. Clandinin et al. (2016) argue that narrative inquiry is the study of experiences and stories as a way of investigating a specific phenomenon. As a methodology it adopts a particular view of experience – experiences that are constructed in the individual's life world, and are constituted in the social, cultural and institutional narrative of which the individuals are a part. Because the participants tell stories about their experiences, the relationship between the researcher and the research subjects is central. In the study presented here, one of the researchers worked closely together with an early childhood education teacher, in a collaborative dialogic relationship investigating EfS experiences in the early childhood centre, and especially when adopting the SDGs.

According to Chase (2005) narrative inquiry is interdisciplinary and is shaped by the interests and assumptions of the researcher's disciplines. There are different approaches within contemporary narrative inquiry aiming to understand specific phenomena such as:

- *what* the life stories are about;
- *identity work*, comprising what stories are constructed in specific organizational settings;
- *the how's and what's* involving specific aspects of a person's life;
- *narrative ethnography*, which deals with long-term involvement in a culture or community; and,
- *autoethnography*, where researchers turn the analytical lens toward themselves and their interactions with other people or phenomena.

In this study, the critical methodological approach is inspired by narrative bricoleur (Denzin & Lincoln, 2005) weaving together stories by using one early childhood teacher's stories and the educational practices. The methods for collecting the material in a narrative enquiry are manifold (Clandinin et al., 2016). In this study, the materials were collected between 2020 to 2021 and included the researcher's field notes from a visit to the early childhood education centre, informal teacher interviews, photos, and oral and written narratives from the teacher participant. Additionally, e-mail, text messages, telephone calls and online meetings between the researcher and teacher participant were included as informative data. The units of analysis in the research were the collected data, photos, and the oral and written narratives of personal experiences with EfS in the early childhood education centre. More explicitly, we analysed the pedagogical practices that employed the SDGs as a tool. In the narrative, we use the terms "ESD" (education for sustainable development) instead of "EfS" and "preschool" and "preschool teacher" instead of "early childhood education centre" and "early childhood teacher" respectively, as these English words better correspond to the terminology used in Swedish legislation in the Swedish Education Act, 2010:800; Swedish National Agency for Education, 2018).

Ethical research aspects were managed throughout the entire narrative inquiry process (Clandinin et al., 2016) and the teacher participant consented in writing to take part in the study. At the outset, the teacher was informed that both she and her centre would remain anonymous, and that she could terminate her participation at any time – in compliance with The Swedish Research Council (2017) research ethics. Her pseudonym was Hanna and employed throughout the following narrative. One of the researchers collected the data materials, visited the early childhood education centre, and collaborated with the teacher participant. The teacher participant described her everyday practices with EfS and the SDGs orally, in writing, and with photographs. The researcher visited the early childhood education centre, and collected data with genuine interest in the teacher's story. The narrative began to grow, and

from time to time the teacher was invited to further develop what she was talking or writing about to deepen or extend the narrative.

Narratives: Working with SDGS

The overall narrative comprises a number of sub narratives presented as a whole. Initially we present contextual information about the municipality where the preschool teacher was employed. This offers a broader understanding of the places and the specific historical and ideological backgrounds that influence the pedagogies in the municipal preschools, and especially within ESD. Secondly, Hanna's story about ESD and the SDGs is presented as number of sub-narratives supported by pictures, quotes, and written stories about practices.

Understanding municipal contexts

In this municipality, sustainability issues have long played a significant role in governance, decision-making and planning. The local preschools have been supported in their ESD work by various local government and county council decisions and initiatives. In 2015, the municipality opened the first recycling mall in the world as a concrete climate action to promote a deeper understanding of recycling and the use of recycled materials. In 2020, the municipality supported a pilot project, *Using Recycled Material in Preschools – Pedagogical Implications*, in which five preschools participated. This initiative was to develop the preschools' efforts to become more 'climate-smart', one of the goals in the municipality's long-term environmental and climate action plan. Objects and materials originally discarded at the municipal recycling centre, were selected to be re-used in the preschool with children. Before the preschool teachers could collect the materials, the staff at the recycling centre performed an initial culling to ensure the materials were suitable for use in preschools. The project aimed to reduce the preschool purchasing costs, reduce their environmental impacts, and reduce exposure to the toxic chemicals often found in newly manufactured materials. In the project, the preschools reused the discarded materials, and these were given a new life in children's art, construction, play and learning (see Figure 1).



Figure 1: Construction play with recycled materials

Another aspect of the municipality's work with sustainable development was an effort to develop sustainable food systems. Because Swedish preschools offer a full-day program, free meals are provided, and the children eat breakfast, lunch, and afternoon snacks. To increase awareness of sustainable food systems and enhance sustainable food procurement practices, the preschool cooking staff were offered courses about 'climate-smart' food and help with developing menus using local, seasonal, and organic foods.

The latest and current municipality initiative encompasses social sustainability and gender equality objectives. The local board of education has decided that these objectives are to be prioritised from spring 2021 in all municipal preschools and schools. The municipality is also developing a new climate plan, which will extend until 2045. The starting point is the notion that it should be easy to live a climate-smart and fossil-free life in the municipality. The local politicians stress that, with these actions, they are striving to serve as a green role model for other cities in Sweden and around the world.

Preschool teacher Hanna's story

Hanna told us that she trained as a preschool teacher in the late 1980s, but after working for some years in the field, she began to feel dissatisfied with how her work had changed after the economic crisis that hit Swedish municipalities in the 1990s. The preschools had to cut costs by laying off staff and increasing the number of children in the groups. Hanna then made the decision to change profession. She re-trained as an environmental public relations specialist, and worked in this field until early 2001 when she began to long for a return to preschool and work pedagogically with children again.

Back at the preschool, in 2002, she started up the work with sustainability issues together with her colleagues by applying for the preschool award, a Green Flag¹. Equipped with the knowledge and experience she brought from working as an environmental public relations specialist, Hanna sent a photo and wrote:

A newspaper clipping from 2008 that draws attention to the fact that we have received the Green Flag award from Keep Sweden Clean only says that we work with the environment ... Then, in 2008, there were only five themes ... about the environmental dimension of sustainable development ... recycling, water, energy, forestry and lifestyle/health.

The conception of what ESD in preschool education is and can be has broadened in recent years. This is something that Hanna says she has clearly noticed. Previous studies (Ärlemalm-Hagsér & Sundberg, 2016; Davis, 2009; Siraj-Blatchford et al., 2016) show that the most common issues that educators were working with in preschools around the world had to do with the environment and nature. Hanna also stated that the earlier work at the preschool was mainly about ecological sustainability and environmental issues. She says that this has changed in the last year to include broader consideration of all three dimensions of sustainability: ecology and environment; economics; and, society and culture.

I feel that the work with sustainable development in preschool has changed over time and increasingly includes the three sustainability dimensions. Above all, a change begins to occur in 2020, as preschool principals and staff read and implement the new curriculum for preschool-18y, which entered into force in summer 2019. I increasingly see consciously planned teaching, where preschool teachers and other staff have planned and thought through the lessons in advance ... Which of the sustainability aspects should we focus on now, what should the child / children have the opportunity to develop their abilities in, or develop knowledge about, be further challenged by ...

¹ Preschools in Sweden can be awarded two different types of environmental certification. One is Green Flag, awarded by the organization Keep Sweden Clean (Keep Sweden Clean, 2020), and the other is the Preschool for Sustainable Development certification, awarded by The Swedish National Agency for Education (2020). To qualify for the award, the preschool works with different themes decided upon by the Keep Sweden Clean Foundation (Keep Sweden Clean, 2020).

In this excerpt, Hanna highlighted the ongoing changes in the preschool pedagogical practices. The first change concerned a broadening of what objectives were in focus, from environmental education to sustainable development more generally. Other current objectives related to economic, social and cultural issues. The second change was how the new regulations and the use of the concept of sustainable development (Swedish National Agency for Education, 2018) affected pedagogical practices. Earlier research has specified the need for knowledge development, strong governance, and leadership since transformative change does not take place by itself (Davis & Elliott, 2014). In-service training for preschool principals has led to new understandings and further development of sustainability in the daily preschool activities. Hanna also mentioned, in the excerpt below, that the training made a difference to practice and further developed the pedagogical work with the children around sustainability. As discussed previously, ideas about understandings of ESD in the preschool had broadened:

Knowledge about sustainable development among those who work in preschool is very important to enable the teaching to be done a good way based on the curriculum, so that the children's meaning-making about sustainable development gets the breadth and depth they are entitled to, and the change over time that leads to a more sustainable society really does occur. Over the years, I have seen much evidence that our work makes a difference for both the individual and society. I feel that, thanks to the wordings in the latest curriculum, we now have all the staff on board, and it is no longer possible for those who are mainly interested in environmental issues or recycling to interpret the sustainable development dimensions in a narrow way. The clarification that all three dimensions are important has meant that discussions and knowledge development are getting underway on a broad front; even those who are more passive are able understand them better when they are taken up for discussion. The more knowledge the staff gets, the more the discussions revolve around education for sustainable development and the preschool as a whole, and the most gratifying thing of all is that there are real discussions about how children gain influence, are able to participate and can really influence things. In addition, many people realize that this includes the work with the social dimension of sustainable development.

Hanna asserted that all the preschool staff, from the principal to the staff teaching in the classroom and in the preschool kitchen, had further developed their knowledge about sustainable development and ESD, as supported by the national curriculum ESD emphasis (Swedish National Agency for Education, 2018). In addition, there had been further development of understandings and knowledge that generated practices where children had opportunities to exert influence over their own learning and participate in the preschool learning culture and activities. Davis (2014) advocates for young children's right to take part in and be seen as important stakeholders in the work towards a sustainable world in the present time as well as in the future. She argues children have the ability to contribute ideas, experiences, and creativity. Children are capable of influencing change, both as unique individuals and collectively, as a group. In the *UN Convention on the Rights of the Child* (UNICEF, 1989) as well as in the Swedish preschool curriculum (Swedish National Agency for Education, 2018), democracy and equality are emphasized. Further, the curriculum promotes children's opportunities to understand how democracy works, take part in democratic decision-making leading towards sustainability, take responsibility for their actions, both within the preschool environment and outdoors in nature, and actively participate in society (Swedish National Agency for Education, 2018).

The beginning of the work with the SDGs

Hanna stated that she and her colleagues began working with the SDGs as a tool for ESD around 2016. They were inspired by a nearby nature school that invited municipal preschool staff to in-service training and discussions once or twice a year. The participating preschool staff were those assigned with extra responsibilities for environmental measures (2–3 staff from each preschool). After this, she and her colleagues started talking about the SDGs with the children at the centre. Subsequently, their pedagogical approach began to take shape. Hanna pointed out that it was important to base the SDG work on the children's own experiences, interests, curiosity, and investigations and to focus on the children's everyday life and events in the daily preschool activities. In the classroom, Hanna and her

colleagues created a process wall, where both the children and teachers posted various kinds of documentation related to the SDGs (see Figure 2).

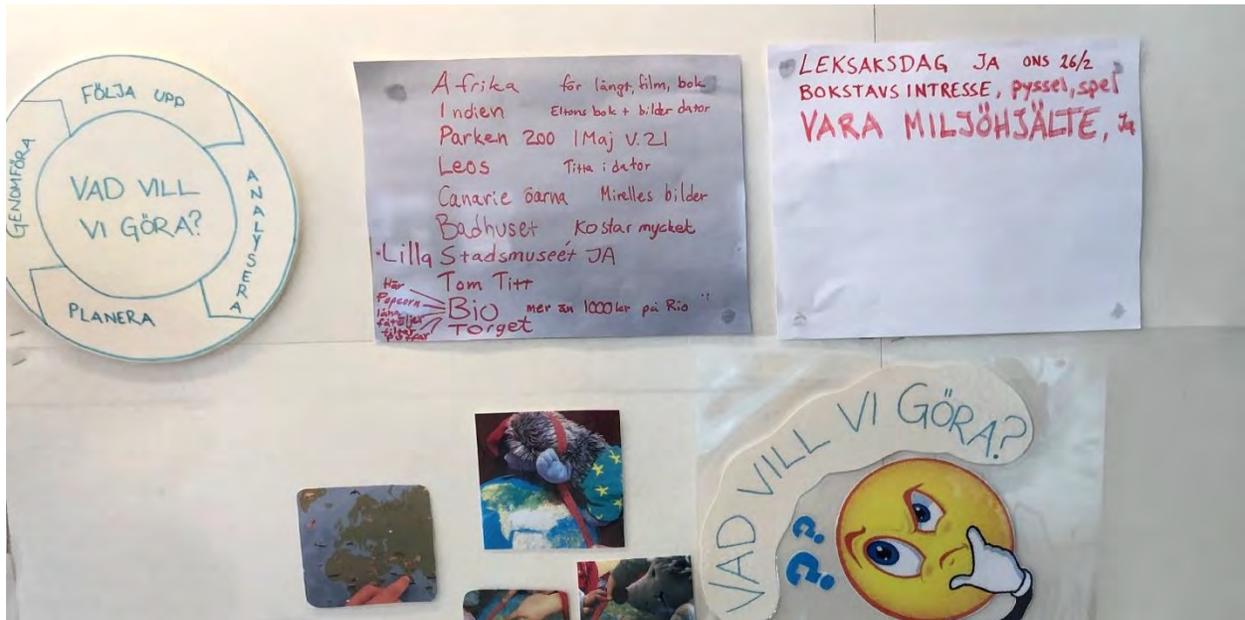


Figure 2: The process wall

The process wall included reminder notes and mind maps on topics and issues occupying the children's thoughts written down as small notes, with texts, photos, drawings, or sometimes even bits of garbage pasted on a piece of paper. Updates on how the various ongoing centre projects were developing were also shared on the process wall. Because the process wall was in a hallway where classroom parents and siblings plus children and teachers from other groups passed by, others were also inspired by the children's curiosity, questions and knowledge. When children and teachers reviewed and communicated about the documentation together, the children had an opportunity to remember and reflect upon their work, thus, potentially influencing their ongoing learning (Doverborg et al., 2020).

Environmental heroes

Hanna stated that every week two children were appointed by the preschool teacher and the children as environmental heroes, an idea that originally came from the children. The children had reminded the teachers that a group of older children previously attending the centre had worn capes with a flash of lightning stitched on them and been appointed as environmental heroes. The children decided that their mission was to promote sustainability, help out with things that the adults had missed or forgotten, and encourage other children and adults to continue working with sustainability in their everyday lives. The children take this task seriously and are proud of it. Moreover, they identify new assignments themselves. These included turning off the lights and water faucets, mending broken things, and checking the recycling bins so that all of the recyclable materials are in the right place. The children overtly looked to the SDGs to identify new ideas for actions as outlined by Hanna below:

Our children discuss how to be an environmental hero, pick from among the pictures of the sustainability goals or environmental goals and discuss how recycling, saving water, reusing things can be good for all three dimensions in different ways at the same time, because you do not waste money, you're being kind to others because there will be enough for them also, and at the same time less bad stuff gets into the air ...

Hanna believed that it was important to instigate dialogues on sustainability issues around children’s everyday talk and activities. She said that when the children were having lunch, they often raised questions about sustainability. For instance, they had discussions regarding the food they were eating, such as where it came from or how it was transported. These conversations left traces and lasted for a long time for the children, for example:

discussing the food’s journey from farm to fork, discussing eco-labels in a stimulating shop-play environment, following up further discussions about eco-labels on fish, such as MSC, while sitting at the table eating breakfast or the afternoon snack.

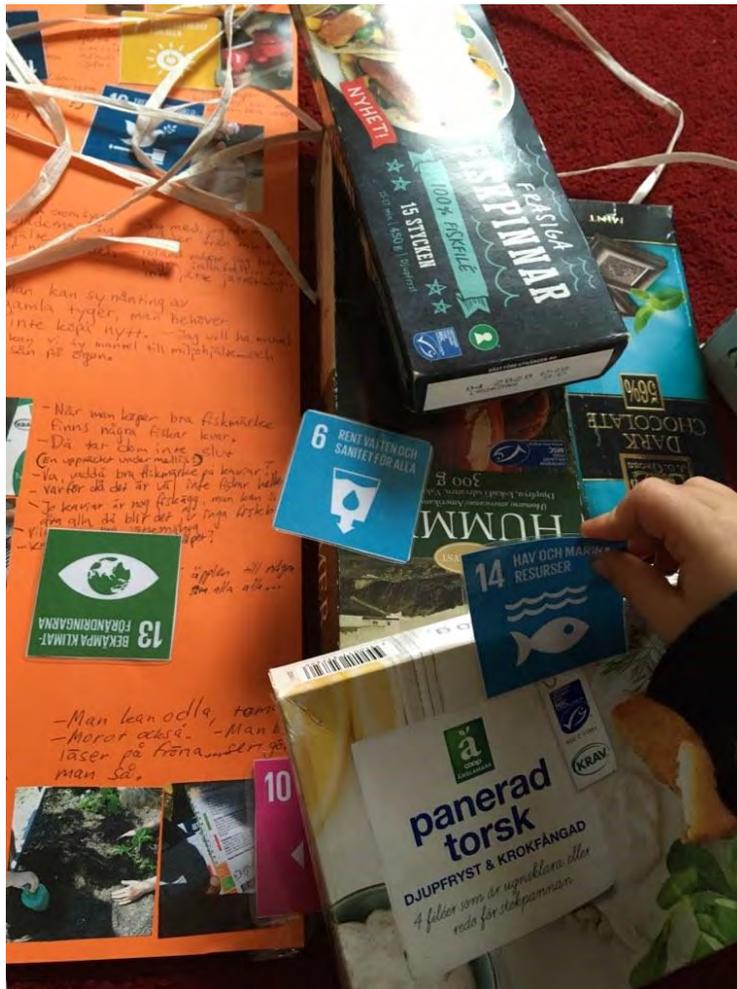


Figure 4: Eco-label on fish packages

Preschool mealtimes created pedagogical opportunities for developing understandings of sustainability issues. Hanna’s story about the ecolabel on the fish package suggested SDG 14, Sea and Marine Resources (see Figure 4). This conceptual linkage to the Marine Stewardship Council (MSC) provoked a pedagogical opportunity. The children could develop knowledge about fish and how one can be sure that the fish are caught in a place where fishing is permitted and in a way that is sustainable for fish populations. In the dialogue, the children and the preschool teacher learnt from each other. Hanna argues that one must strike a pedagogic balance between challenging children’s understandings and waiting to see what voices are heard and what knowledges can emerge from the discussions among children. Hanna and her colleagues also built a “shop” with groceries in one of the rooms where the children played customer and shop assistant.



Figure 5: Play environment

The children used ecosymbols to label the shop goods (see Figure 5). This led to conversations about SDG 12 Sustainable Consumption in relation to organic food.

Children as agents of change

It was clear from Hanna's stories that the preschool children were important actors and agents in their work with sustainability around change for now and the future and that they can and do make a difference. Hanna shared a story about a climate action instigated by the children that further demonstrated their agency. The children recycled different materials at the preschool. One of the sorting bins was designated for food composting. The children knew that the municipal buses were fuelled by biogas or electricity and that the food scraps they placed in the compost bin were to be transformed into biogas. In their conversations, the children talked about carbon dioxide and its impact on the climate and the greenhouse gas emissions from cars and aircraft. They utilised the SDG cards (7 Sustainable Energy, 12 Sustainable Consumption, and 15 Ecosystems) to keep their discussion going and deepen their understandings.

Hanna described how the children became very upset and sad when they understood that travelling by car and airplane, activities they looked forward to, had climate impacts. Hence, they then reflected on how to avoid such transport and learnt that trees absorb and store carbon dioxide from the air and water:

In our classroom, we now strive to think in an overarching way, keeping all three dimensions of ESD in mind in everything we do, throughout the child's whole day at preschool. We think it's important to maintain a balance, so that the work is characterized by a positive belief in the future. For example, by noticing a bit of anxiety in some [children] about aircraft exhaust and the desire to travel again after Covid, and then working actively with what can be done, the discussions and knowledge acquisition led, among other things, to tree planting.

They decided to start planting trees, and the children began to collect seeds from different local trees. Their questions led to understandings and knowledge about what trees were best for absorbing and storing carbon dioxide to reduce greenhouse gas emissions. When the preschool principal was planning air travel, the children decided to give her a tree to plant in her garden (see Figure 6). They told her – *You must put it in your garden so that it will grow and get big. Then, it can absorb greenhouse gas emissions, as you are going to travel by airplane.*

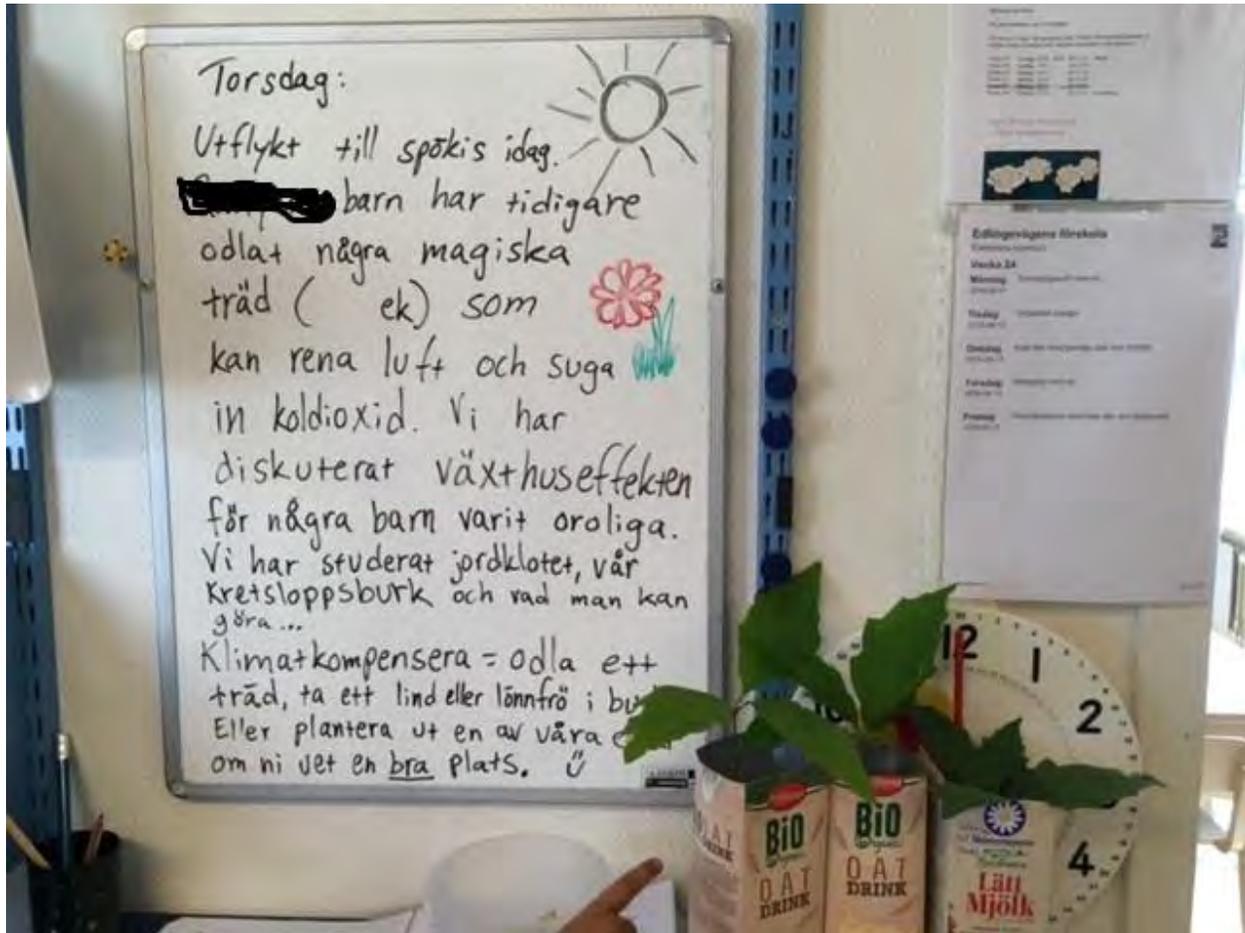


Figure 6: Tree planting

Hanna shared that it is important to notice the questions and issues about which children express anxiety, such as the troublesome greenhouse gas emissions. When this occurs, the teacher can help children manage their anxieties by working through problem-solving and helpful actions, as with the above story. The children now say, ‘the trees get new homes with families and preschool staff who travel far by car and, once Covid-19 is over, by airplane’. Research has shown that young children can handle emotional challenges and respond with problem solving and directed actions (O’Gorman, 2020). Still there is a need to be cautious so children are not left stranded in identities such as “warriors or worriers” (Davis & Elliott, 2014). Thus, it is important for teachers to employ specific preschool climate action possibilities to develop the children’s belief in a positive future and foster their competence and ability to solve problems and find new ways to act to promote sustainable futures. Activities such as the one described by Hanna do so by linking constructive actions to SDG 12 Sustainable Consumption and SDG 13 Climate Action in relation to climate change and the importance of trees for human survival.

The work for sustainability has continued at Hanna’s preschool. Throughout autumn 2020, the children had many thoughts about Covid-19 and how it affected their families and other people. They discussed sustainability issues

connected to SDG 3 Good Health and Well-Being, SDG 6 Clean Water and sanitation, and SDG 11 Sustainable Societies. Hanna outlined how the children became very involved in the discussion when she posed the question: *How can we take extra care of each other now during these times of Covid?*

- *There should be one more Bamse picture²!*
- *Yes, where everyone washes their hands with soap!*
- *Because then you are considerate of each other, take care so no one gets sick.*
- *Yes, maybe the coronavirus will run out ...*
- *Stops being transmitted, so it no longer exists.*

The children discussed elderly people's situation in a thoughtful way, and exchanged experiences:

after a while they decided that we should print out the Bamse picture that is the introductory picture in Bamse's situation pictures, where it says, "Take care of each other". So, we printed it out and the kids pasted it on a bar of soap. That's because they thought this was a way to care about each other. After some discussion, the children made me promise that sometime during the week we would together suggest to the editors of Bamse that a new situation picture could be one of teddy bear friends washing their hands, and we would write good questions for such a picture, such as: How can you take care of each other during a pandemic? What can you do so that adults will understand that it is important? What can you do so that no one will be alone or feel lonely? Then one of the children said: "I will become a researcher when I grow up. Then, I can come up with something that removes the corona virus from the whole world. Is that being a 'science man'?" - Yes, or woman ... says another child, and adds "I will experiment, so that everyone understands, and it will be so fun that no one misses it!"

Thinking and talking together while building a learning culture required the presence of adults who viewed the children as competent actors whose knowledge, ideas, and thoughts were important. The children also verbally interconnected the SDGs then physically linked any interconnected goals with a ribbon (see Figure 7). For example, they talked about SDG 10, Reduce Inequality and SDG 4, Quality Education by stating: *Everyone must have the possibility to become what they want to be. And, to decide things. But, then you have to learn, and not all children go to school – every child must go to a school.*

In Hanna's story of the preschool program, the SDGs were an important pedagogical tool in the dialogues among children and children and teachers. It was significantly the children's own interests and curiosities that led and promoted the pedagogical processes. The preschool teachers both scaffolded and challenged children's evolving meaning-making. Democracy, human rights, children's agency, partnerships for sustainable futures, and gender equality were explicitly interwoven parts of Hanna's story. The many different aspects of sustainability intersected within a sharing, caring, and learning environment with environmental heroes at the fore as planetary guardians.

² Bamse is a popular cartoon in Sweden. Bamse is a bear who becomes the strongest bear in the world by eating magic honey. The stories about Bamse are meant to improve children's knowledge, as well as to provide entertainment and ask big questions about friendship, and quality and sustainability issues. In this unit they use Bamse, educational materials, and situation pictures about friendship, wellbeing and health. <https://www.bamse.se/okategoriserade/7-situationsbilder-nedladdning/>

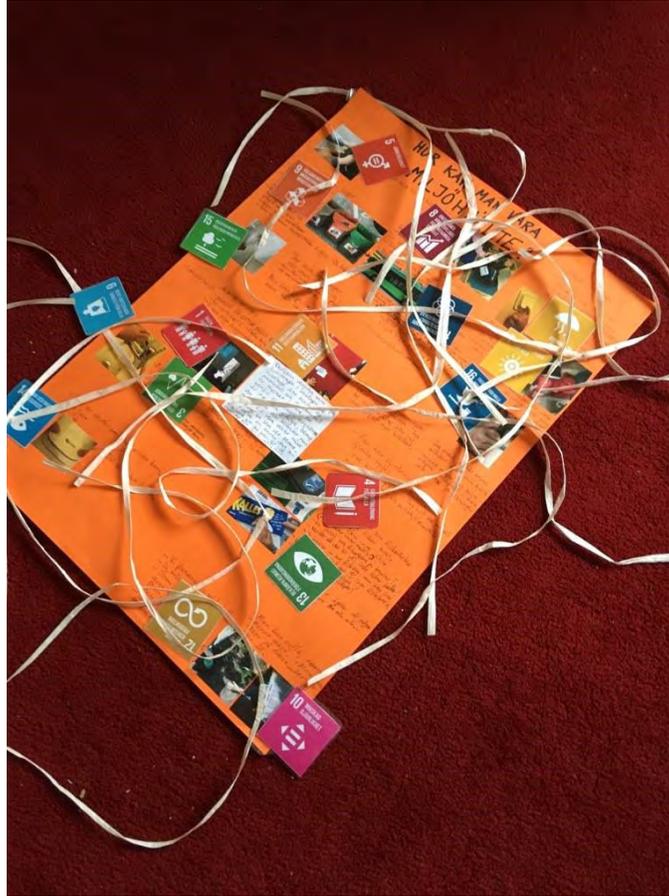


Figure 7: Interconnecting the SDGs

Concluding synthesis

The study aim was to employ narrative inquiry to develop knowledge about how Efs and the SDGs are explored in Swedish early childhood education. One of the difficulties of narrative inquiry lies in handling the story, in particular, how the story participants are represented or made visible in the data presentation (Clandinin et al., 2016). In the research process, a collaborative dialogic relationship between the researcher and the participating preschool teacher was established and critical to the study and its trustworthiness. Hanna's story was both engaging and informative because it demonstrated how intersecting major and minor politics (Dahlberg & Moss, 2005) can be handled within an early childhood education setting. In addition, it offers an example of what UNESCO describes as a strategic policy area on all levels (UNESCO, 2020a; UNESCO, 2020b; UNESCO, 2021) The Swedish Government has set high standards (SOU 2019), and the National Preschool Curriculum (Swedish National Agency for Education, 2018) has clear goals relating to sustainability. Hanna's story showed that, in her municipality, the politicians took responsibility for and initiated projects in sustainability with everyone, including the youngest children.

Hanna has long-term experience in early childhood education, and she demonstrated a strong commitment to sustainability and identified a unique challenge to adopt the SDGs as a pedagogical tool in everyday practice with children. In her story, we identified how Hanna's teaching and children's learning was centred on 13 of the total 17 SDGs. We can also see that teaching is not a question of explicitly transferring normative knowledge, but of promoting children's opportunities to notice and begin to talk. The teacher directed the children's attention towards the SDGs and specific aspects, and, together, the adults and children developed their knowledge of the SDGs (Pramling & Pramling Samuelsson, 2011). Hanna also ensured that the message she sought to convey became integral to the materials and play setting (Pramling Samuelsson & Asplund Carlsson, 2008). For example, the children

had ready access to the SDG's and Swedish national goals in the form of note cards, including images. These provided visual prompts to think, reflect, and create their own ideas. The preschool teacher knew what she sought to make concepts visible to the children but teaching always occurred within a context of interaction and communication among children and between teachers and children (Björklund & Pramling Samuelsson, 2020). Teaching, then, is where both children and teachers are engaged in a collaborative critical inquiry to challenge unsustainable thinking and actions in everyday life.

Another aspect of Hanna's story was how she handled emotional effects when disrupting taken-for-granted assumptions and finding new ways of acting (Jickling, 2017; Kopnina, 2020; O'Gorman, 2020) by implementing critical transformative pedagogies. Delving into the SDGs sometimes causes anxiety, which needs to be managed through transformation and transactions (Säfström & Östman, 2020). Approaches to alleviating these anxieties were demonstrated in both the tree planting and the Covid-19 projects. Hanna argues the need to maintain a balance so that children create hope for the future and are not, as Davis and Elliott (2014) caution, left stranded in identities of "warriors or worriers".

If we look to the global level, Stafinia Giannini, Assistant Director-General for Education at UNESCO, says: "Now is the time for every education system to lead the transformation that is needed to set our world on a more just and sustainable course, because our common future depends on our present actions" (UNESCO, 2020). We wholeheartedly agree, but it is also important to note that Hanna's story is the story of a teacher and children in a developed country that is rich compared to most of the world's countries. Many children globally do not even have access to preschool education, a perspective that places children who are able to spend their days in Hanna's preschool in a category of social privilege (UNESCO, 2021, forthcoming). Yet, another consideration is Hanna's background and her double competence as both a preschool teacher and an environmental public relations specialist. This article shows that knowledge and skills about sustainability and the SDGs, as well about how to implement the knowledge as part of the pedagogical practices with children, are crucial. This suggests a need for further professional learning, including change and improvements in the training of student teachers as well as in-service training for practicing educators. Still, with purposeful commitment and engagement, all early childhood educators can jointly create a space for cooperative learning and build knowledge about sustainability together with the children and their families.

Young children can be important agents for change, and Hanna and the children are inspiring role models for post-sustainability education that is disruptive and transformative (Jickling, 2017). Hanna's story is an example of an education where ethics, caring, curiosity, critical and disruptive dialogues, and problem-solving all challenge the assumptions that otherwise are taken-for-granted through transformation and transaction in the daily preschool activities. Her example is a call for further action which is required to go beyond "business as usual" to embed transformative and transactive teaching for promoting "planetary ethic and degrowth" (Kopnina 2020, p. 280).

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