



Country Analysis: Transnational report

Education for Sustainability in ECEC in Austria,
Germany, Greece, Finland, and Portugal



Promoting children's understanding of
sustainable development through multimodal storytelling
in Early Childhood Education and Care (ECEC)

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1 Introduction

Sustainability has become a core objective of educational systems worldwide, and early childhood education plays a pivotal role in fostering this understanding from an early age. This transnational report, developed as part of the Creative Story-Tellers project, explores the integration of Education for Sustainability (EfS) or Education for Sustainable Development (ESD) within Early Childhood Education and Care (ECEC) systems across five European countries: Austria, Germany, Greece, Finland, and Portugal. The aim is to analyze how these countries incorporate sustainability principles into their curricula or educational plans, with a particular focus on the use of multimodal storytelling as a tool to promote children's understanding of sustainable development.

The Creative Story-Tellers project, funded by the European Union through the Erasmus+ Program, seeks to encourage children through creative storytelling techniques to better understand and engage with themes of sustainability. It recognizes that storytelling, in all its forms, can be a transformative educational method for young learners, enabling them to connect emotionally and intellectually with complex topics such as environmental preservation, social equity, and global citizenship. By integrating storytelling into early education, the project aims to foster critical thinking and environmental responsibility from an early age.

Early childhood is a crucial stage for shaping values, attitudes, and behaviors that support environmental and social responsibility. By embedding sustainability concepts into the daily experiences of young children and their families, ECEC programs can lay the foundation for future generations to engage critically with global challenges, including climate change, resource conservation, and social equity. This report examines the structure and delivery of ECEC in each country, highlights good practices in teaching sustainability, and explores how storytelling can be an effective medium to engage young learners in complex environmental topics. It also provides recommendations for enhancing the role of sustainability in early childhood education, with a focus on curriculum development, educator training, and parental involvement.

Through this comparative analysis, the report aims to offer insights and strategies that will not only strengthen the Creative Story-Tellers project but also support the preparation of the training curriculum for the Creative Story-Tellers Academy. The Academy is designed to equip educators with the tools and methodologies to integrate storytelling and sustainability into ECEC, ensuring that children develop the knowledge and values needed for a sustainable future.

2. Germany

2.1 Early Childhood Education and Care (ECEC) System in Germany

2.1.1 Structure and Overview

ECEC in Germany

Early childhood education and care in Germany is not part of the state-organized school system, but rather falls under the responsibility of Child and Youth Welfare services. The Federation has concurrent legislative competence for child and youth welfare. The Länder (federal states) supplement and extend the federal legal framework with their own state laws. The Standing Conference of the Ministers of Education and Cultural Affairs (Kultusministerkonferenz) and the Youth Ministers Conference (Jugendministerkonferenz) jointly establish principles of education policy in the ECEC sector. At the local level, municipalities are responsible for planning and providing ECEC services in consultation with parents.

Attendance at ECEC institutions is voluntary, although some Länder have regulations allowing authorities to make it compulsory. There is a legal right to ECEC in a day-care center or child-minding service from age one, which entered into force in 2013.

Day-care centres (Kindertageseinrichtungen) provide care for children under three (Krippen) and from three up to primary school age (Kindergärten), either separately or together. Some Länder also have Schulkindergärten, Vorklassen and Grundschulförderklassen for children of compulsory school age who need additional support before primary school. The opening hours and contracted child-care hours of day-care centres are mainly regulated by the responsible bodies in consultation with municipalities and parents.

The key principles and goals of the German ECEC system are:

- Encouraging children's development into responsible and autonomous members of the community
- Supporting and supplementing family upbringing and assisting parents in reconciling employment and child-rearing

- Providing education, instruction and care tailored to each child's age, development, abilities, life situation and interests
- Communicating guiding values and rules
- Taking into account each child's ethnic origin

The provision of ECEC is to be adjusted to the individual child's needs in terms of pedagogy and organization. Participation and complaint procedures for children must be developmentally appropriate.

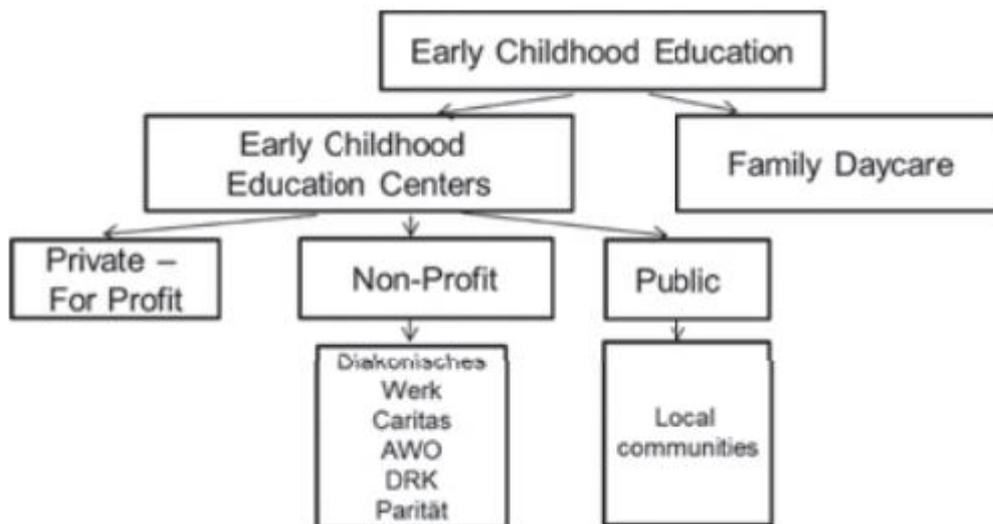


Figure 1 ECEC structure in Germany

ECEC in German Schools Abroad

German schools abroad, also known as Deutsche Auslandsschulen, often include German-language kindergartens as part of their educational offerings. These kindergartens provide early childhood education and care (ECEC) for children aged 2-6 in an intercultural environment.

The curriculum and educational approach in German kindergartens abroad are based on the training and orientation programs issued by the Central Agency for Schools Abroad (Zentralstelle für das Auslandsschulwesen, ZfA) of the Federal Office of Foreign Affairs. The goal is to prepare children for primary school while supporting their development and learning in both German and the local language. Key features of German kindergartens abroad include:

- **Play-based** activities and a relaxed environment, rather than strict routines

- **Immersive language learning**, with native speakers of German and the local language supporting children's acquisition of both
- Emphasis on intercultural openness, acceptance of diversity, and respect for different languages and cultures
- **Close cooperation between kindergarten and primary school** to ensure a smooth transition

While attendance at German kindergartens abroad is not mandatory, they play an important role in providing high-quality early childhood education and care for expatriate families and local communities. By blending German educational principles with local curricula, these kindergartens help foster intercultural understanding and prepare children for success in a globalized world.

Main Pedagogical Approaches

1. Holistic and Child-Centred Learning

The German ECEC system is usually characterized by a holistic approach that combines education, care, and socialization. Educators are encouraged to create learning environments that reflect children's interests and everyday experiences, including activities related to nature and sustainability.

2. Play-Based Learning

Environmental education is often integrated into play-based learning, where children engage in hands-on activities that promote exploration and interaction with their surroundings. This approach helps children develop a sense of curiosity and respect for nature.

3. Experiential Learning

The concept of "education in the environment" is emphasized, where children learn about sustainability through direct contact with nature. Activities such as gardening, nature walks, and outdoor play are common, allowing children to observe and engage with their environment actively.

2.1.2 Education for Sustainability (EfS) in German Pre-Schools

Main policies

Environmental education in German ECEC curricula is supported by a combination of national and regional frameworks, holistic pedagogical approaches, and active engagement with nature. These elements work together to foster children's understanding of sustainability and their role in caring for the environment, preparing them to become responsible and informed citizens. In Germany, the integration of Education for Sustainable Development (ESD) into Early Childhood Education and Care (ECEC) is supported by various national and regional policies aimed at promoting sustainable practices and environmental awareness among young children. Key policies include:

1. **Child and Youth Welfare Act (SGB VIII):** This act lays the foundation for ECEC in Germany and emphasizes the importance of promoting children's development in a holistic manner, including fostering an understanding of sustainability and environmental protection as part of their educational experience.
2. **Education Plans by Federal States:** Since 2005, almost all German federal states have introduced education plans for the ECEC sector. These plans serve as guidelines for curriculum development and often include objectives related to sustainability, environmental education, and social responsibility. While not compulsory, these plans significantly influence pedagogical practices in kindergartens, with a high percentage of educators reporting their usefulness in daily teaching.
3. **Federal Environmental Agency Initiatives:** The German Federal Environmental Agency (Umweltbundesamt) promotes educational initiatives that focus on sustainability in schools, including kindergartens. These initiatives provide resources and training for educators to incorporate sustainability topics into their curricula effectively.
4. **Local and Regional Programs:** Many municipalities and regional governments have developed specific programs and projects aimed at integrating sustainability into ECEC. These programs often include partnerships with local environmental organizations and initiatives that encourage outdoor learning and nature-based activities.

The impact of these policies on pre-school education is significant:

- The emphasis on sustainability in education plans encourages kindergartens to integrate environmental topics into their curricula. This includes activities that promote recycling, energy conservation, and biodiversity awareness.
- Policies supporting ESD often include professional development opportunities for educators, equipping them with the knowledge and skills to teach sustainability

effectively. This training helps educators to create engaging learning experiences that foster children's understanding of environmental issues.

- Many ECEC institutions engage with local communities to promote sustainability initiatives, such as community gardens or environmental clean-up projects. This not only enhances children's learning experiences but also strengthens community ties and promotes a culture of sustainability.
- By integrating sustainability into early childhood education, children are encouraged to develop critical thinking skills, social responsibility, and an appreciation for nature, laying the groundwork for lifelong sustainable practices.

In summary, the national and regional policies supporting sustainability in ECEC in Germany can potentially influence pre-school education by promoting environmental awareness significantly, guiding curriculum development, enhancing teacher training, and fostering community engagement. These efforts contribute to a holistic approach to education that prepares children to be responsible and informed citizens in a sustainable future.

Key Frameworks and Guidelines

In Germany, Early Childhood Education and Care (ECEC) curricula incorporate environmental education through various frameworks, guidelines, and pedagogical approaches. Here are the key aspects of how environmental education is integrated into the ECEC system:

1. **Joint Framework of the Länder for Early Education in Day-Care Centres (Gemeinsamer Rahmen der Länder für die frühe Bildung in Kindertageseinrichtungen)**

This framework, adopted in 2004 and updated in 2022, outlines essential principles for early childhood education across Germany. It emphasizes the importance of fostering children's awareness of their environment and encouraging sustainable practices as part of their holistic development.

2. **National Action Plan on Education for Sustainable Development (NAP BNE)**

The **National Action Plan on Education for Sustainable Development (ESD)** in Early Childhood Care and Education (ECEC) focuses on integrating sustainability principles into the foundational stages of education. It aims to transform early childhood education by embedding sustainable development principles into the core of educational practices and institutional missions. By fostering early engagement with sustainability issues, the plan seeks to lay a strong foundation for lifelong sustainable behaviors and thinking. The plan emphasizes the importance of ESD from birth to the age of six, encouraging children to engage with

sustainability topics and develop an understanding of sustainable living through playful and interactive learning experiences. There are in total five Action Areas identified:

Action Area I: Integrating ESD into curricula

The first key action area is integrating ESD into curricula. ESD is to be embedded in ECEC curricula, allowing children to explore themes like water, food, energy, and equity through various educational activities. The objective is to create learning environments that foster sustainable thinking and behaviors from an early age.

Action Area II: Establishing ESD as part of the institutional mission of ECEC providers

The second action area focuses on making ESD a part of the institutional mission of ECEC providers. ESD should be included in mission statements and quality management systems. The objectives include formulating benchmark guidelines for providers and developing quality requirements and practice indicators.

Action Area III: Integrating ESD into initial and further training for ECEC professionals

The third action area involves training for ECEC professionals. ESD should be part of both initial and further training programs to ensure that professionals have the necessary knowledge and skills to implement sustainable practices. Measures involve integrating ESD into tertiary education and providing ongoing education on sustainability topics.

Action Area IV: Supporting ESD as the basis of professional action Supporting Professional Action

The fourth action area is about supporting professional action based on ESD principles. ESD should guide the everyday actions of ECEC professionals, and this includes offering practical suggestions and support to help educators incorporate ESD into their work.

Action Area V: Establishing networks with informal and formal education spaces

The fifth action area emphasizes the importance of establishing networks with informal and formal educational spaces to promote ESD. This involves identifying local stakeholders, facilitating collaboration between day-care facilities and schools, and organizing regional conferences to discuss ESD implementation. The plan highlights commitments from various organizations, including the Federal Ministry of Family Affairs, Senior Citizens, Women and Youth (BMFSFJ), and the Haus der kleinen Forscher Foundation, which are dedicated to promoting ESD in ECEC. These organizations will support the development of good practice models,

provide training materials, and facilitate the establishment of networks to enhance ESD integration. Specific measures include creating text modules for ESD guidelines, developing quality indicators, and organizing conferences and training sessions. The plan calls for active involvement from federal and local authorities, as well as partnerships with non-profit organizations, to ensure the effective implementation of ESD in early childhood education.

3. Curriculum Framework: Education for Sustainable Development

Developed in collaboration with the Standing Conference of the Ministers of Education and Cultural Affairs (Kultusministerkonferenz or KMK), this framework provides guidance on integrating sustainability topics into school curricula across all subjects and grade levels. The Framework is an important instrument for implementing Education for Sustainable Development (ESD) in the curricula of schools across Germany. Here are the key points about this framework:

- Its purpose is to enable pupils and **students to acquire core competencies** such as the ability to change perspectives, develop empathy, and see themselves as "Global Citizens" of the world.
- The framework **provides concrete recommendations** for including sustainable development and global development topics in the curricula of almost all subjects, including natural sciences, foreign languages, mathematics, German, art, music, sports, politics, economics, religion, and more.
- It aims to help students develop the knowledge, skills, values and attitudes that empower them to contribute to sustainable development, in line with **Target 4.7 of the UN Sustainable Development Goals**.
- The framework is an important part of Germany's efforts to reorient education towards sustainability, as outlined in the National Action Plan on Education for Sustainable Development (NAP BNE).
- The curriculum framework serves as a guide for state education authorities and individual schools to adapt and integrate ESD into their own curricula and teaching practices.
- Its implementation is supported by the ESD Competence Centres, which work with municipalities across Germany to systematically develop and implement ESD at the local level.

In summary, the Curriculum Framework: Education for Sustainable Development is a key policy instrument that provides the foundation for embedding sustainability education across the German school system, in collaboration with state education authorities and local stakeholders.

The role of ECEC providers and educators

ECEC providers and educators play a crucial role in promoting Education for Sustainable Development (ESD) in Germany's early childhood education system. As the primary facilitators of learning experiences for young children, they are responsible for creating engaging and enriching environments that foster an understanding of sustainability and environmental stewardship.

One of the keys ECEC providers integrate ESD into their daily practices is through hands-on activities that allow children to **directly interact with nature**. Nature exploration, such as regular visits to nearby parks or forests, enables children to observe and appreciate the beauty and complexity of the natural world. Gardening projects, where children plant, tend to, and harvest fruits and vegetables, provide a tangible experience of the growth cycle and the importance of local, organic produce. These activities not only teach children about the environment but also instil a sense of wonder and respect for the natural world.

In addition to outdoor learning, ECEC providers **implement sustainable practices within the classroom setting**. Recycling programs, where children sort waste into appropriate bins for recycling, composting, and general waste, help establish responsible habits from an early age. Discussions about conserving resources, such as turning off lights when not in use or using water mindfully during handwashing, reinforce the importance of sustainable behaviour in daily routines.

Educators also incorporate sustainability themes into their curriculum through **thematic projects and educational materials**. For example, a project on "Animals and Their Habitats" can teach children about ecosystems, conservation, and the effects of pollution on wildlife. Children might create art projects using recycled materials to reinforce these concepts. Storytelling and books that focus on environmental themes, such as caring for nature or the importance of clean water, help children understand complex ideas in an age-appropriate manner.

Beyond the classroom, ECEC providers **collaborate with local communities** to participate in sustainability initiatives and raise awareness. They may partner with environmental organizations to organize community clean-up events or conservation projects, fostering a sense of shared responsibility for the local environment. Celebrating environmental days, such as Earth Day or World Environment Day, with special activities further reinforces the importance of sustainability to children and their families.

To effectively implement ESD, ECEC educators require ongoing **professional development** opportunities to enhance their knowledge and skills. Teacher training institutions play a crucial role in providing educators with the necessary tools and resources to integrate sustainability education into their teaching practices. By staying informed about best practices and research in the field, educators can continuously improve their approach to EfS and ensure that children receive high-quality learning experiences.

In conclusion, ECEC providers and educators are at the forefront of promoting Education for Sustainability in Germany. Through their dedication to creating engaging learning environments, implementing sustainable practices, and collaborating with communities, they lay the foundation for a future generation of responsible and environmentally conscious citizens.

Practical Applications and Daily Activities

In pre-schools, sustainability is integrated into everyday practices through various practical applications and daily activities that promote environmental awareness and responsible behaviour among young children. Through these practical applications and daily activities, German pre-schools effectively integrate sustainability into their educational practices. This approach not only promotes environmental awareness among young children but also instils values of responsibility, respect for nature, and the importance of sustainable living from an early age. Here are some examples:

1. Nature Exploration and Outdoor Learning

Pre-schools often incorporate outdoor activities where children can explore their natural surroundings. Activities like nature walks, gardening, and observing local wildlife help children develop a connection to the environment and understand the importance of biodiversity.

2. Gardening Projects

Many pre-schools have their own gardens where children can plant, tend to, and harvest fruits and vegetables. This hands-on experience teaches children about food sources, the growth cycle, and the importance of local produce, while also emphasizing organic practices and the benefits of eating healthy.

3. Recycling and Waste Management

Educators implement recycling programs within the classroom, teaching children how to sort waste into appropriate bins for recycling, composting, and general waste. This practice instills habits of responsible consumption and waste management from an early age.

4. Sustainable Practices in Daily Routines

Daily routines in pre-schools often include discussions about turning off lights when not in use, conserving water during handwashing, and using resources mindfully. These practices help children understand the impact of their actions on the environment.

5. Thematic Projects

Pre-schools may engage in thematic projects focused on sustainability topics. For example, a project on "Animals and Their Habitats" can teach children about ecosystems, conservation, and the effects of pollution on wildlife. Children might create art projects using recycled materials to reinforce these concepts.

6. Storytelling and Educational Materials

Books and stories that focus on environmental themes, such as caring for nature, recycling, and the importance of clean water, are often included in the curriculum. This helps children understand complex concepts in an age-appropriate manner.

7. Community Involvement

Some pre-schools collaborate with local environmental organizations to participate in community clean-up events or conservation projects. This involvement fosters a sense of community responsibility and encourages children to take action for their environment.

8. Celebrating Environmental Days

Pre-schools may celebrate events like Earth Day or World Environment Day with special activities that raise awareness about sustainability. Activities can include planting trees, creating posters about conservation, or organizing a "green" day where children wear eco-friendly clothing.

2.1.3 Storytelling in ECEC

The Role of Storytelling in Germany Kindergartens and Pre-Schools

Storytelling plays a vital role in early childhood education in Germany, particularly in kindergartens and pre-schools in German Schools Abroad. Educators recognize the power of stories to engage children's imaginations, foster language development, and impart valuable lessons about the world around them. It is a cornerstone of early childhood education, fostering language development, creativity, cultural knowledge, and social-emotional skills. By immersing children in the world of stories, kindergartens and pre-schools lay the foundation for lifelong learning and personal growth.

Immersive Language Learning

In many German kindergartens, storytelling is used as a tool for immersive language learning. Native German-speaking educators read stories aloud, encouraging children to listen attentively and pick up new vocabulary words and sentence structures. Some pre-schools even incorporate bilingual storytelling, exposing children to both German and another language, such as English or Turkish (at DSA Greek), to promote multilingualism from an early age.

Cultivating Imagination and Creativity

Fairy tales and imaginative stories are particularly beloved in German pre-schools. Educators understand the importance of engaging children's fantasies and tapping into their innate creativity. Storytelling sessions often involve dramatic elements, such as character voices and sound effects, to bring the stories to life and captivate young audiences. After listening to a story, children may be encouraged to create their own illustrations, act out scenes in dramatic play, or even write their own versions of the tale. These activities not only foster imagination but also help children process the emotions and lessons conveyed through the story.

Imparting Values and Cultural Knowledge

Stories in German kindergartens often serve as vehicles for imparting important values and cultural knowledge. Educators may choose tales that emphasize themes such as kindness, honesty, and respect for nature. Children learn about traditional German folklore and fairy tales, as well as stories from diverse cultural backgrounds represented in the classroom. By exposing children to a wide range of stories, educators help them develop a sense of empathy, an appreciation for diversity, and a foundation for understanding their own cultural heritage and that of others.

Fostering Social-Emotional Development

Storytelling also plays a crucial role in supporting children's social-emotional development. Stories often depict characters facing challenges and navigating relationships, providing opportunities for children to discuss their own feelings and experiences. Educators may pause during a story to ask children how they think a character feels or what they would do in a similar situation. These discussions help children develop emotional intelligence, problem-solving skills, and the ability to see things from different perspectives. Storytelling also creates a sense of community within the classroom, as children bond over shared experiences and learn to appreciate each other's perspectives.

Storytelling techniques & Multimodal Tools

Many pre-schools utilize a variety of tools, methods, and approaches for multimodal storytelling to engage children and support their language and literacy development. Through varied techniques, tools, and approaches, pre-schools create engaging multimodal storytelling experiences that support children's language development, literacy skills, and overall learning and development. The integration of digital tools in recent years has expanded the possibilities for interactive and creative storytelling in early childhood settings.

Here is an overview of some key techniques and tools used:

- **Interactive Read-Alouds:** Educators read stories aloud, pausing to ask questions, make predictions, and encourage children to interact with the text and illustrations.
- **Dramatic Storytelling:** Educators use different voices for characters, sound effects, and body language to bring stories to life and captivate children's attention.
- **Retelling and Sequencing:** Children are asked to retell stories in their own words or sequence key events, promoting comprehension and narrative skills.
- **Connecting to Prior Knowledge:** Educators make connections between stories and children's own experiences to build understanding and engagement.
- **Puppets, Flannel Boards, and Props:** These manipulatives allow children to act out stories and retell them in their own words.
- **Picture Books and Wordless Books:** Illustrations support comprehension for children with limited German proficiency.
- **Digital Storytelling:** Children create their own digital stories using drawings, photos, voice recordings, and simple animation software.
- **Multitouch Digital Tablets:** Devices like the iPads allow children to embed drawings, images, and narration to create interactive digital stories.

- **Bilingual Storytelling:** Stories are read aloud in both German and another language (e.g. English) to promote multilingualism.
- **Thematic Storytelling:** Stories are selected to align with curriculum themes, allowing children to explore topics in depth.
- **Shared Book Reading:** Children gather around a big book and take turns pointing out letters, words, and illustrations as the story is read aloud.
- **Repeated Readings:** Stories are read multiple times to build familiarity, vocabulary, and comprehension.

Storytelling is a powerful tool for integrating SDGs and ESD into ECEC settings. By incorporating sustainability themes into their storytelling practices, educators can engage children's imaginations, promote language and literacy development, and foster a deep understanding of and commitment to sustainable living. The diverse examples of methods demonstrate the creativity and impact of storytelling initiatives in supporting sustainability education in early childhood. These storytelling methods are used in various ways to support the integration of Sustainable Development Goals (SDGs) and Education for Sustainable Development (ESD) in German early childhood education and care (ECEC) settings.

Many kindergartens and pre-schools incorporate sustainability themes into their storytelling curriculum. For example, a project on "Animals and Their Habitats" might include reading stories that highlight the importance of biodiversity and the effects of human activity on animal populations. After listening to the stories, children engage in related activities such as creating animal habitats out of recycled materials or going on nature walks to observe local wildlife. These **thematic projects** not only teach children about environmental issues but also foster a sense of empathy and responsibility towards other living beings. By connecting with the stories' characters, children develop an emotional understanding of sustainability concepts that goes beyond just memorizing facts.

In recent years, digital tools have been increasingly integrated into storytelling practices in German ECEC settings. Children create their own digital stories using drawings, photos, voice recordings, and simple animation software. These stories often incorporate sustainability themes and messages. **Digital storytelling** engages children's creativity and technological skills while reinforcing key sustainability concepts. It also aligns with the SDG of industry, innovation and infrastructure (SDG 9) by exposing children to emerging technologies and encouraging their innovative potential.

Some German ECEC institutions collaborate with local environmental organizations to incorporate storytelling into community engagement initiatives. For example, children might

visit a community garden and listen to stories about the importance of urban green spaces and local food production. They then create their own stories and illustrations to share with the community. These **community-based storytelling projects** support the SDG of sustainable cities and communities (SDG 11) by engaging children in local sustainability efforts and fostering a sense of ownership and stewardship over their environment. They also promote the SDG of partnerships for the goals (SDG 17) by bringing together diverse stakeholders to work towards common sustainability objectives.

2.2 Curricula Analysis

2.2.1 Quality Framework for Kindergarten and Preschool

The "Qualitätsrahmen für Kindergarten und Vorschule" serves as a comprehensive guide designed to help kindergarten and preschool educators implement the objectives, criteria, and content specified in the "Quality Framework for Kindergarten and Preschool". Its primary purpose is to bridge the gap between theoretical demands and practical application in early childhood education settings. By providing concrete examples, suggestions, and literature recommendations, the document aims to clarify and elaborate on the quality standards expected in kindergartens and preschools.

The guide emphasizes several key competencies essential for child development, including self-competence, social and communicative competence, intercultural competence, and creativity. These competencies form the core focus of educational and developmental areas outlined in the document. The major sections of the document cover a range of topics crucial for fostering a holistic and supportive learning environment. These include personality development, linguistic and mathematical education, scientific exploration, artistic and musical expression, motor skills development, health education, and media literacy. Each section provides practical strategies and activities to promote these areas effectively. Additionally, the document addresses the importance of a strong learning culture, which includes a well-defined pedagogical concept, individualization and social learning, child and life world orientation, smooth transitions between educational stages, and systematic observation and

The Quality Framework serves as a vital instrument in integrating education for sustainable development (ESD) within early childhood education. This framework offers a comprehensive approach that aligns with the principles of ESD, emphasizing **holistic development, active learning, and the cultivation of competencies** necessary for sustainable living.

One of the core aspects of the framework is its focus on fostering a learning culture that views children as **active participants** in their own development. This **participatory approach** is crucial for ESD, which encourages learners to engage with their environment, question existing norms, and develop critical thinking skills. The framework's emphasis on **self-competence, social and communicative competence, intercultural competence, and creativity** aligns seamlessly with the goals of ESD. These competencies equip children with the skills to understand complex sustainability issues, collaborate with others, and think innovatively about solutions.

The framework's section on **scientific education** is particularly relevant to ESD. It supports children's **natural curiosity** about the world, encouraging them to explore and understand environmental phenomena. By promoting **hands-on experiences and experiments**, the framework helps children develop a scientific understanding of ecological processes and the impact of human activities on the environment. This approach not only builds foundational knowledge but also **fosters a sense of wonder and responsibility** towards the natural world, which is essential for nurturing sustainable mindsets.

Health education within the framework also contributes to ESD by promoting a holistic **understanding of well-being** that includes environmental health. The guidelines encourage practices that emphasize hygiene, nutrition, and physical activity, linking these to broader environmental contexts. For instance, discussions about healthy eating can incorporate lessons on sustainable agriculture, food sourcing, and the environmental impact of food choices. Such **integrative learning** helps children make connections between personal health and the health of the planet, reinforcing the interconnectedness at the heart of ESD.

Motor skills development, another key component of the framework, supports ESD by **encouraging outdoor play and interaction with nature**. Activities that involve physical movement in natural settings help children develop an appreciation for biodiversity and the importance of preserving natural spaces. This **experiential learning** fosters a deep, personal connection to the environment, which is critical for motivating sustainable behaviors. Additionally, the emphasis on play and exploration in nature provides opportunities for children to observe ecological principles firsthand, enhancing their understanding and respect for the environment.

The framework's approach to **linguistic education** also plays a significant role in supporting ESD. By **promoting language development in both the mother tongue and foreign languages**, the framework facilitates communication across cultures. **This intercultural competence is vital for ESD**, which often involves understanding and addressing global sustainability challenges. The ability to communicate effectively with people from different cultural backgrounds enhances children's capacity **to collaborate on solutions** to these challenges, **fostering a sense of global citizenship**.



Personal and social development, as outlined in the framework, underpins the ethical dimensions of ESD. By emphasizing values such as **reliability, honesty, respect, and courage**, the framework instills a moral foundation that supports sustainable decision-making. Children learn to appreciate the **importance of fairness, justice, and respect for others**, which are essential for addressing social sustainability issues. The focus on social competence also encourages children **to work together, resolve conflicts, and support each other**, fostering a cooperative spirit that is necessary for collective action towards sustainability.

Incorporating **media education**, the framework prepares children to navigate and critically assess the vast amount of information available in the digital age. This skill is particularly relevant for ESD, as it enables children to discern credible sources of information about sustainability and recognize misinformation. By **learning to use digital tools responsibly and effectively**, children can engage in informed discussions about environmental issues and advocate for sustainable practices within their communities.

Effective leadership ensures that sustainability principles are embedded in the institution's mission, vision, and daily operations. Leaders play a crucial role in fostering a culture of continuous improvement, encouraging staff to engage in professional development related to ESD, and facilitating partnerships with organizations that support sustainability education. By **prioritizing ESD in strategic planning and resource allocation**, leaders can create a supportive environment for both educators and students to engage deeply with sustainability issues.

Professional development opportunities equip educators with the knowledge and skills needed to effectively teach ESD. **Continuous learning and reflection** enable educators to stay current with best practices in sustainability education and adapt their teaching methods to meet the evolving needs of their students. **Collaborative professional development initiatives** also provide platforms for educators to share experiences, develop new strategies, and support each other in the implementation of ESD.

In conclusion, the Quality Framework provides a robust framework for integrating education for sustainable development into preschool education. By emphasizing holistic development, active learning, and the cultivation of key competencies, the framework ensures that children develop a strong foundation in sustainability principles from an early age. Through its comprehensive guidelines, the framework supports educators in creating learning environments that foster a deep understanding of and commitment to sustainable living, preparing children to become informed and engaged global citizens.

2.2.2 Bildungsplan (Education plan) for the Land Baden-Württemberg

The Bildungsplan for early childhood education in Baden-Württemberg is a comprehensive framework that provides guidance on various aspects of education in pre-schools and kindergartens. This plan supports the introduction of Education for Sustainable Development (ESD) by embedding sustainability principles across its core educational goals and developmental fields. The following discussion explores how this Bildungsplan aligns with the aims and goals of ESD, particularly in pre-school settings.

Integration of Sustainable Development in Early Childhood Education

Core Principles and Developmental Fields - The Bildungsplan emphasizes a holistic approach to education that caters to the physical, emotional, intellectual, and social development of children. It identifies six key developmental fields: senses, body, language, thinking, feeling and empathy, and sense, values, and religion. Each of these fields incorporates elements that promote sustainable development:

1. Sense, Values, and Religion:

This field explicitly encourages the development of values related to respect for life, the environment, and cultural diversity. It aims to instill a sense of responsibility and stewardship towards the natural world. Activities under this field often include discussions about nature, participation in environmentally friendly practices, and learning about different cultural traditions and religions, fostering a sense of global citizenship.

2. Feeling and Empathy:

Developing empathy and social skills is crucial for sustainable development. Children are encouraged to understand and respect the feelings and rights of others, which translates into a broader respect for all living beings and the environment. This field includes activities that promote teamwork, cooperation, and understanding of social justice issues, laying the foundation for responsible and ethical behavior.

3. Body and Senses:

Education in this field includes physical activities and sensory experiences that connect children with their immediate environment. Through these activities, children learn to appreciate nature and the importance of maintaining a healthy body and environment. Outdoor activities, nature walks, and exploration of natural elements are integral parts of this field, helping children develop a direct connection with nature.

Goals and Implementation Strategies

The Bildungsplan outlines several goals that align with ESD principles:

A. Development of Personal Identity and Social Responsibility:



The plan emphasizes the importance of helping children develop a strong sense of identity and social responsibility. This includes understanding their role in their community and the larger world, promoting active participation in sustainable practices. By fostering a sense of belonging and community involvement, children are more likely to adopt sustainable behaviors and values.

B. Fostering Curiosity and Critical Thinking:

Encouraging curiosity and critical thinking about the world around them helps children understand complex environmental and social issues. This is achieved through inquiry-based learning, problem-solving activities, and hands-on experiences. Children are taught to question, explore, and understand the impact of their actions on the environment and society.

C. Promoting Health and Well-being:

The plan includes a focus on health and well-being, which is intrinsically linked to sustainable living. This encompasses physical health, mental well-being, and creating a safe and nurturing environment. Activities that promote healthy eating, physical exercise, and emotional well-being are essential components, highlighting the connection between personal health and environmental sustainability.

The implementation of these goals involves various strategies that align with sustainable development:

- **Interdisciplinary Learning:** The Bildungsplan encourages an interdisciplinary approach, integrating concepts from different developmental fields to provide a comprehensive understanding of sustainability. For example, a project on water can include scientific exploration (thinking), discussions about water conservation (values), and creative activities like drawing or storytelling about water cycles (language and senses).
- **Active Participation and Experiential Learning:** Children are given opportunities to participate actively in their learning processes through hands-on, experiential activities. This approach helps them internalize sustainable practices and understand their importance. Activities such as gardening, recycling projects, and energy-saving tasks are common, helping children learn by doing.
- **Partnerships and Community Involvement:** The plan highlights the importance of partnerships with families, communities, and local organizations. This collaboration extends the learning environment beyond the classroom, reinforcing sustainable practices in real-world contexts. Engaging with local environmental groups, visiting farms, and participating in community clean-up events are examples of how the community can support ESD.

The Bildungsplan for early childhood education in Baden-Württemberg effectively supports the introduction of Education for Sustainable Development by integrating sustainability principles into its core educational goals and developmental fields. By fostering

a holistic development that includes physical, emotional, intellectual, and social growth, the plan ensures that children not only learn about sustainable practices but also adopt them as part of their daily lives. Through interdisciplinary learning, active participation, and community involvement, the plan provides a robust framework for nurturing responsible, informed, and engaged future citizens who are prepared to contribute to a sustainable world. By aligning with the broader aims of ESD, the Bildungsplan not only addresses immediate educational needs but also prepares children for the challenges and responsibilities of global citizenship in an interconnected and environmentally fragile world.

2.3 Examples of Good Practices

2.3.1 Environmental Theme – Bees

Description of the Initiative: This initiative implemented at Deutsche Schule Athen, conducted in collaboration with a Greek actress, was designed for a group of 3 to 4-year-old children in a German pre-school. The project focused on the theme of "bees" and their critical role in the environment. Using an interactive, storytelling approach, the children were engaged in an educational experience that combined play, creativity, and hands-on learning.

Methods: The session began with a storytelling play, where a hand puppet representing a queen bee introduced the children to the world of bees. The puppet play was designed to make complex concepts about pollination and environmental balance accessible to young children by engaging their imaginations and senses.

As part of the storytelling, all children were encouraged to take on the roles of bees. They participated in a sensory-driven game where they acted out the process of collecting pollen and nectar and transporting it from one place to another. This physical involvement deepened their understanding of the bee's role in nature by providing a hands-on experience.

At the end of the session, children created their own "seed bombs" – small balls made from soil, seeds, and clay – which they could plant at home with their parents. This not only reinforced the environmental theme but also fostered a direct connection between the children's learning experience and real-world actions.

Outcomes: The initiative successfully met several educational goals:

- **Engagement through Sensory Play:** The active participation in storytelling and role-playing allowed the children to fully immerse themselves in the subject matter. By

physically acting out the work of bees, the children gained a deeper, embodied understanding of the importance of pollination.

- **Creativity and Story Retelling:** In the following days, the children were eager to share their own experiences and ideas about bees, demonstrating how storytelling had sparked their curiosity and creative thinking.
- **Family and Community Involvement:** The take-home seed bomb activity created an opportunity for family engagement, allowing parents to reinforce environmental learning through shared gardening activities.

Lessons Learned:

- **Active, hands-on methods** are highly effective in early childhood education. Children are more likely to retain and internalize lessons when they are physically engaged in the learning process.
- **Storytelling combined with play** is an excellent tool for introducing complex environmental concepts in an age-appropriate manner. The use of puppets and role-playing can make abstract ideas like pollination accessible and enjoyable for young learners.
- **Home-based follow-up activities**, such as the seed bomb, extend learning beyond the classroom and foster family involvement, reinforcing sustainability practices in everyday life.

This case study highlights how multimodal storytelling, combined with experiential activities, can successfully introduce young children to sustainability themes in a playful and impactful way.

2.3.2 Environmental Theme – Water

Description of the Initiative: Water is a fundamental element that captivates children's imaginations. In this project, conducted at Deutsche Schule Athen, water was used as a thematic focus to teach children about its importance for life and the environment. Drawing inspiration from both cultural myths and everyday experiences, this initiative aimed to foster a deep connection between children and the natural world, encouraging them to develop an appreciation for water conservation and the environment.

Methods: The project was built around the mythical stories of Poseidon, the Greek god of the sea, and the legend of Perseus and Andromeda. These stories, familiar to many Greek children, were used to spark interest and connect the theme of water to their cultural heritage.

Other well-known water-related stories, such as "The Little Mermaid," were also introduced to reinforce children's engagement with the topic.

To bring the learning into the present, the project focused on modern-day concerns like water consumption, waste, and pollution. Although these concepts are complex, the children were introduced to them through play and exploration.

Children became "water detectives," tasked with discovering where water can be found and learning about the creatures that live in water. The exploration was hands-on, with children observing water in various forms—rivers, lakes, ponds, and even within the classroom environment. As part of the learning process, children were encouraged to present what they had learned creatively.

Creative Expression: After their water discovery mission, the children were supported in finding their own ways to express their understanding of water's importance. Whether through painting, creating crafts, or composing songs, the project emphasized individual expression and the importance of sharing knowledge with others. Teachers helped the children organize a presentation for their parents and peers, enabling them to communicate what they had learned in a way that was personal and meaningful.

Outcomes:

- **Enhanced Understanding of Water:** Through direct interaction with water and playful exploration, children developed a better understanding of water as a vital natural resource. They learned about the various places where water exists and the creatures that depend on it.
- **Cultural Connection:** By integrating well-known myths and legends, the project linked water to the children's cultural knowledge, making the topic more relatable and engaging.
- **Creative Communication:** The initiative successfully encouraged children to explore and present their understanding of water through various forms of creative expression, from painting to song. This approach catered to different learning styles and allowed each child to engage with the theme in a way that suited them best.

Lessons Learned:

- **Cultural narratives can be a powerful tool** for engaging children in environmental education. By using familiar stories and legends, educators can make environmental topics more accessible and engaging.

- **Exploration-based learning** allows children to discover the world around them in a meaningful way. Becoming “water detectives” gave the children a sense of ownership over their learning, making it more impactful.
- **Creative expression is essential** for allowing children to internalize and share what they have learned. Supporting multiple forms of creative output ensured that each child could communicate their understanding of water in a way that felt natural to them.

This case study illustrates how integrating cultural stories with hands-on exploration and creative expression can effectively teach young children about water's importance. By connecting with both the past and present, this project helped foster a deep appreciation for water and its significance in everyday life.

2.4 Recommendations

Based on the analysis, several key recommendations could help shape future CST activities to enhance their impact and effectiveness.

Firstly, there is a need for enhanced integration of sustainability principles in the curricula. To cultivate an early understanding of sustainable development, it is crucial to embed Education for Sustainable Development (ESD) into the core curricula of Early Childhood Education and Care (ECEC) programs. **Developing comprehensive curricula that include thematic units on sustainability**, such as water conservation, biodiversity, and renewable energy, will be beneficial. These concepts should be made engaging for young children through interactive and experiential learning activities.

Professional development for educators is another critical area. Educators need to be well-equipped with the knowledge and skills to teach ESD effectively. Implementing regular training workshops and continuous professional development programs focused on sustainability education is essential. Collaboration with higher education institutions to include ESD in teacher training curricula and providing ongoing support through online resources and professional networks will further support educators.

Strengthening community and stakeholder partnerships is vital for the successful implementation of sustainability initiatives in ECEC settings. Establishing partnerships with local environmental organizations, businesses, and government bodies can support sustainability projects. Encouraging community participation in school-based sustainability

initiatives, such as gardening projects, recycling programs, and environmental clean-up events, will foster a sense of collective responsibility.

The **utilization of multimodal storytelling** is an effective method to convey complex sustainability concepts to and together with young children. Incorporating multimodal storytelling techniques that use digital tools, puppets, and role-playing can make stories about sustainability engaging. Developing a **library of storybooks and (digital) resources** that focus on themes like conservation, renewable energy, and social responsibility will enhance this approach.

For WP3, developing specialized training modules is crucial to support educators in integrating ESD effectively. Creating comprehensive training modules that cover key aspects of ESD, including **theoretical knowledge and practical teaching strategies**, will be beneficial. These modules should be accessible online to ensure wide reach and convenience.

Adequate resource allocation is also necessary for the successful implementation of ESD. Securing funding and allocating resources for the development of educational materials, training programs, and community projects is vital. Ensuring that ECEC centers have the **necessary tools and materials** to carry out sustainability initiatives will support this effort.

Encouraging **interdisciplinary learning** will enhance the educational approach to sustainability. Promoting interdisciplinary learning by integrating sustainability topics into various subjects such as science, art, and language will provide a broad-based educational experience. Developing cross-curricular projects that encourage children to explore sustainability from multiple perspectives will further enrich their learning.

Potential challenges in implementing these recommendations include resistance to curriculum changes, limited resources and funding, and variability in educator expertise. Engaging educators and parents in the curriculum development process can address resistance to changes. Providing clear evidence of the benefits of sustainability education for children's overall development will help gain their support. To overcome limited resources and funding, advocating for increased funding from governmental and non-governmental organizations and exploring grant opportunities and partnerships with businesses and community organizations will be necessary. Offering differentiated professional development programs that cater to varying levels of expertise among educators, and providing ongoing support through mentorship programs and peer networks, can address variability in educator expertise.



2.5 Conclusion

The comprehensive analysis of Early Childhood Education and Care (ECEC) in Germany highlights the critical role that sustainability education plays in shaping young minds. Integrating Education for Sustainable Development (ESD) into ECEC is not merely an addition to the curriculum but a fundamental shift towards fostering a generation that is aware, responsible, and proactive in addressing environmental and social challenges.

The findings underscore the importance of embedding sustainability principles into the core curricula of ECEC programs. This integration should be complemented by continuous professional development for educators, ensuring they are well-equipped to teach these concepts effectively. The recommendations provided emphasize the need for comprehensive training modules, resource allocation, and interdisciplinary learning to create a holistic educational experience.

Strengthening community and stakeholder partnerships is pivotal. Collaboration with local environmental organizations, businesses, and government bodies can significantly enhance the impact of sustainability initiatives. Community involvement not only supports practical projects but also fosters a culture of collective responsibility and active participation in sustainability efforts.

Multimodal storytelling emerges as a powerful tool to convey complex sustainability concepts to young children. By incorporating various storytelling techniques and digital tools, educators can make learning about sustainability engaging and impactful. This approach helps in developing a deeper emotional connection and understanding of sustainability among young learners.

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3. Finland

3.1 Early Childhood Education and Care (ECEC) System in Finland

3.1.1 Structure and Overview

Finnish early childhood education comprises various forms, including daycare, family daycare, and open early childhood education activities. These forms aim to provide comprehensive care and education for children from infancy to school age. Early childhood education in Finland emphasizes play-based learning, social interaction, and holistic development. Preschool education, typically for 6-year-olds, is part of the comprehensive early childhood education system and serves as a transition from daycare to formal schooling. It focuses on preparing children for primary education by fostering their social, emotional, cognitive, and physical skills in a supportive and stimulating environment (Onnismaa & Kalliala, 2010).

In 2014, Finland enacted a law amending the Basic Education Act regarding preschool education (1040/2014). With this new law, preschool education was made compulsory, and it was stipulated that a child must participate in a one-year preschool education or equivalent activity before the commencement of compulsory education. The goal of the law was to improve children's learning opportunities and enhance educational equality by ensuring that all children are included in preschool education. In Finland, municipalities have the option to organize preschool education to be implemented in daycare centers, schools, or other suitable locations.

Early childhood education and preschool education are a significant stage in a child's life in Finland. During ECEC, the aim is to broaden children's skills in various knowledge and skill areas and strengthen their social and interactive abilities. Finnish ECEC seeks to teach children to appreciate human equality and their own uniqueness. Early childhood education, preschool education, and basic education form a coherent continuum for a child's growth and learning in Finland. In this learning path, the primary task of preschool education is to promote a child's growth, development, and learning by emphasizing child-centered activities and aiming to strengthen positive self-image and identity (OPH, 2014).

3.1.2 Education for Sustainability (EfS) in Finish Pre-Schools

Finnish early childhood education and preschool education are guided by several key documents and laws. In addition to these laws and documents, municipal decisions and plans also steer early childhood education and preschool education at the local level. Collectively, these diverse documents form a strong Finnish foundation for the high-quality implementation of early childhood education and preschool education. The Early Childhood Education Act (540/2018) and the Pre-primary Education Act (540/2018) regulate the organization and content of education and define the objectives, scope, and structure of education. The laws guide the implementation of education and the provision of services in municipalities. The updated National Curriculum Guidelines for Early Childhood Education (OPH, 2022) examine the content of the Early Childhood Education Act more closely and define the objectives, content, and methods of early childhood education, providing guidelines for planning, implementation, and evaluation. The National Curriculum Guidelines for Preschool Education (OPH, 2014) define the key objectives, content, and methods of preschool education. Although the Basic Education Act (628/1998) and the National Core Curriculum for Basic Education (OPH, 2014) do not directly concern early childhood education or preschool education, they provide general frameworks for the organization of education and the content of teaching, which, especially through cooperation at transitional stages, also influence early childhood education and preschool education.

The National Curriculum Guidelines for Early Childhood Education (OPH, 2022) and the National Curriculum Guidelines for Preschool Education (OPH, 2014) emphasize an eco-social perspective, which entails understanding the connections between human well-being and the well-being of nature. The guidelines direct children to develop sustainable relationships with the surrounding nature and to understand the impact of their actions on the environment. Responsibility and participation are key goals in promoting sustainable development.

The goals for a sustainable future play an important role in Finnish early childhood education, preschool education, and education at various school levels. The objectives and content of the curricula are designed so that children gain a comprehensive understanding of sustainable development and its significance for individuals, society, and the environment. Unified guidelines aim to ensure that the goals of sustainable development are part of every child's learning and upbringing in Finland. Preschool education is mandatory for all children in Finland. Preschool education aims to support the coherent development of early childhood education, preschool education, and basic education, as well as the child's seamless learning path (OPH, 2014).

Children are taught to respect nature, plants and animals. Environmental education encourages children to adopt a sustainable lifestyle and develop the skills necessary for it. These practical skills include not littering during outings, learning moderation and frugality, being responsible with food, conserving energy, and reducing waste through practices like

recycling, repairing, and reusing items. Additionally, children are encouraged to be mindful of the effects of their actions. It is important that children feel empowered to contribute to sustainable living, while not being overwhelmed by the responsibility of maintaining it at such a young age. (Parikka-Nihti & Hilander, 2021).

3.1.3 Storytelling in ECEC

Rich and diverse texts are used in ECEC. Children are familiarised with versatile children's literature. Stories are told to them, and they are also encouraged to make up their own stories. Children's stories are documented. Telling stories in an unhurried atmosphere provide opportunities for considering the meanings of words and texts and learning new concepts in their contexts. Reading to a child daily promotes the child's language awareness. The child learns to listen and tell, they get ingredients for their own thinking. The child's vocabulary increases and linguistic memory develops. Reading confirms concentration, directing and maintaining attention. For children and reading with children, interaction, intimacy and good feeling. In fairytales and stories you can find identification targets, the child feels empathy and is able to share their own emotions and experiences. (OPH, 2014; 2022).

Several Finnish early childhood education programs incorporate storytelling as a method to teach children about sustainability and the environment. These programs often use stories to illustrate the impact of human activities on nature and to promote environmental stewardship:

Vihreä lippu "Green flag" program

This international program, known as "Eco-Schools" in other countries, is implemented in many Finnish early childhood education settings. It integrates environmental education through storytelling, games, and practical activities. Children participate in storytelling sessions that highlight themes of recycling, energy conservation, and sustainable living. The stories serve as a foundation for discussions and projects that promote environmental awareness.

"The Tales of the Forest" Program

This initiative uses storytelling to connect children with nature and teach them about the importance of forests. Stories are used to introduce concepts such as biodiversity, conservation, and the life cycles of plants and animals. Children engage in activities like forest walks, listening to stories about forest creatures, and creating their own nature-based stories.

"Luonto-Liitto" (Nature League)

Luonto-Liitto is an organization that provides environmental education resources and activities for children. They offer storytelling sessions focused on nature and sustainability, where stories about animals, plants, and ecosystems are used to teach children about the natural world and their role in protecting it. (Luontoliitto, 2023).

Finnish universities offer courses and workshops for early childhood educators that include modules on storytelling techniques and their application in teaching sustainability. They provide continuing education programs focusing on narrative pedagogy and the use of stories in environmental education. Finnish National Agency for Education (EDUFI) organizes professional development workshops that cover various aspects of storytelling, including how to create engaging stories, integrate them into the curriculum, and use them to teach complex concepts like sustainability. Luonto-Liitto offers training sessions for educators on using storytelling in environmental education. These workshops often include practical activities and strategies for incorporating storytelling into daily teaching. There are also books, online platforms, toolkits, workshops and collaborations and cultural institutions as a resource for educators.

3.2 Curricula Analysis

The Finnish national core curriculum was revised already in 2018 but no significant changes were introduced in this update. The core curriculum was updated again in 2022 to reflect the changes in the ECEC Act. These were primarily related to the child's right to receive support in ECEC (European Commission, 2023).

3.2.1 National Curriculum Framework

The key components of the national curriculum for preschool education (OPH, 2014) in Finland include:

1. Learning objectives: Clearly defined goals for children's learning and development across various domains, including cognitive, socio-emotional, physical, and linguistic areas.
2. Pedagogical approach: Emphasis on play-based learning, child-centered activities, and fostering children's curiosity, creativity, and independence.
3. Inclusion and diversity: Recognition of the importance of inclusion, diversity, and equity in preschool education, ensuring that every child has equal opportunities to learn and develop.

4. Partnership with families: Collaboration with families and guardians to support children's learning and well-being, acknowledging the crucial role of parents in their child's education.
5. Environmental education: Integration of environmental education into daily activities, promoting children's understanding of sustainability, nature, and their role in protecting the environment.
6. Multidisciplinary approach: Incorporation of various subjects and themes into preschool activities, such as mathematics, science, language, arts, and culture, to provide a holistic learning experience.
7. Assessment and evaluation: Use of continuous observation, documentation, and assessment methods to monitor children's progress and plan individualized support when needed.
8. Professional development: Support for preschool educators' professional growth through training, collaboration, and reflection to enhance their pedagogical practices and effectiveness.

Sustainability is incorporated into the learning objectives of the curriculum, emphasizing the importance of children developing an understanding of environmental responsibility, respect for nature, and awareness of sustainable practices. Storytelling is recognized as a powerful tool for conveying these concepts to children in a meaningful and engaging way. Thematic units and topics within the curriculum often include themes related to sustainability, such as nature, animals, seasons, and environmental conservation. Storytelling is utilized to explore these themes through narratives, folk tales, and stories that highlight ecological concepts and environmental stewardship. ECEC encourages children to actively engage with sustainability concepts through hands-on activities, projects, and experiences that promote exploration, experimentation, and problem-solving. Storytelling is used to inspire children's imagination and creativity, encouraging them to envision a sustainable future and their role in contributing to it. Sustainability is addressed through an interdisciplinary lens, integrating concepts from various subject areas such as science, social studies, art, and language. Storytelling provides a cross-cutting tool that can be woven into different areas of learning, enhancing children's understanding of sustainability from multiple perspectives. The curriculum emphasizes connecting children's learning experiences to real-world contexts and issues, including local and global sustainability challenges. Storytelling can help contextualize these issues by presenting narratives that resonate with children's lived experiences and encourage empathy, critical thinking, and action. (OPH, 2014; 2022)

ECEC is part of a culturally diverse society, where cultural diversity is seen as a richness. Everyone's right to their own language, culture, religion, and beliefs is recognized within the community. In early childhood education, diverse cultural heritage and national languages, as well as the cultural, linguistic, and belief diversity of the community and the environment, are respected and utilized. Different ways of thinking and acting are discussed constructively,

and efforts are made to create new ways of working together while promoting culturally sustainable development. In ECEC, the physical, psychological, and social safety of the entire community is ensured. Children's safety is protected from violence, bullying, and other harassment. Promoting safety also includes preventing and monitoring accidents, safety education, and proper maintenance of facilities and equipment. Effective and committed safety management and staff knowledgeable about safety issues are essential prerequisites for early childhood education (OPH, 2014; 2022).

With children, the significance of responsible behavior is discussed both as individuals and as members of a community. This may involve activities such as conserving resources, sorting waste, and embracing principles of sustainable development. Children systematically participate in communal activities and decision-making. Their opinions and perspectives are listened to and valued, reinforcing their sense of participation and influence (OPH, 2014; 2022).

Through environmental education, the aim is to promote sustainable lifestyles and practice the skills necessary for them, such as appreciating nature and its biodiversity. These practical skills include, among others, keeping nature clean during hikes, practicing moderation and frugality, responsible eating, energy conservation, and waste reduction through practices like recycling, repairing, and reusing. At the same time, children are guided to consider the consequences of their actions. It is essential to ensure that children feel they can contribute to sustainable lifestyles through their own actions while also protecting them from excessive responsibility in this regard as children. The goal of environmental education is to strengthen children's relationship with nature and encourage them to engage in responsible actions in the environment, guiding them towards a more sustainable lifestyle. Environmental education comprises three key areas: learning in the environment, learning about the environment, and active action for the environment (OPH, 2014; 2022).

Children are encouraged to observe the technology in their environment and find their own creative solutions. They explore everyday technical solutions and familiarize themselves with digital devices and applications in their operation, with particular emphasis on safe use. Children are given the opportunity to realize their own ideas by building using various materials and experimenting with the operation of different devices. They are also encouraged to describe the solutions they create (OPH, 2014; 2022).

The staff's task is to encourage children to make choices without committing to stereotypical gender roles or other personal expectations. At the same time, the staff should recognize potential signs of inequality in children's interactions and address them discreetly and consistently. Positive and encouraging interaction is key to supporting the development of a child's own identity and self-esteem (OPH, 2014; 2022).



3.2.2 Entry Points for Storytelling

In Finnish ECEC curriculum (OPH, 2022) and preschool education curriculum (OPH, 2014) storytelling is mentioned in these topic areas:

Language and literacy development

Storytelling is used to promote language acquisition, vocabulary development, and literacy skills. Educators read aloud stories to children, engage them in storytelling sessions, and encourage them to create and tell their own stories. This fosters children's listening comprehension, oral communication, and narrative skills.

Cultural appreciation and identity

Storytelling exposes children to diverse cultures, traditions, and perspectives, helping them develop an appreciation for cultural diversity and a sense of identity. Educators share folk tales, myths, legends, and traditional stories from different cultures, sparking children's curiosity and understanding of the world around them.

Imagination and creativity

Storytelling stimulates children's imagination and creativity by transporting them to imaginary worlds, characters, and scenarios. Educators use storytelling to inspire children to explore their imagination, invent stories, and express themselves creatively through imaginative play, art, and storytelling activities.

Social and emotional development

Storytelling provides opportunities for children to explore and understand emotions, relationships, and social situations. Educators select stories that address themes such as empathy, kindness, friendship, and conflict resolution, fostering children's social and emotional skills and helping them navigate their emotions and interactions with others.

Cognitive development

Storytelling supports children's cognitive development by engaging their attention, memory, and critical thinking skills. Educators pose questions, encourage discussions, and prompt children to reflect on the story's plot, characters, and themes, promoting their comprehension, analytical thinking, and problem-solving abilities.



Integration across curriculum areas

Storytelling is integrated into various curriculum areas, including language arts, social studies, science, and the arts. Educators use stories to explore topics and concepts across different subject areas, making learning more interdisciplinary and meaningful for children.

3.2.2 Storytelling as an opportunity to teach sustainability

Storytelling taps into children's natural love for stories, making complex sustainability concepts more accessible and relatable. Through imaginative tales, children can explore ideas like conservation, recycling, and the interconnectedness of ecosystems, which might be challenging to grasp through direct instruction alone. Stories often evoke emotions, which can help children develop empathy for nature and a sense of responsibility towards the environment. When children emotionally connect with characters and scenarios in stories, they are more likely to internalize the values of sustainability and apply them in their own lives (Pursi, 2017). Many traditional Finnish stories and folktales include themes of respect for nature and sustainable living. Integrating these stories into the curriculum reinforce cultural values and teach children the importance of living in harmony with the environment.

Through storytelling, children use their problem-solving skills to learn. Contributing their own ideas, outcomes, or solutions to the problems presented in the story children will learn effectively (Kesler, 2022). Focusing on collective actions for sustainability help children understand the importance of working together to protect the environment (Parikka-Nihti & Hilander, 2021). For example, hearing stories about communities coming together to solve environmental problems, children learn that sustainability is a shared responsibility. After hearing a story, children are encouraged to reflect on the themes and discuss how they relate to their own lives.

For children stories are powerful motivators for real-world action and they play an important role in communication between children (Phil, 2022). After engaging with a story about sustainability, children become inspired to participate in related activities, such as planting a garden, recycling, or conserving water, thereby reinforcing the sustainability concepts they've learned.

3.3 Examples of Good Practices

One of the focus areas of the City of Oulu's early childhood education plan is education for a sustainable future. Oulu has both a development unit for sustainable development and cultural education in early childhood education, as well as a development unit for STEAM pedagogy. In these development units, developer teachers for sustainable future and STEAM pedagogy work to support early childhood education units (Oulun kaupungin varhaiskasvatussuunnitelma, 2022). Sustainability and responsibility are important elements on the path of lifelong learning and become visible through everyday actions. The Sustainable Future Learning Stream (2023) from Oulu integrates themes of a sustainable future into a cohesive whole and guides teachers in Oulu to build education according to future goals.

In Oulu's educational institutions, STEAM education is deeply ingrained and well-established. STEAM stands for Science, Technology, Engineering, Arts, and Mathematics. STEAM pedagogy utilizes technology, natural sciences, and arts as approaches to teaching. In education, STEAM involves integrating learning areas through technology and art into comprehensive learning experiences. In STEAM activities, participation is crucial, which is why learners and teachers work closely together. STEAM pedagogy emphasizes creativity and learning from each other. It is learner-centered and inquiry-based, with collaborative activities and learning at the core of all activities (Käsikirja STEAMin maailmaan, 2022).

The city boasts an active STEAM community (steaminoulu.fi) dedicated to enhancing the quality of STEAM education, particularly through STEM approaches, across early childhood, primary, and secondary education levels. In Oulu over 40 schools and ECEC centers in the region are currently part of this community, with some having a long history of STEAM integration and others just beginning their journey. In Oulu the aim of STEAM activities is to cultivate resilient, collaborative, responsible, and courageous problem-solvers among their students. From an educational perspective, this entails integrating subjects and utilizing technology extensively, diversely, and flexibly. In Oulu schools, STEAM signifies learner-centered, creative, experimental, and community-oriented learning (Harmoinen, Näykki & Vuopala, 2022).

The Finnish National Agency for Educations ECEC curriculum guidelines support the goals of UNESCO's Global Citizenship Education and Education for Sustainable Development, Agenda 2030. Education for a sustainable future is seen as part of lifelong learning and a prerequisite for high-quality education. The goals of education for a sustainable future and STEAM education are to encourage children to grow into active global citizens. In sustainable education practices for early childhood and pre-primary education, it is important that children learn to understand the challenges of sustainability, explore various options for action, nurture core values and empathy towards other living beings and the planet, and internalize practical actions to bring about sustainable change on a personal level (Unesco, 2020).



3.3.1 Example of a good practice for 3-5 years-olds



Figure 2 [Beebot City](#)

SDG: Sustainable cities and communities

Project content: The goal of the learning project was to design a Beebot city. The children brainstorm, design, and build the Beebot city. They consider the elements that belong in both built and unbuilt urban environments (e.g., buildings, vehicles, signs, trees, and bushes). The city design focuses on using recycled materials. During the project, the children explore the vicinity of their early childhood education unit, their residential area, and their hometown. The city is built while practicing collaboration skills and consideration for others.

Learning objectives: The goal of the Beebot City project is to teach children the importance of sustainable cities and communities and their role as builders of a sustainable future. During the project, children will learn to recognize and appreciate both built and natural elements in the urban environment. They will practice collaboration skills and learn to use recycled materials as part of the learning project. In the completed Beebot City environment, children can practice coding skills in accordance with STEAM pedagogy.

3.3.2 Example of a good practice for 6-8 years-olds



Figure 3 Sustainable development: [Food's journey to the plate](#)

SDG: No hunger

Project content: Where does food come from? Examine where food comes from, such as porridge, milk, sausage, and spinach pancake. Investigate the food production chain in small groups. Explore and construct the basics of food production. Build a common farm with the children to concretely visualize the growth of the food items chosen by the children.

Learning objectives: The goal of the "Food's Journey to the Plate" project is to teach children how and where food is grown and why local farming is important. During the project, children will explore the journey food takes before it reaches the plate and consider the benefits of local food. During the project children will also practice collaboration skills and learn to use recycled materials as part of the learning project

3.4 Recommendations

Finnish preschools have the potential to effectively integrate ESD principles and storytelling into their educational programs, fostering a culture of sustainability and environmental stewardship among young children. To achieve this, several key recommendations can be implemented. It is essential to embed ESD principles into the curriculum and pedagogical practices of preschool education. This involves promoting environmental awareness, sustainable living practices and social responsibility from an early age. By integrating these principles into everyday learning, children can develop a strong foundation in sustainability that will guide their actions and decisions throughout their lives. (OPH, 2014; OPH, 2022)

The use of storytelling as a pedagogical tool should be encouraged to explore sustainability themes and promote environmental consciousness among children. Storytelling can engage children in discussions about nature, conservation, and community involvement in an accessible and relatable way (Parikka-Nihti & Hilander, 2021). Through stories, children can connect with sustainability concepts on a deeper level, making these ideas more meaningful and memorable (Phil, 2022).

To support these efforts, it is crucial to provide training and professional development opportunities for preschool educators on ESD concepts and storytelling techniques. Educators must be equipped with the skills and knowledge necessary to incorporate sustainability themes into their teaching practices effectively. Continuous learning and development will ensure that educators are well-prepared to inspire and guide their students in the realm of sustainability (Furu etc. 2022).

Fostering collaboration between preschools, environmental organizations, and local communities can significantly strengthen education for sustainable development (ESD). Collaboration in early childhood education with various stakeholders brings valuable resources and expertise. (Fors-Pennanen, 2006) Children should also be actively involved in the learning and decision-making processes, helping them feel a sense of ownership and empowerment. Creating supportive learning environments where children can explore nature and engage in hands-on activities is essential. Additionally, evaluating the effectiveness of ESD and storytelling initiatives regularly ensures continuous improvement and keeps the programs relevant and impactful. (OPH, 2022).

3.5 Conclusion

The Finnish education system is built to value nature as a learning environment and to support children's connection with nature. By discussing the past, the present and the future of the local community, children's interest is geared towards historical matters and building a good future. Diversity in the local community is also respectfully observed with the children. Among others, the diversity of people, genders and families is explored. The goal is to educate children to understand that people are different but equal. In Finnish ECEC the development of ethical thinking skills is nurtured by jointly reflecting on ethical questions that arise in various situations or concern the children. For example, themes might involve friendship, distinguishing right from wrong, justice, or the causes of fear, sadness, and joy. Ethical questions are discussed in a way that makes children feel safe and accepted. The group's rules and the reasons behind them are also reflected together with the children. (OPH, 2014; 2022)



Sustainable development and a sustainable future is a very important part of Finnish early childhood education. Sustainable future is included in our national curriculum and we are obligated to include it in teaching from early childhood education to upper secondary school and university studies. The planning of the activities begins with the children's interests and needs as well as meaningful aspects in the environment where children grow up. (OPH, 2022)

Storytelling is a prevalent cultural practice for sense-making. Through stories, people get to know themselves, others, and the world around them (Phil, 2022). From that point of view using storytelling as an approach, teachers engage children in discussions about nature, conservation, and community involvement in an accessible and relatable way. Through stories, children can connect with sustainability concepts on a deeper level, making these ideas more meaningful and memorable (OPH, 2022).

Finnish ECEC also incorporates environmental education and technology education. Through personal observations and experiences within their learning environments, children gain an understanding of cause-and-effect relationships and grow as thinkers and learners. As children learn to identify phenomena and use various concepts, their multiliteracy skills are enhanced (OPH, 2022). In education, STEAM involves integrating learning areas through technology and art into comprehensive learning experiences (Harmoinen etc. 2022). In STEAM activities, participation is crucial, which is why learners and teachers work closely together. STEAM pedagogy emphasizes creativity and learning from each other. The aim of STEAM activities is to cultivate resilient, collaborative, responsible, and courageous problem-solvers among their students. From an educational perspective, this entails integrating subjects and utilizing technology extensively, diversely, and flexibly (Käsikirja STEAMin maailmaan, 2022).

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4. Greece

4.1 Early Childhood Education and Care (ECEC) System in Greece

4.1.1 Structure and Overview

This section explores the different types of ECEC structures available in Greece, their regulatory frameworks, and the core objectives guiding preschool education, highlighting the country's efforts to foster the holistic development of its youngest citizens.

In Greece there are two types of structures that provide Early Childhood Education and Care (ECEC), defined by the child's age and legal entitlements. For children younger than 4 years old, ECEC includes municipal infant care centres («vrefikoi stathmoi»), infant/child care centres («vrefonipiakoi stathmoi»), and child care centres («paidikoi stathmoi»), which fall under the jurisdiction of the Ministry of Interior. Additionally, ECEC includes private pre-school education and care settings, profit or non-profit, accompanied with part-time childcare settings for infants and/or children, as well as integrated care infant/child care centres, all of which are overseen by the Ministry of Labour and Social Affairs. For children between 4-5 years old, ECEC includes Pre-schools («nipiagogeia»), public and private, which fall under the competence of the Ministry of Education and Religious Affairs (European Commission, 2024).

The municipal ECEC settings follow the "Standard Regulation of Operation for Municipal Infant/Child Care and Child Care Centres" (Joint Ministerial Decision 41087/29-11-2017, as revised by Ministerial Decision Δ11/οικ.26396/920/2020). According to this Regulation, these centres (ISCED 010¹) offer care and secure housing for preschool-aged children. Specifically, infant care and infant/child care centres accommodate infants from 2 months old, under certain conditions, up to 4 years of age. Child care centres look after children from 2.5 years old to 4 years old. The local government is responsible for setting up and running public and private childcare facilities and infant and child care centres (Law 3463/2006). Private facilities are mainly overseen by the Ministry of Labor and Social Affairs, as outlined in Joint Ministerial Decision 41087/29-11-2017 Ministerial Decision No. D11/oik.26396/920/2020. Pre-school education in kindergarten (ISCED 020²) is considered a part of primary education and is regulated by the same laws (Law 1566/1985). Children are required to attend kindergarten starting at the age of 4. It should be highlighted that compulsory preschool education in Greece has recently been extended to two years,

¹ According to the International Standard Classification of Education, ISCED010 stands for Early childhood educational development.

² According to International Standard Classification of Education, ISCED020 stands for Pre-primary education
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beginning at the age of 4 in pre-school facilities (Law 4521/2018) and in addition, pre-school education in public kindergartens is free of charge.

According to the revised version of the Curriculum for Preschool Education (2022), the main goal of preschool units in Greece is to *“support the all-round development of children - physically, socially, emotionally and cognitively - promoting their well-being and shaping their identity as democratic citizens”*. The main objectives include:

- The smooth transition of children from home or daycare to kindergarten and then from kindergarten to elementary school, helping their adaptation and future learning development.
- Creating conditions for the success of each child, recognizing their unique characteristics, learning rates and needs, allowing them to fully utilise their potential
- Supporting the teachers and adults involved in the kindergarten, strengthening their abilities to collaborate and feeling effective and satisfied with their role.
- To function as a learning community, where learning practices are adapted to the special characteristics and needs of children and families, with a shared vision and commitment to improvement and respect for all participants.
- Promoting strong, democratic leadership that sets goals, encourages collaboration, and ensures the well-being of the school community by setting high but realistic expectations for learning and motivating all involved to achieve program goals.

Overall, Greece's ECEC system provides different types of facilities and regulations designed to support the well-rounded development of young children to democratic citizens. The curriculum focuses on creating inclusive learning environments, smooth transitions, and fostering children's overall growth.

4.1.2 Education for Sustainability (EfS) in Greek Pre-Schools

In Greece, there are many efforts to support sustainability, including in early childhood education. While there are not many specific policies focused just on young children's education on SDGs, broader national and regional commitments do influence educational practices. Furthermore, various organizations and programs focus on teaching young children about sustainability.

Greece has national and regional policies supporting sustainability, though specific ECEC-focused policies are not prominently mentioned in the provided source. The National Observatory of Athens (NOA) contributes to environmental sustainability through training on climate models and adaptation strategies as well as through educational programs, demonstrating a wider dedication to sustainability education across various sectors (NOA, 2019). In addition, through its chairmanship of the South East European Co-operation Process (SEEC) during 2021-2022, Greece actively discussed and developed regional policies to support sustainability. Particularly, under the theme "Strengthening SEE Synergies," it emphasised connectivity and sustainable development as key priorities. While these initiatives mainly target broader sustainability policies, they showcase a national and regional commitment to sustainability that could potentially influence educational policies and practices, including those related to ECEC.

Nevertheless, there have also been various educational policies and proposed guidelines to support sustainability education in ECEC. Several organisations and programs actively promote sustainability education in Greece. The QualityNet Foundation (n.d.), for example, plays a pivotal role through initiatives like the Bravo Schools competition, which encourages schools to develop innovative teaching approaches for the United Nations' Sustainable Development Goals (SDGs). This competition highlights the integration of sustainability into the curriculum and rewards schools for their efforts. The "in action for a better world" initiative, designed by the QualityNet Foundation further showcases educational projects and lesson plans that cover a wide range of SDGs, promoting sustainable living and environmental consciousness among young learners. This initiative supports the development of lesson plans, classroom activities, and extracurricular programs, demonstrating the dedication of educators to embedding sustainability into everyday learning.

A notable initiative is the ΔΙΑΝΕΟΣΙΣ New Framework for Pre-School Education 0-4 (2021), which, although not explicitly detailing sustainability education, opens avenues for integrating sustainability themes into the curriculum.

Additionally, the Environmental Education Centres (ECE), (n.d.) under the Ministry of Education and Religious Affairs form a significant network dedicated to environmental education. Covering topics such as ecology, natural resources, biodiversity, and climate change, these centres aim to enhance environmental awareness, improve quality of life, and train educators in environmental matters. Supervised by the Foundation for Youth and Lifelong Learning, the ECE network underscores Greece's commitment to integrating sustainability into its educational system, preparing students to address global challenges and contribute to a sustainable future.

Sustainability is indeed integrated into the everyday practices of pre-schools. The Skills Labs (SL) program is an addition to the mandatory curriculum in kindergarten, primary, and

secondary schools. It focuses on developing students' skills rather than solely imparting knowledge, encouraging them to actively utilise their understanding, explore new concepts, set goals, collaborate, and take initiative. The program is organised around four axes: "Living Better - Well-being", "Caring and Acting - Social Sense and Responsibility", "Creating and Innovating - Creative Thinking and Initiative" and "Caring for the Environment". All the themes approach the objectives of sustainable development thematically, with the latter including educational programmes specifically on ecology, global and local natural heritage, climate change and natural Disasters. The Institute of Educational Policy (IEP) has created a digital repository where there is free access for training for teachers as well as programmes developed by schools and institutions. In general, the SL program emphasises experiential and collaborative learning methods, such as hands-on projects, role-playing, research, and participation in educational media. It has been evaluated and endorsed by the IEP and received recognition from the European Network for Education for Global Citizenship (GENE) for its innovative approach and adherence to global education principles outlined in the Maastricht Declaration (Skills Lab 21+, n.d.).

Educators and stakeholders have essential roles in promoting Education for Sustainability (EfS), even though the kindergarten teacher's guide does not explicitly mention EfS. In this context, educators are instrumental in incorporating sustainability themes into their teaching, fostering environmental awareness and responsibility among young learners. According to the guide, environmental studies and sustainability are integrated into the curriculum, emphasising on understanding the environment and learning about the world. The new curriculum, set to be implemented in 2024-2025, covers topics such as: human beings, social structures, animals, plants, places, natural phenomena, and their interrelationships. Kindergarten teachers select topics and activities aligned with learning objectives through thematic approaches and work plans, encouraging students to observe, ask questions, make predictions, and draw conclusions. Suggested learning modules include "Water" and "Neighbourhood".

In conclusion, there are efforts to integrate sustainability and sustainable development goals into preschool education, even if these are not the primary focus of current policies. While there are some proposed guidelines and individual initiatives towards this goal, a more concrete policy framework with specific and binding directives is needed.

4.1.3 Storytelling in ECEC

Storytelling as a method/tool to engage children and enhance their learning experience is commonly used in Greek preschools. From simple and traditional fairy tales to digital

storytelling, teachers and preschool educators try to integrate this practice in order to teach important concepts in a more simple and attractive way.

A study conducted with 213 educators in Attica found that in Greek pre-schools, teachers utilise various tools and techniques for multimodal storytelling. They commonly begin with simple fairy tales and then move on to dramatisation, where children act out parts of the story. After the story, children engage in activities such as painting, construction, and language exercises to reinforce the story's themes and vocabulary. Furthermore, educators use digital storytelling tools to create short movie-like productions, aiming to actively involve children. These approaches help to expand vocabulary, improve storytelling skills, identify emotions, and nurture creativity and imagination in young children (Sotiropoulou, Kasapi, 2022).

In the context of proposed thematic learning and teaching approaches by Skills Labs, some Greek pre-school educators integrate sustainable development goals (SDGs) through storytelling and interactive games. For example, kindergarten teacher Tania Manesi utilises illustrated stories in video format to teach SDGs, translating English stories into Greek for her pupils. Notable stories include "I am ONE, a book of action" by Susan Verde, "What Does it Mean to be Green" by Rana DiOrio, and "Frieda and the Sustainable Development Goals" developed by the United Nations. Her blog also offers educational materials and a game based on "Frieda and the Sustainable Development Goals" in Greek, facilitating a comprehensive approach to learning about sustainability. (Kourou blogspot, 2021).

There is not a complete compilation of initiatives exclusively focused on storytelling for sustainability. While there are many separate sustainability programs and storytelling platforms, combining both into a defined category is not widely acknowledged or formalised. Nevertheless, there are indeed some individual initiatives and educational efforts that blend sustainability with storytelling techniques, mentioned below. Although, there are trainings and resources available for educators in Greece. For example, the training program, "From Words to Worlds: The Educator's Guide to Storytelling" course offered by Erasmus Greece. This course is designed to provide educators with the skills necessary to create captivating narratives that effectively engage students across various subjects, focusing on the emotional and psychological aspects of storytelling. It covers practical techniques such as digital storytelling, fostering empathy and critical thinking, and developing personalised storytelling resources. By emphasising the integration of storytelling into the curriculum, participants learn to adapt storytelling methods for diverse student populations while also reflecting on their personal development.

Although research on storytelling is still relatively sparse and in its early stages, there exists literature that educators may find valuable. For instance, the graduate-level textbook "Digital Storytelling and Education" delves into the correlation between digital media and the advancement of narrative skills among preschool-aged children (Bratisis & Kapaniaris, 2024).

To sum things up, while there is no comprehensive collection of initiatives and instructions on storytelling for sustainability, individual efforts and some training programs in Greece try to effectively implement these practices. Through different storytelling techniques, educators try to nurture creativity and critical thinking in young children, preparing them for a more sustainable future.

4.2 Curricula Analysis

This chapter focuses on the role of storytelling within the Greek national curriculum for pre-school education. It delves into the curriculum's emphasis on holistic development, inclusiveness, and the integration of cultural and environmental topics. The section highlights how storytelling is used to enhance learning experiences, foster social-emotional development, and promote critical thinking. Additionally, it explores the potential entry points for incorporating sustainability education through storytelling, despite the lack of direct links in current policies.

4.2.1 National Curriculum Framework

The national curriculum for pre-school education in Greece is meant to achieve a good balance between holistic development and preparing children to be active citizens in society. Kindergarten is regarded as the institution that cultivates to young children's basic skills that are important in modern life, focusing on the child's developmental maturity. These developmentally varied features of preschoolers must be understood and respected throughout developing rich learning environments that match each child's learning pace and style. This approach to curriculum ensures that every child has an equal chance to take charge of their own learning journey. Essential elements for learning and development include social interactions and relationships with the environment and significant others. Everyday life experiences integrate cultural aspects among children, parents, teachers by guiding the way they interact with one another. This involves a holistic process of learners' interaction with meaningful stimuli from day-to-day activities and community while capitalizing on innate curiosity of children through play in order to develop metacognitive abilities. In this approach, families play a crucial role by working with kindergarten teachers to ensure education quality through a shared vision and ongoing assessments and feedback (Curriculum for Pre-School Education, 2022).

The 2014 version of the kindergarten curriculum, which was used for the 2021-2022 academic year, emphasises the significance of storytelling in preschool and kindergarten education. It enhances the learning experience, promotes developmental skills, and engages children in an interactive and relatable manner. Reading stories out loud captivates students,

prompting discussions and fostering critical thinking. In addition, storytelling supports social-emotional development by helping children understand and relate to characters' emotions and situations, improving their problem-solving and verbal expression skills. It also enables teachers to assess children's comprehension and progress. The curriculum incorporates storytelling to explore various topics and suggests the use of digital tools to enhance engagement with multimedia elements.

However, there is no direct link between storytelling and Education for Sustainability. The closest association is the discussion of topics related to the environment and human relations. Though, with the addition of Skills Labs to the mandatory curriculum in kindergarten, primary, and secondary schools, education for sustainability may be addressed, but it is at the teacher's discretion to decide whether to address it or choose other thematic areas.

All in all, and as indicated by both the school curriculum and academic research (Daskolia & Koukouzeli, 2023), education for sustainable development in Greece has not received significant attention in national education policies and practices. Institutional progress has largely been reflected in changes to teaching and learning methods rather than comprehensive reforms or increased community involvement. Since 2010, the idea of sustainable schools has mainly been promoted by Greek NGOs, which have associated it with various school programs, initiatives, and accreditation awards.

4.2.2 Entry Points for Storytelling

As already elaborated above, storytelling is a key element of preschool and kindergarten education, enriching the learning experience and fostering developmental skills. According to the Kindergarten Curriculum & Teacher's Guide (2014 edition), teachers use socio-dramatic play and storytelling to engage children, making learning interactive and relatable. Reading stories aloud captivates students and serves as a basis for discussion and critical thinking. Storytelling aids social-emotional development by helping children relate to characters' emotions and situations, enhancing their problem-solving and verbal expression skills. It also allows teachers to assess children's understanding and progress.

In addition, it is mentioned that through storytelling, teachers can gauge children's ideas and understanding. Indeed, observing how children interpret and engage with stories provides valuable insights into their cognitive and emotional progress. This feedback helps teachers refine their teaching strategies to better meet the needs of the young students. The curriculum incorporates storytelling to explore themes related to the natural environment. Teachers use real stories and narratives to discuss the relationships between people, animals, and plants. They also narrate incidents involving natural phenomena, such as the behaviour of light and shadow, or the sounds heard underwater. These stories help children

connect with and understand their surroundings on a deeper level. Last but not least, the curriculum mentions that through the use of digital storytelling tools, children can become aware of the role of intonation and other paralinguistic elements.

In conclusion, storytelling plays a crucial role in preschool and kindergarten education by creating a rich learning environment that enhances children's cognitive and emotional growth. Educators use diverse storytelling methods such as socio-dramatic play, reading aloud, and digital tools to actively engage children in learning experiences.

4.3 Examples of Good Practices

4.3.1 Example 1

The initiative undertaken by the E. Mantoulidis Kindergarten to introduce financial literacy to its students serves as a worth mentioning example of successful educational endeavours in Greece aligning with certain sustainable development objectives. The methodology employed revolves around experiential learning and role-playing scenarios. During the storytelling session featuring "I Tsepoula kai o Koumparakos", [The pocket and the piggy bank] children actively engaged with concepts like managing a "piggy bank" and navigating a "shop," allowing them to practically apply their understanding of economic principles. Through role-playing activities, where they assumed roles like 'cashier' or 'customer,' children grasped the value of money and fundamental economic concepts.

This initiative offered young children three key benefits: firstly, children better understood economic concepts such as income, expenses, needs, and the basics of financial management, laying a foundation for their financial literacy. Secondly, they improved basic mathematical skills like understanding place value and arithmetic operations, seamlessly integrating maths into their playtime. Moreover, by crafting their own piggy banks and setting savings goals, children learned to distinguish between saving and greed.

The key takeaway from this initiative is the efficacy of experiential activities and games in simplifying complex concepts for young learners. This initiative is closely tied to SDGs, particularly Goal 4 (Quality Education), Goal 17 (Partnerships for the Goals), and Goal 8 (Decent Work and Economic Growth).

More information about the initiative you can find [here](#).

4.3.2 Example 2

Recruiting the 17 SDGs in kindergarten through educational videos and didactic storytelling is a broad and creative approach to introducing children to important issues that affect the world.

The blog by teacher Tania Manesi highlights a successful storytelling program at a Greek kindergarten, earning recognition as a Top Education Blog for 2021 by Twinkl. The blog focuses on fostering creativity, social skills, and sustainability through various activities. Although not directly centred on storytelling, the blog offers ideas that can be incorporated into a comprehensive storytelling approach, incorporating songs, poems, and other art forms. Additionally, the blog serves as a resource for books related to the Sustainable Development Goals (SDGs) suitable for preschool storytelling, as well as educational videos and a preschool-friendly game based on one of the featured books.

The storytelling methods followed by the teacher are: Firstly, digital storytelling, through videos and stories that refer to the 17 SDGs. Specifically, this method can be used as an educational tool to help toddlers understand the importance of the SDGs. The videos are in English, but can be narrated in Greek, a practice that the teacher is following, making the objectives comprehensible to preschool and primary school age. The use of videos and stories integrates learning in a more creative approach, helping children connect their theoretical knowledge with practical application. Another method that the teacher is implementing is community Engagement. Specifically, she manages a public Facebook group, which serves as a platform to share ideas, update on colleagues' activities, and promote collaboration among educators. This contributes to the development of a sense of community and collaboration, which are key to the success of storytelling and the overall educational approach. As the blog suggests, storytelling should not be limited to stories or fairy tales, but should be incorporated into various activities such as songs, poems and other art forms to make it accessible and enjoyable for toddlers.

The success of the storytelling initiative in this kindergarten is demonstrated by the children's active participation in the activities, the development of creativity and emotional expression, and the strengthening of the community between teachers and children.

You can find the Blogspot and the proposed books and videos [here](#).

4.4 Recommendations

In this section, we present key recommendations to help educators enhance their skills in teaching sustainability and the SDGs through engaging storytelling techniques. These suggestions aim to empower teachers by providing them with the tools and knowledge

needed to integrate digital storytelling workshops into their teaching. We also emphasize the importance of collaboration with SDG experts and the creation of an online repository containing valuable educational resources. Furthermore, adopting a holistic approach to education and offering personalized learning paths are proposed strategies to encourage interdisciplinary teaching on the SDGs, fostering critical thinking and problem-solving abilities among educators. Lastly, we address challenges such as varying resources and complexities in curriculum integration, ensuring these recommendations are adaptable and effective in diverse educational settings.

Based on the analysis, several key recommendations were brought to light, to enhance teachers' expertise in education for sustainability and the SDGs through storytelling techniques. First, emphasis should be placed on integrating digital storytelling workshops into the curriculum. The right context can be provided by Skills Labs, which can significantly enhance teacher motivation and personalise the learning experience, bringing it even closer to the student's needs. These labs/workshops should equip educators with the skills to create engaging digital stories that effectively convey content relevant to the SDGs, thus aligning with UNESCO's recognition of storytelling as a critical teaching strategy for a sustainable future. In addition, the collaboration with experts in SDGs and digital storytelling, such as the communication office of Greece for the UN and academic experts such is essential to ensure the relevance and effectiveness of the workshops. In addition, the creation of an integrated online repository of resources, and tools including lesson plans and case studies, specifically for the topic of interest will be able to support teachers in their teaching efforts. Finally, building a community of practice would encourage sharing and peer learning, promoting innovation in teaching practices.

The project partners in developing the educational material and the toolkit can support the integration of the above elements more effectively by setting a specific methodological framework with the integration of a holistic school approach and adapted learning pathways present valuable strategies for future CST activities. Specifically, a holistic school approach emphasises the interconnection of various subjects and life skills, aiming to prepare students for real-world challenges beyond traditional academic disciplines. This interdisciplinarity also approaches the sustainable development goals and reflects the world in which we live. Additionally, this approach can be adapted for educators by incorporating interdisciplinary lessons on the SDGs, where educators are encouraged to explore how different topics intersect with sustainability goals. For example, combining science, geography, and social studies to teach about climate change and its impacts on local communities can provide a comprehensive understanding. This method not only enhances the depth of knowledge but also promotes critical thinking and problem-solving skills among teachers.

Also, customised learning paths allow teachers to personalise their professional development journey by focusing on areas of interest or need. This approach recognises that

each teacher has unique strengths, interests, and areas of development. By creating personalised learning paths, educators can choose modules, workshops and resources that directly address their specific goals, whether deepening their understanding of a particular SDG, mastering a storytelling technique or becoming proficient in one digital tool. This adaptation ensures that the learning experience is relevant, engaging and effective, leading to better retention and application of acquired skills. Finally, fostering a culture of open communication and peer support within the educational community can further enhance the effectiveness of these approaches by facilitating collaborative learning and problem solving.

One significant hurdle is the non-horizontal application of these initiatives across all schools, stemming from variations in resources, administrative support, and teacher readiness. Overcoming this challenge necessitates the development of scalable models that can adapt to the unique contexts of different schools, coupled with comprehensive support systems, including training and mentorship, to ensure all educators have the necessary resources and guidance.

Additionally, the specialised nature of the subject matter and the constraints imposed by the academic calendar pose challenges, as many educators may feel overwhelmed by the complexity of the SDGs and the need to integrate them into their existing curriculum. Solutions to these challenges include designing workshops and learning materials in a modular fashion, allowing educators to select topics most relevant to their needs and interests, and offering flexible scheduling options to accommodate the academic calendar. Furthermore, fostering a culture of peer-to-peer learning and support can alleviate feelings of isolation and overwhelm, making the transition to teaching SDGs more feasible.

By strategically planning and innovatively solving these challenges, CST activities can effectively enhance educators' expertise and capacity to teach SDGs, storytelling techniques, and digital tools, despite the complexities and constraints inherent in the educational system.

4.5 Conclusion

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5. Portugal

5.1 Early Childhood Education and Care (ECEC) System in Portugal

5.1.1 Structure and Overview

Early Childhood Education and Care (ECEC) in Portugal is optional and structured into two distinct stages, which align with the categories of ISCED level 0 programmes, namely early childhood educational development and pre-primary education (UNESCO Institute for Statistics, 2012). In Portugal, the initial stage caters to younger children under the age of three years old. Its primary objective is to provide childcare, particularly in circumstances where parents or guardians are unable to look after their kids. The second stage includes older children aged three until the beginning of compulsory education, which they are legally obliged to attend. The aim is to offer fundamental educational support complementary to the educational role of families (European Commission, 2024).

The initial stage is the responsibility of the Ministry of Labour, Solidarity and Social Security (MTSSS) and the program meets the criteria and objectives outlined in the ISCED 010, emphasised in the ISCED 2011 classification. According to the OECD, approximately one-third of children enrolled in ECEC in OECD countries attend private institutions, whereas public institutions are more prevalent at other levels of education (OECD, 2021). In Portugal, childcare services are predominantly provided by private non-profit bodies, such as private social solidarity institutions or legally equivalent institutions, which maintain cooperation agreements with the MTSSS, and by private for-profit bodies with operating licenses. The subsequent stage is the responsibility of the Ministry of Education (ME), while the technical supervision is the joint responsibility of the Ministry of Education and the Ministry of Labour, Solidarity and Social Security. It is segmented into a national network comprising of both a public and private network. The public sector includes school clusters (organisational units of schools providing basic and upper secondary education) and the private sector consists of for-profit schools and not-for-profit establishments (European Commission, 2024).

The Pedagogical Guidelines for *Creches* is a guiding document for the development of pedagogical activity for children up to 3 years of age. It establishes three areas of learning: Well-being and Health; Personal, Social and Cultural Identity; Communication, Languages and Cultural Practices (Direção-Geral da Educação, 2024). The Curriculum

Guidelines for Pre-School Education serves as the legal document providing guidance regarding the design and management of pre-primary curriculum. This document outlines three domains: Personal and Social Development; Expression and Communication; Knowledge of the World (Direção-Geral da Educação, 2016).

5.1.2 Education for Sustainability (EfS) in Portuguese Pre-Schools

Education for Sustainability (EfS) in Portugal is present in the natural and physical sciences' domain (Folque & Oliveira, 2016). As previously stated, the Curriculum Guidelines for Pre-School Education comprises a section pertaining to Communication and Knowledge of the World, which fosters, among others, the creation of habits of respect for the environment, illustrating the interdependence between individuals and the natural world. Children come to comprehend their position and role, as well as how their actions can impact the earth. The aim is to facilitate the development of attitudes that promote responsibility and environmental awareness. The relevant learning objectives are as follows: seek explanations for phenomena and transformations observed in the physical and natural environment; exhibit behaviour that demonstrates concern for nature conservation and respect for the environment, for instance, by turning off taps or switching off lights (Direção-Geral da Educação, 2016). The guidelines for Sustainable Environmental Education emphasize the following topics in the context of early childhood education: Sustainability, Ethics and Citizenship; Sustainable Production and Consumption; Territory and Landscape; Climate Change; Biodiversity; Energy; Water; and Soil (Câmara et al., 2018).

Various projects tailored to pre-schools are actively promoting sustainability. The Cascais Environmental Education Guide is aimed at educators interested in implementing environmental education in pre-schools. Each thematic content is presented, along with proposals for theoretical and practical activities, designed to consolidate knowledge, and suggestions for additional information (Câmara Municipal de Cascais, 2020). The Portuguese city also developed an Environmental Education and Awareness Programme offering a multidisciplinary range of 80 activities, complementary to the curriculum, which can be conducted both in the classroom and outside of it (Câmara Municipal de Cascais, 2023). The 360 Mission is another example of a practical application promoting sustainability. The environmental awareness project provides different educational content through challenges and annual activity plans. It seeks to include the entire educational community, involving teachers and families (BIOND, n.d.). Indeed, educators have a relevant role in promoting EfS. They must stimulate and support children's curiosity in their attempts to understand the physical and natural environment (Direção-Geral da Educação, 2016).

There is also the "Primeiros Passos, Infância Saudável, Vida Feliz" project, initiated in Portugal in 2017, which aims to promote the healthy development of children, particularly those from families facing poverty and social exclusion. The project focuses on reducing inequalities and fostering physical, cognitive, emotional, and social development in children from birth to 24 months of age. It integrates sustainability principles into the daily practices of preschools involved through environmental education, eco-friendly practices, community engagement, and role modelling by educators and staff. Children learn about topics like recycling and biodiversity through hands-on activities, while preschools adopt eco-friendly measures like using recycled materials and conserving resources. Collaboration with local communities further promotes sustainability initiatives. Overall, the project fosters environmental awareness and responsibility among children from an early age (União das Misericórdias Portuguesas, 2018).

5.1.3 Storytelling in ECEC

The activity plan for pre-school education, developed by the Portuguese Republic, foresees reading or storytelling sessions at least daily, utilizing either paper books or digital alternatives. The story may be narrated by the educator or the child. Following the storytelling session, the child can be encouraged to retell it, engage in discussions about the characters and share their opinion on the plot. Whenever feasible, it is recommended to conduct the activity outdoors to maximize the contact with nature (República Portuguesa, n.d.). Storytelling is occasionally employed to support the integration of the Sustainable Development Goals (SDGs). The "SDG Generation" project is a Portuguese initiative centered on raising awareness of the Sustainable Development Goals. It promoted a free storytelling workshop aimed at individuals aged 15-30 years, with the goal of exploring storytelling strategies and dynamics in support of the SDGs (SDG Generation, 2020).

An example of a Portuguese storytelling initiative that enhances sustainability education is the work of the pre-school children at the "Salesianos do Estoril" school. Guided by their teachers, they created a story about recycling, aiming to demonstrate the importance of separating packaging (Recicla, 2022). Another project that focuses on storytelling for sustainability is "Stories with Science", promoted by the Lagos Living Science Centre. It provides activities aimed at pre-school and primary school children. The objective is to approach scientific content using the narrative of a story to introduce concepts, such as biology, astronomy, sustainability, among others (Centro de Ciência Viva de Lagos, n.d.). There are some resources available for educators to implement storytelling effectively, for instance the National Reading Plan's. Its mission is to implement public policies aimed at fostering reading skills and habits. It provides a curated catalogue of age-appropriate books and offers resources to support the storytelling of various book genres in the classroom (Plano Nacional de Leitura, n.d.).



5.2 Curricula Analysis

The entire education system can draw valuable insights from pre-school education, since the curriculum is flexible and children are called to actively participate in the learning process (Direção-Geral da Educação, 2016). The distinction between the school system for children under 3 and those over 3 is established in legislation and justifies specific proposals for these two phases. This section provides an analysis of the curricula in Portugal concerning Early Childhood Education and Care (ECEC) and how sustainability and storytelling are incorporated in the curriculum guidelines.

5.2.1 National Curriculum Framework

As previously mentioned, the Pedagogical Guidelines for Creches establishes the following three areas of learning (Direção-Geral da Educação, 2024):

Well-being and Health	Personal, Social and Cultural Identity	Communication, Languages and Cultural Practises
Physical well-being, promoted through involvement in daily activities related to nutrition, hygiene, sleep, rest and movement.	Self-awareness, identifying one's characteristics and recognising oneself as a unique individual.	Explore the world and interact with others through touch, sight, smell, sound, speech, movement and play.
Emotional well-being and learning about emotions and how to regulate them, both in relation to one self and in interactions with others.	Self-confidence and autonomy, making decisions and solving problems.	Communicate with others by sharing objects, interests, emotions, objects and short narratives.
	Sense of community belonging, learning about the diversity of perspectives and cultures.	Participate in cultural practices and their symbolic languages.

The Curriculum Guidelines for Pre-School Education are based on the overall pedagogical objectives defined by the Law no. 5/97 of 10 February. The table below outlines the main components to be addressed in each domain of the national curriculum (Direção-Geral da Educação, 2016).

Personal and Social Development	Expression and Communication	Communication and Knowledge of the World
Building identity and self-esteem	Physical Education	Introduction to scientific methodology
Independence and autonomy	Artistic Education	Science approach
Self-awareness as a learner	Visual Arts	Knowledge of the social world
Democratic coexistence and citizenship	Drama/Theatre	Knowledge of the physical and natural world
	Music	
	Dance	Technological World and Use of Technologies
	Oral Language and Approach To Writing	
	Maths	

Environmental education for sustainability is currently a fundamental component of education. It is present in the curriculum and in numerous projects developed by schools. Regarding pre-school education, the Knowledge of the World area aims to foster an awareness of the different social and natural sciences. The Environmental Education for Sustainability Framework is organised as follows:

Sustainability, Ethics and Citizenship: Pillars of sustainability; Ethics and citizenship; Intergenerational responsibility; Poverty reduction.

- Sustainable Production and Consumption: Waste; Labelling (goods and services);
- Territory and landscape: coastline; Landscape; Land dynamics; Landscape quality objectives.
- Climate Change: Causes of climate change; Adapting to climate change; Climate change mitigation.
- Biodiversity: The importance of biodiversity; biodiversity as a resource; Main threats to biodiversity; biodiversity conservation strategy.
- Energy: Energy resources; Energy sustainability; Sustainable mobility.
- Water: The importance of water for life on Earth; Environmental problems associated with fresh water; Ocean literacy; Sustainable management of water resources.
- Soil: Soil as a resource; Use and Abuse (Câmara et al., 2018).

5.2.2 Entry Points for Storytelling

Storytelling is emphasised within the curriculum guidelines. Educators, children and their parents or guardians are encouraged to utilize storytelling as a means of exploring specific topics and fostering understanding. The stories read by the educators, retold and invented by children, from memory or based on images, serve as a means to approach the narrative next, fostering the desire to read. While reading a story, the teacher can communicate their reading strategies to the children with the aim of fostering attentive listening. Additionally, storytelling creates opportunities for children to narrate their own stories. It finds expression in theatre projects, where stories and dialogues are recreated or invented. Educators and educational institutions should provide material that facilitates language development (Direção-Geral da Educação, 2016).

People have a tradition to transfer knowledge of the environment, and local traditions to the next generation through narration. In order to enhance learning outcomes related to storytelling, educators can utilize storytelling as a pedagogical tool, capturing students' attention and entertaining them. It has the capacity to make sustainability more easily accessible (Hofman, 2022).

5.3 Examples of Good Practices

5.3.1 Example 1

The project “Tapete-história Azul”, implemented in schools in the city of Coimbra, aimed to raise awareness within the school community about the importance of the SDGs and encourage environmentally sustainable behaviour, in order to mitigate the effects of climate change. It stemmed from the necessity to address the subject matter tailored to the children's age group. Although initially proposed by educators, 50 children actively participated in its development. The students, with the involvement of their families, brought old fabrics and plastics from home, which were then woven into a carpet with the support of their teacher. Additionally, they carried out research on marine animals, in particular the blue whale, and took part in a field trip to the Lisbon Oceanarium, utilizing the train as a means of transport, due to its environmental benefits. Furthermore, the children created a story defining the characters and the plot elements (UNICEF & Direção-Geral da Educação, 2017).

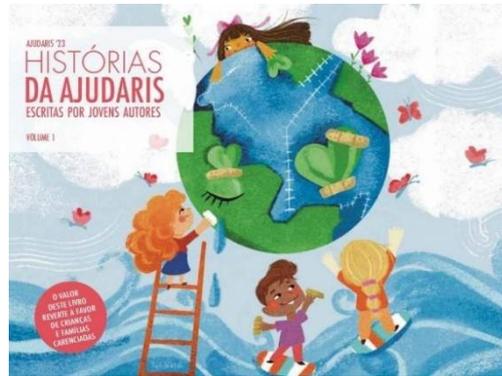
The outcome of the project resulted in the children gaining a deeper understanding of global warming, as well as the pollution affecting the seas and oceans, and their interconnection with species extinction (UNICEF & Direção-Geral da Educação, 2017).



5.3.2 Example 2

The Ajudaris association is a non-profit founded in June 2008. In 2009, the “Ajudaris Stories” project was initiated and established the following goals: fostering and enhancing reading and writing habits; encouraging citizenship and solidarity; and strengthening the connection between school, family and community contexts. It is an annual challenge proposed to schools nationwide to create collective stories through the imagination and creativity of the participants. The project encourages children and young people to work on a given theme under the guidance of their educators and teachers. They are invited to explore any literary genre, with the goal of producing a creative and collaborative text as the final product. The copies are then sold and the funds raised are directed towards the association's ongoing social projects. “Planet” is the theme proposed for the 2023/2024 school year (Ajudaris, n.d.).

The “Ajudaris Stories” project promotes oral expression, phonological awareness, writing skills, grammar skills and reading skills (Castro, 2016). The project saw the participation of 272 municipalities in Portugal, receiving more than 1,600 stories (Ajudaris, n.d.).



5.3.3 Summary of interviews with experts in storytelling

Paula Mira Fernandes

Q.1: Can you tell me about your background and experience in storytelling, particularly in educational contexts?

I have worked for 25 years in teaching and training adults with low educational backgrounds. At the age of 45, I decided to pursue a master's degree in teaching English for the 1st cycle. During my studies, I met two professors who are national and international references: Sandie Mourão and Carolyn Leslie, from the languages department. They promote the use of picture books in teaching English in the 1st cycle. I was captivated by this new concept of the picture book, which is not just a text but also an image, and both present a story, not necessarily the same one. Over the years, I have read books at events of various scales, interpreted books at conferences, and told stories in the pediatric wing of a hospital. This year, I read 8 books to my classes, constantly adapting my storytelling to suit the day and the students' moods.

Q.2: Have you previously worked on projects that integrate storytelling with themes such as sustainability or the SDGs (Sustainable Development Goals)?

While I have not yet specifically addressed the themes of the SDGs and sustainability in my storytelling, I have covered topics such as pollution, nature protection, wild animals, bullying, inclusion, emotions, food, and transportation.

Q.3: What storytelling techniques do you consider most effective for engaging young children (ages 3-8)?

I find that stories with many repetitions help children assimilate the message better. Additionally, I use various interactive and hands-on techniques to engage young children effectively. These include finger puppets, practical activities ("realia"), and incorporating small objects like miniature vehicles to discuss transportation. I also involve real objects that are relevant to the students' reality and cultural traditions. It's important to connect the stories to the children's reality and traditions. Furthermore, I involve parents and grandparents in storytelling activities, which excites the children and makes them more engaged.

Q.4: How can storytelling be used effectively to introduce complex concepts like sustainability and the SDGs to young children?

Storytelling can be an excellent tool to introduce complex concepts like sustainability and the SDGs by making these topics relatable and engaging for young children. For example, using a story that features characters dealing with environmental issues, such as pollution or conservation, can help children understand the importance of sustainability. An activity that complements the story could be a classroom project where children create art from recycled materials, helping them grasp the concept of recycling and environmental responsibility in a hands-on and memorable way.

Q.5: What common challenges do educators face when using storytelling to teach about sustainability, and how can they overcome them?

One challenge is ensuring that stories are relevant to the students' experiences. It's essential to spend time reading, studying a book, and coming up with creative activities that align with the educational program. Involving families in storytelling projects can also help reinforce the concepts being taught.

Q.6: How can storytelling be used to engage not only children but also their families and the wider community in sustainability practices?

Involving parents, grandparents, and other family members in storytelling activities is crucial. For example, during storytelling sessions, I have asked families to participate in making items related to the story at home. For example, when I read the story "Worry Doll," I used the concept of the rag doll to ask students to make their own rag dolls with their families' participation. Such activities make complex concepts more relatable and engaging for young children. This kind of engagement excites children and makes them more invested in the story and its message. Additionally, public events that incorporate storytelling can reach a broader audience and promote community involvement in sustainability practices.

Q.7: Do you have any suggestions for activities or projects that can extend storytelling beyond the classroom?

Absolutely. One successful activity was using the story "Shark in the Park," where children used a toilet paper roll as a telescope to look for the shark's fin. Such imaginative activities can be extended to home projects, encouraging children and their families to explore stories creatively and practically. The story about "worry dolls" also enabled me to involve families at home.

Q.8: How can educators assess the impact of storytelling on children's understanding and attitudes towards sustainability?

When the weakest student shines in the final presentation, it's an indication that the storytelling approach has been effective. Additionally, seeing students' engagement and their ability to reproduce or creatively adapt the story elements shows they have understood and internalized the concepts. For instance, when students actively participate in activities like making rag dolls at home with their families or using props during storytelling, it demonstrates their understanding and enthusiasm.

Q.9: Are there specific resources (books, websites, tools) that you would recommend to educators looking to use storytelling to teach sustainability?

While my experience is more focused on storytelling in general, I can recommend some excellent storytelling resources that can be adapted to teach sustainability. One book I have successfully used is "Just a Minute," which captivates children's attention and can be tied to various themes. Tools like Plickers are very effective in the classroom because they allow all students to participate without fear of making mistakes, as individual errors are not highlighted. By using these resources creatively, educators can incorporate sustainability themes into their storytelling sessions. Additionally, seeking out picture books that address environmental themes and adapting existing storytelling tools to focus on sustainability can be very effective.

Q.10: What kind of training or professional development do you think is necessary for educators to become proficient in using storytelling for sustainability education?

Training and professional development are crucial not only for educators but also for fostering an environment that supports innovative teaching methods like storytelling. Personally, the public school I work at provides me with the wings and freedom to dream. The school administration believes in my work and allows me to passionately pursue storytelling as an educational tool. This supportive environment is essential for educators to feel empowered and encouraged to experiment with new approaches.

In terms of training, workshops that focus on storytelling techniques, integrating sustainability themes, and adapting storytelling for different age groups are invaluable. However, it's equally important for educators to have the autonomy and support to apply

these techniques creatively within their classrooms. When educators feel supported and inspired, they can effectively engage students and their families in meaningful sustainability education through storytelling

Sónia Silva

Q.1: Can you tell me about your background and experience in storytelling, particularly in educational contexts?

I have a degree in Portuguese and English teaching. I initially worked with middle school students, but now I teach English in the elementary school. I have been a teacher for 24 years. As an author, I have two works: one titled "O Tomé" and the more recent "O João sem Coração," both related to children's literature. I also engage in poetry and participate in literature-related events.

I have a project focused on using picture books written in English, in collaboration with Erasmus+ partners (ICEKits – Icepell). This project explores Interculturality and citizenship, and "Ice Kids," where children help teachers incorporate books into classroom contexts. Through a book, we create interdisciplinary projects, integrating various subjects.

Storytelling was the focus of my master's thesis. I consider that storytelling allows for connecting various themes and bridging disciplines and topics, especially sustainability and the SDGs.

Q.2: Have you previously worked on projects that integrate storytelling with themes such as sustainability or the SDGs (Sustainable Development Goals)?

Regarding the SDGs, they are always implicitly present, interconnected, and underlying, though not specifically. I do address environmental themes, but not specifically the SDGs.

Q.3: What storytelling techniques do you consider most effective for engaging young children (ages 3-8)?

I always start by physically exploring the book, examining the cover, back cover, etc. Then, I relate the anticipated concepts to what the students already know, fostering creativity and listening to their opinions. Next, we read the story broadly the first time and then page by page, before transitioning to digital support. We engage in pre-reading activities related to the book's context, such as recycling games. Bodily and gestural language is crucial and directly linked to the book being studied, demanding significant expressiveness. Subsequently, the work is associated with the context and specific objectives of the story. Physical contact with books is very important in storytelling.

Q.4: How can storytelling be used effectively to introduce complex concepts like sustainability and the SDGs to young children?

Storytelling can effectively introduce complex concepts like sustainability and the SDGs to young children by making them relatable and engaging through the use of picture books and hands-on activities. For instance, by using a picture book related to recycling, we can adapt its context to the local reality of our students. In Fafe, we did this by involving students in a project where they spent time with street sweepers, learning about their work and participating in cleaning parts of the city. This hands-on experience, coupled with the storytelling, helps children understand the importance of recycling and environmental stewardship in a tangible and memorable way. Additionally, we explore themes like global warming through stories and community projects, such as involving parents who work in wind and hydraulic energy sectors. This approach connects the story to real-life applications, making abstract concepts more concrete and comprehensible for young learners.

Q.5: What common challenges do educators face when using storytelling to teach about sustainability, and how can they overcome them?

Educators often face challenges in maintaining student motivation and capturing their attention with physical books. Therefore, I emphasize having students touch and handle the books before transitioning to digital formats. A storyteller, when narrating, needs to have an educational objective behind it. Anyone can be a storyteller, even a child, as long as they know what they are doing and depending on the objective they want to achieve. The main characteristic is being an actor, because without this aspect, it is not easy to capture the students' attention and bring the story to life in a way that motivates and engages them with the book, which is the main goal. Having knowledge of what you are doing is essential, just like actors study their scripts.

Q.6: How can storytelling be used to engage not only children but also their families and the wider community in sustainability practices?

Storytelling can involve a variety of activities, beginning with studying the community and local context where we live. For example, in Fafe, we explore the use of wind and hydraulic energy, involving parents and the municipality.

Q.7: Do you have any suggestions for activities or projects that can extend storytelling beyond the classroom?

We take a picture book and identify how each subject can contribute, promoting community action such as with the "Clean Up" book related to recycling. We adapt the book's context to our local reality, city, and students.



In my city, Fafe, we collaborate with street sweepers, a profession facing extinction, not well-known in other countries. We conduct interviews and spend time with them cleaning specific areas of the city. We also address themes of feelings and respect for others through book presentations.

Q.8: How can educators assess the impact of storytelling on children's understanding and attitudes towards sustainability?

The impact can be assessed throughout the storytelling implementation process. After listening to a story, we evaluate students' reactions using smileys or forms to gauge their enjoyment. Evaluation is crucial and can involve methods like the "star" method, where students indicate what they would change or keep in the story at various points and in the final assessment. The community's receptivity, the attitude of staff, the involvement of participating companies, and parental participation in activities are also evaluated. Methods are tailored according to the age group of the students.

Q.9: Are there specific resources (books, websites, tools) that you would recommend to educators looking to use storytelling to teach sustainability?

There is a diversity of children's literature that can be used for storytelling on various themes, including sustainability. For instance, picture books like "Clean Up" about recycling can be used to address the SDGs. Other examples include "Sad Cloud," which deals with water usage, conservation, and preservation. Utilizing a range of picture books can help make sustainability concepts more accessible and engaging for young children.

Q.10: What kind of training or professional development do you think is necessary for educators to become proficient in using storytelling for sustainability education?

Specific training should include workshops on storytelling techniques, integrating sustainability themes, and adapting storytelling for different age groups. Additionally, understanding how to explore and utilize the structure of a book is important. Educators need to be able to make the connection between the book, the story, and the educational objectives. Having knowledge of how to engage students, similar to how actors study their scripts, is also vital for effectively bringing stories to life in a way that motivates and captivates students.

5.3.3 Summary of interviews with experts in storytelling

Ángeles Villaverde

How to Implement the SDGs in Education: design of STEAM learning situations

The conference began by identifying global challenges and exploring their impact on learning and education. The expert addressed the methodologies employed in STEAM and the HiTech tools. It was outlined that the school curriculum contains superfluous content, while essential topics for the 21st-century society are often excluded.

An example of a STEAM project focusing on refugee camps was presented. Titled “Improving Living Conditions in Refugees Camps through Design and Technology”, the project aimed to implement innovative and sustainable solutions to enhance the quality of life for refugees. The students advanced their research, creativity, and collaboration skills. Their work covered a range of topics, including biology and health, physics and materials, ecology and sustainability, climate analysis, design and space optimization, budgeting and resource management, structural and functional design, energy efficiency, logistics and resource management, 3D modelling and visualization, material and technology selection, and technical documentation. Students created designs for containers to function as classrooms, counselling rooms, and recreational areas.

The project comprised the following stages: problem definition and investigation, brainstorming, needs assessment, design and prototyping, material selection and feasibility, service integration, sustainability and environmental impact, and documentation and evaluation. The project's dissemination strategy included the creation of a website to serve as a central platform for information and results. Additionally, there was a commitment to the local community through the organisation of presentations and exhibitions aimed at educating individuals about the realities of refugee camps and the use of containers. At last, the students reviewed their peers' work and received feedback from refugees and organizations.

The processes employed, the final product, and the competencies acquired throughout the project were evaluated. To conclude the conference, Ángeles Villaverde provided a brief overview of other relevant projects.

Diogo Vidal

Education for Post-Sustainability: Teachers as Agents of Change

The conference addressed the topic of education within the framework of post-sustainability, emphasizing the crucial role of teachers as agents of change. It began by clarifying the concept of sustainability, outlining its various interpretations provided by physicians, scientists and other experts on the subject. The term “Anthropocene” was then introduced. Originally, proposed by Paul Crutzen and Eugene Stoermer in 2000 and popularized in 2012, it refers to a new geological period characterized by human activity

having a significant impact on the planet's climate and ecosystems. The term prompts discussions about human responsibility and presents two scenarios: one of tragedy, where humanity proves incapable of change, and another of transformation, where an alternative future emerges in which humanity learns and evolves. Environmental objections of technological solutions, which frequently convey a catastrophic outlook for the future, have sparked questions about the viability of existing development models and the need for new approaches that better integrate environmental concerns.

The United Nations World Commission of Development and Environment defined Sustainable Development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". This definition implies maintaining current living standards while avoiding environmental damage. The notions of weak and strong sustainability, which encompass the dimensions of nature, society and environment, were explored. Weak sustainability suggests that sustainability can be replaced by other necessities, whereas strong sustainability argues that sustainability is irreplaceable and constitutes the most fundamental necessity. The expert clarified the origin and evolution of the term Sustainability, including its application across various contexts. It was noted that there are criticisms regarding the superficial use of the term.

Sustainability has its limitations, such as passive logic, focused primarily on preservation, and framed within an Anthropocene perspective. The expert analysed the concept of planetary boundaries, which identifies a set of nine boundaries within which humanity can develop and thrive in the future. Furthermore, it was mentioned that the challenge of sustainability is human unsustainability. Diogo Vidal discussed the limitations of the traditional environmental education, focused on problem-solving and neglecting contemporary social and ecological issues. It was highlighted the need for new educational approaches that are inclusive and transformative. Simply incorporating additional content into school curricula is insufficient, since it is essential to reframe the vision of education. Edgar González-Gaudio introduced the concept of "empty signifiers" to highlight the flaws in the approach of education for sustainable development. In fact, the coining of new terms does not address the underlying issues. Therefore, it becomes necessary to fundamentally reframe education by addressing cultural, social, and environmental issues. This involves fostering education that cultivates deep respect and sustainable relationships with the world. In this context, new educational practices were identified and analysed.

To conclude, post-sustainability entails transformative change, challenging established power structures and developing alternative models that prioritize well-being and environmental preservation. Changes in individual behaviour are insufficient. In closing the conference, the concepts of both regenerative and degenerative systems were presented and discussed.

Vitor Ribeiro

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Education for Sustainability: Contributions of GIT and Interdisciplinarity

The conference with the expert emphasized that environmental education for sustainability constitutes a fundamental component of education, as it fosters awareness, promotes values, and facilitates behavioural change. Additionally, it was highlighted that environmental education is integrated into curricula and reflected in projects developed by schools in collaboration with other institutions. At present, technology holds a significant place in education. However, video as an interdisciplinary tool has yet to be fully integrated into pedagogical practices. Incorporating video to assist the education process and display real-life situations can be more successful in teaching than text, since advancements in laptops and mobile devices enhanced students' engagement with video content. Given the current challenges, the expert recognized the digital era as a strength and the development of Geographic Information Systems (GIS) and video (as a pedagogical tool) as substantial opportunities.

Place-based learning is a non-traditional pedagogical approach centred in engaging students with their environment, including physical surroundings, cultural aspects, historical context and individuals. It enables the resolution of current community issues and the achievement of the Sustainable Development Goals (SDGs), by fostering critical thinking and encouraging student autonomy to address social and environmental challenges.

Vítor Ribeiro introduced a project aimed at developing a pedagogical tool designed to enhance learning through video. The goals are to foster active learning, research, and collaboration within the classroom setting. In 2022, the project involved 32 students, while in 2023, it included 18 students. Participants were tasked with creating a 10-minute video about a street in the city of Porto, Portugal. Following the selection of the location, they conducted research, analysed the space through interactive maps and other tools, and conveyed a narrative through their videos. The deliverables consisted of an intermediate guide and a final video. The results of a final survey to assess students' perception were presented at the conference, revealing that nearly all students believe video is a valuable resource for learning about sustainability. The primary filming resource was a mobile phone, while the main source for localization was Google Earth. Students expressed the intention to employ this methodology in the future.

5.4 Recommendations

Incorporating storytelling into early childhood education has proven to be a powerful tool for fostering creativity, language development, and critical thinking skills among young children. Moreover, integrating storytelling with sustainability education presents a unique

opportunity to instil environmental awareness and promote social responsibility from an early age. In light of this, the following recommendations outline strategies for enhancing CST activities by integrating storytelling with sustainability education, utilizing multimodal approaches, linking storytelling with Sustainable Development Goals (SDGs), supporting educator training, fostering collaboration, and sharing best practices. These recommendations aim to enrich the learning experience of children in early childhood settings while fostering a deeper understanding of sustainability concepts.

1. **Integrating Storytelling with Sustainability Education:** Encourage the integration of storytelling techniques into sustainability education initiatives within early childhood education and care (ECEC) settings. Develop storytelling initiatives that specifically focus on sustainability themes, such as recycling, climate change, biodiversity, and energy conservation. Provide training and resources for educators on how to effectively use storytelling to communicate sustainability concepts to young children.
2. **Utilizing Multimodal Storytelling Approaches:** Explore diverse tools, methods, and approaches for multimodal storytelling in pre-schools, including both traditional and digital storytelling formats. Emphasize the use of storytelling sessions that incorporate different senses and encourage interactive engagement among children.
3. **Linking Storytelling with Sustainable Development Goals (SDGs):** Promote storytelling initiatives that explicitly aim to support the integration of Sustainable Development Goals (SDGs) into early childhood education. Encourage educators to develop storytelling activities that highlight the importance of environmental stewardship, social responsibility, and economic sustainability in achieving the SDGs.
4. **Supporting Educator Training and Professional Development:** Provide professional development opportunities for educators to enhance their storytelling skills and effectively integrate storytelling into the curriculum. Offer resources and guidance on selecting age-appropriate books, creating engaging storytelling sessions, and facilitating meaningful discussions around story themes.
5. **Fostering Collaboration and Community Engagement:** Encourage collaboration among educators, parents, local communities, and relevant stakeholders to support storytelling initiatives in pre-schools. Foster partnerships with organizations, such as non-profits or local libraries, to access additional storytelling resources and expertise.
6. **Evaluating and Sharing Best Practices:** Establish mechanisms for evaluating the impact of storytelling initiatives on children's learning outcomes, including their understanding of sustainability concepts. Share successful storytelling practices and case studies from Portugal and other regions to inspire and inform future CST activities.

By implementing these recommendations, Creative StoryTellers can enhance their activities and contribute to the holistic development of children, while also promoting sustainability education in early childhood settings. Through engaging storytelling sessions and interactive activities, Creative StoryTellers have the opportunity to instil environmental awareness and social responsibility in young learners.

Project partners play a crucial role in supporting the integration of storytelling and sustainability elements more effectively. By offering tailored training programs and providing necessary resources, project partners empower Creative StoryTellers to effectively implement sustainability education initiatives. This collaborative approach ensures that early childhood educators have the tools and support they need to inspire the next generation of environmentally conscious citizens. Here is how they can do it:

1. **Training Programs for Educators:** Develop comprehensive training programs specifically designed for educators working in early childhood education and care (ECEC) settings. These programs should focus on enhancing educators' storytelling skills, deepening their understanding of sustainability concepts, and providing practical strategies for integrating storytelling with sustainability education.
2. **Professional Development Workshops:** Organize regular professional development workshops or seminars where educators can learn new storytelling techniques, share best practices, and collaborate with peers. These workshops can also feature guest speakers or experts in sustainability education to provide additional insights and inspiration.
3. **Resource Materials:** Provide educators with a range of resource materials to support their storytelling efforts and sustainability education initiatives. This could include age-appropriate books, storytelling kits, multimedia resources, and lesson plans that incorporate sustainability themes.
4. **Online Learning Platforms:** Create online learning platforms or portals where educators can access training modules, instructional videos, and other educational resources at their convenience. These platforms can also facilitate communication and collaboration among educators, allowing them to share ideas and experiences.
5. **Mentorship Programs:** Establish mentorship programs where experienced educators can mentor newer colleagues in integrating storytelling and sustainability elements into their teaching practices. This peer-to-peer support can be invaluable in helping educators implement new strategies effectively.
6. **Community Engagement Initiatives:** Engage parents, caregivers, and local community members in supporting storytelling and sustainability education initiatives. This could involve organizing community storytelling events, hosting sustainability workshops, or inviting community members to share their knowledge and expertise with children.

By providing targeted training programs, resource materials, and opportunities for collaboration and mentorship, project partners can empower educators to effectively integrate storytelling and sustainability elements into their teaching practices, ultimately enhancing the learning experience for children in ECEC settings. However, implementing these recommendations may encounter several challenges.

One potential challenge is limited awareness and understanding among educators and project partners. They may have insufficient knowledge or understanding of how to effectively integrate storytelling with sustainability education. To address this challenge, it is essential to provide comprehensive training and professional development opportunities. Workshops, seminars, and online resources can be offered to increase educators' knowledge and skills in this area.

Another challenge is resource constraints, including a lack of books, materials, and training facilities. This shortage may hinder the implementation of storytelling and sustainability initiatives. Seeking funding opportunities to procure necessary resources and collaborating with local libraries, non-profit organizations, and community partners can help mitigate this challenge.

Resistance to change is also a potential obstacle, as some educators or stakeholders may be resistant to new approaches to teaching. Fostering a culture of openness to experimentation and continuous improvement within the organization can address this challenge. Providing ongoing support and encouragement to educators as they explore new methods and strategies is crucial.

Time constraints may pose another challenge, as educators may feel overwhelmed by existing curriculum demands and limited time. Integrating storytelling and sustainability elements into existing curriculum frameworks can help minimize additional workload. Emphasizing the value and benefits of these initiatives in enhancing learning outcomes and fostering holistic development in children is important.

Ensuring active engagement and participation from children, educators, parents, and community members in storytelling and sustainability activities may also be challenging. Implementing interactive and participatory storytelling techniques that captivate children's interest and involve parents and caregivers through family storytelling events and workshops can help address this challenge.

Finally, evaluating and monitoring the impact and effectiveness of storytelling and sustainability initiatives may be difficult without adequate evaluation mechanisms. Establishing clear goals, objectives, and evaluation criteria and implementing regular assessments, surveys, and feedback mechanisms can help gather data on learning outcomes and participant satisfaction.

By proactively addressing these challenges and implementing appropriate solutions, CST can successfully integrate storytelling and sustainability elements into their activities, enriching the learning experience for children and fostering a deeper understanding of environmental stewardship and social responsibility.

5.5 Conclusion

In conclusion, the analysis of Early Childhood Education and Care (ECEC) in Portugal reveals a comprehensive framework aimed at fostering the holistic development of children while addressing societal needs and challenges. The country has made significant strides in providing accessible and quality ECEC services, as evidenced by initiatives such as "Primeiros passos, infância saudável, vida feliz" and the provision of free ECEC for disadvantaged families.

However, despite these efforts, there are areas for improvement, particularly in the integration of sustainability education and storytelling into ECEC settings. While sustainability education is present in the curriculum guidelines, there is a need for more robust implementation strategies and resources to support educators in effectively incorporating sustainability themes into their teaching practices. Similarly, while storytelling is recognized as a valuable pedagogical tool, there is room for enhancing its integration with sustainability education initiatives.

To address these challenges and capitalize on opportunities for improvement, several recommendations are proposed. These include encouraging the integration of storytelling techniques into sustainability education initiatives, exploring diverse tools and approaches for multimodal storytelling, linking storytelling with Sustainable Development Goals (SDGs), providing professional development opportunities for educators, fostering collaboration and community engagement, and evaluating and sharing best practices.

In addition to national initiatives, various local projects and programs contribute to the promotion of sustainability education and storytelling in ECEC settings. For example, the Cascais Environmental Education Guide offers practical activities and resources for educators interested in implementing environmental education in preschools. Similarly, the Cascais Environmental Education and Awareness Programme provides a multidisciplinary range of activities complementary to the curriculum, promoting environmental awareness among children.

Furthermore, initiatives like the 360 Mission engage the entire educational community, including teachers and families, in environmental awareness projects. Meanwhile, projects

like the "Tapete-história Azul" and the Ajudaris association's storytelling project foster creativity, literacy skills, and environmental consciousness among children through collaborative storytelling initiatives.

By implementing these recommendations and leveraging the resources and expertise offered by local projects and initiatives, Creative StoryTellers can enhance their activities and contribute to the holistic development of children, while also promoting sustainability education in early childhood settings. Project partners play a crucial role in supporting these efforts through tailored training programs and the provision of necessary resources.

However, challenges such as limited awareness, resource constraints, resistance to change, time constraints, and ensuring active engagement may arise during implementation. Despite these challenges, proactive measures such as comprehensive training, seeking funding opportunities, fostering a culture of openness to experimentation, integrating storytelling and sustainability elements into existing curriculum frameworks, and establishing evaluation mechanisms can help overcome obstacles and ensure the successful integration of storytelling and sustainability elements into ECEC activities.

In conclusion, by addressing these challenges and implementing appropriate solutions, Portugal can further enhance its ECEC system, promote sustainability education, and empower the next generation to become environmentally conscious and socially responsible citizens.

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6. Austria

6.1 Early Childhood Education and Care (ECEC) System in Austria

6.1.1 Structure and Overview

The Early Childhood Education and Care (ECEC) System in Austria is well developed and offers a range of services for young children. It is designed to support the development, learning, and well-being of children from birth to the age of six, before they enter compulsory primary education (Volksschule).

Attendance at kindergarten, the traditional form of pre-school education for children aged 3-6, is voluntary, although the last year of kindergarten (age five to six) is compulsory, ensuring that all children receive early childhood education before entering primary school.

In Austria, the kindergarten system is regulated by the federal states (Bundesländer). The training of kindergarten teachers, at upper secondary or post-secondary level (in universities), is the responsibility of the Federal Ministry of Education, Science and Culture (Federal Ministry of Education, Science and Research, n.d.):

Governance and Administration:

- The ECEC system in Austria is decentralized. The federal government, the states (Bundesländer), and municipalities share responsibilities.
- The Federal Ministry of Education, Science and Research sets the overarching educational guidelines and frameworks.
- States are responsible for the implementation of these guidelines and the regulation of ECEC services.
- Municipalities often operate and fund kindergartens and other early childhood education institutions.

ECEC services in Austria cater to various age groups and needs. Crèches, or "Krippen," provide care for children from birth to age three, focusing on their early development and care. For children aged three to six, kindergartens, or "Kindergärten," offer structured educational activities that prepare them for primary school. Additionally, some settings feature mixed-age groups, known as "Alterserweiterte Gruppen," which combine children from one to six years old to foster diverse social interactions and learning experiences. After-school care, referred to as "Hort," is available for primary school children, providing care and enrichment activities beyond regular school hours (Institute for Quality Assurance, 2018).

The funding for ECEC services comes from a combination of public sources, including state and municipal contributions, as well as private sources. To alleviate the financial burden on families, various subsidies are provided, and in some regions, kindergarten attendance is free for part of the day (Federal Chancellery of Austria, n.d.).

The workforce in ECEC typically comprises trained early childhood educators and assistants. Educators receive their qualifications through specialized training programs offered at vocational schools and higher education institutions. These programs provide a comprehensive education in child development, pedagogy, and practical skills necessary for working with young children. Continuous professional development is highly encouraged to maintain high standards of education and care. This ongoing training helps ensure that educators remain up-to-date with the latest practices and methodologies in early childhood education (Federal Chancellery of Austria, n.d.).

The article "Early childhood education and care in Austria" highlights some interesting points regarding the educational institutions. It underlines four challenges in the Austrian ECEC system: the academisation of pre-school teacher training, improving the quality of interaction, cooperation between preschools and primary schools, and the establishment of a research infrastructure. Despite the growing importance of early education, little seems to have changed in the basic structure of pre-school teacher training. Attempts to establish an academic training programme seems to have failed and training remains predominantly non-academic.

There are supported initiatives to improve the quality of interaction and cooperation between pre-schools and primary schools. However, there is a lack of comprehensive scientific research analysing the quality and impact of these measures (University Library of Innsbruck, 2021).

The expansion of ECEC in Austria has been decided for 2024 and represents an important step towards improving the situation. This plan focuses on increasing childcare options for children under three years old, improving the availability of qualified caregivers, and extending operational hours throughout the year. It also aims to enhance services for three to six-year-olds to address regional gaps.

Key measures include expanding institutional childcare for children under three, extending and flexibly adjusting operating hours, and improving care quality through better child-to-teacher ratios. The plan supports childminders as an alternative to kindergartens and continues non-contributory compulsory kindergarten for five-year-olds. Additional efforts will focus on intensified language support, teaching societal values, and improving the qualifications of staff and language teachers. The initiative also emphasizes a smooth transition from kindergarten to primary school and the implementation of a compulsory quality framework through standardized pedagogical documents and educational goals (Eurydice, n.d.).

6.1.2 Education for Sustainability (EfS) in Austrian Pre-Schools

The new action plan adopted by the United Nations in 2015 named “Transforming our world: the 2030 Agenda for Sustainable Development” with its 17 Sustainable Development Goals (SDGs) has become key for a renewed understanding of the need for an Education for Sustainable Development. It considers education as a key enabler for the global effort to achieve these goals, which can be considered as the key challenge of humanity. Its educational goal SDG 4.7 explicitly emphasises the need for the introduction and implementation of an Education for Sustainable Development and Global Citizenship and calls on the UN member states to:

“By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture’s contribution to sustainable development” (UNESCO, 2023).

To achieve global sustainable development, sustainability must be embedded in education systems and society as a whole. This is a task for both national governments and their educational institutions. Looking into the topics of the 2030 Agenda, they clearly hold the potential to serve as focal points for education, given their real-world relevance and problem-oriented nature.

Education for Sustainable Development

ESD emphasises the interdependence of global issues. It enhances skills and competences while influencing education policies. ESD is essential to enable people to cope with a rapidly changing world and to develop a sense of responsibility for the earth and its inhabitants.

“Education for sustainable development (ESD) gives learners of all ages the knowledge, skills, values and agency to address interconnected global challenges including climate change, loss of biodiversity, unsustainable use of resources, and inequality. It empowers learners of all ages to make informed decisions and take individual and collective action to change society and care for the planet. ESD is a lifelong learning process and an integral part of quality education. It enhances the cognitive, socio-emotional and behavioural dimensions of learning and encompasses learning content and outcomes, pedagogy and the learning environment itself.” (UNESCO, 2024).

ESD principles are included, but not directly mentioned, in the Austrian educational framework for primary schools (Bildungsrahmenplan für elementare Bildungseinrichtungen – see chapter 2.1). The first version was published in 2009. At that time, the United Nations Sustainable Development Goals (2015) had not yet been defined. Nevertheless, it must be acknowledged that the principles are already included in the framework. However, further updating and adaptation would be necessary.

The framework for pre-schools encourages educators to integrate sustainability topics into daily activities and learning experiences. Themes such as environmental awareness, social responsibility, and economic understanding are woven into the curriculum, promoting holistic development.

There are different ways in which ESD can be implemented at different levels in early childhood centres. On the one hand, there is the infrastructure and the building itself. Energy-efficient heating and cooling, waste separation or sustainable procurement of food, craft materials or clothing are just some of the points that can be mentioned here.

At the level of employees, special training and education can be offered to familiarise them with the principles of ESD and enable them to put them into practice. This practice could be project-based learning, such as gardening or water consumption. Outdoor activities are also an important part of this practice, providing space to learn about biodiversity, ecosystems or endangered species. Involving educators, local communities and the municipality can also help to reinforce ESD themes and bring them into a wider context.

The five basic pedagogical documents of the Austrian Federal Ministry of Education, Science and Research (BMBWF), which are intended to ensure that the quality of primary education is as uniform as possible throughout Austria, also include the work "Living Values, Forming Values, Value Education in Early Childhood". Here are some starting points for the implementation of ESD and Global Citizenship Education in Early Childhood Education Centres: "Democracy, humanity, solidarity, peace and justice as well as openness and tolerance towards other people are fundamental values of our educational institutions.

Children and young people are empowered to take responsibility for social, religious and moral values, religious and moral values to take responsibility for themselves, their fellow human beings, the environment and future generations". (https://www.integrationsfonds.at/fileadmin/user_upload/Werteleben_Wertebilden_OEIF.pdf)

However, the social dimensions of sustainability, which are included in the SDGs, are barely covered by the term ESD - which originally comes from environmental education. One should be aware of this: When people talk about sustainability, they often mean only the environmental dimension. This needs to be taken into account when it comes to understanding a broader concept of sustainability in terms of the SDGs.

ESD is an important topic in Austrian kindergartens, encompassing both structural and individual aspects. Although ESD is anchored in key documents and educational plans, its practical implementation often depends heavily on the initiative and commitment of educators.

6.1.3 Storytelling in ECEC

Storytelling in early childhood education can support the transition to sustainability in line with the 2030 Agenda. With stories that raise awareness of global citizenship among children and adults and show examples of people who have already taken action. Such inspiring and thought-provoking stories can stimulate social change processes.

Storytelling is a widely used method to engage children and enhance their learning experiences in Austrian preschools. From simple, traditional fairy tales to digital storytelling, teachers and preschool educators integrate this practice to teach important concepts in a more engaging and attractive manner.

Ingrid Miklitz, a social scientist and nature educator, provides an example of how the storytelling method can be used in ECEC in her book "Telling sustainability stories for children. Environmental stories as a key to familiarity with nature". There she gives methodological tips on how educators can tell inspiring stories to children or write stories themselves. With the environmental stories, the author aims to provide a key to familiarising children with nature, using the method of storytelling to convey education for sustainable development in nurseries in a child-friendly way and to make complex content easier to understand for the youngest children.

The interrelationships in environmental sustainability issues are often complex and therefore seem complicated. Stories, on the other hand, are understood by young children.

Therefore, figurative language and lively stories can be the key to awakening an understanding of responsibility for nature.

Another Example for Storytelling in ECEC is the multimedia picture book "Bakabu and Heckmeck, the environmental scarecrow". The book was developed in cooperation with the BMBWF and aims to teach children about the responsible use of natural resources and the environment in a playful way, while at the same time promoting language development. Matching songs and videos with instructions for action complete the story and can thus contribute to the educational goal of "Education for Sustainable Development". Bakabu is a catchy tune from faraway Singeland. He loves nothing more than new music and great songs. The Bakabu songs were developed together with teachers and a linguist. The aim is to promote the children's language skills automatically when they sing.

There is no comprehensive compilation of initiatives exclusively focused on storytelling for sustainability. While numerous separate sustainability programs and storytelling platforms exist, the integration of both into a distinct, recognized category is not widely acknowledged or formalised. Nonetheless, some individual initiatives and educational efforts effectively blend sustainability with storytelling techniques, as highlighted below.

6.2 Curricula Analysis

This chapter focuses on the role of storytelling within the Austrian national curriculum for pre-school education. It delves into the curriculum's emphasis on holistic development, inclusiveness, and the integration of cultural and environmental topics. The section highlights how storytelling is used to enhance learning experiences, foster social-emotional development, and promote critical thinking. Additionally, it explores the potential entry points for incorporating sustainability education through storytelling, despite the lack of direct links in current policies.

6.2.1 National Curriculum Framework

There are currently five basic documents for elementary education programmes in Austria. The aim is to ensure the highest possible standard of quality. The central document is the federal state-wide educational framework plan.

The "Federal Framework Curriculum for Early Childhood Education in Austria" (Bildungsrahmenplan für elementare Bildungseinrichtungen) was developed by the Charlotte Bühler Institute's scientific team, commissioned by the state governments, and in consultation with experts from the federal states. The former BMBWF (Bildungsministerium

für Bildung, Wissenschaft und Forschung) was involved through the educational institutions for kindergarten pedagogy and a steering group. The Framework Curriculum is deliberately open-ended, providing a foundation for state-specific adaptations, developments, and priorities in early childhood education. The term "Early Childhood Education Institutions" encompasses all institutional forms of education and care for children until school entry (Bundesländerübergreifender BildungsRahmenPlan für elementare Bildungseinrichtungen in Österreich, 2019).

The Framework defines the foundations of early education processes in a summarised form. It focuses on different areas: the image of the child as a competent individual and co-creator of his or her development, the principles that guide educational processes, the theoretical discussion of education, the acquisition of skills, transitions and the quality of education. These areas of education outline a frame of reference for educational practice. The implementation of the educational mission is the responsibility of professionally qualified educators, supported by a quality framework.

The framework curriculum emphasises the principle of lifelong learning and the importance of continuity of educational pathways in the Austrian educational canon. The aim is to ensure the connection of educational processes between early childhood and primary education through a uniform understanding of education and didactic approaches. Even though the development of competences is at the forefront of early childhood education, play remains the primary form of self-directed, play-based learning in early childhood education centres.

With the framework curriculum, the federal states recognise the educational mission of early childhood education and its importance for children's development (Bundesministerium für Bildung, Wissenschaft und Forschung, n.d.).

Important aspects of the National Framework

- Holistic development: The Framework emphasises the holistic development of children, which includes physical, social, emotional, cognitive and creative growth.
- Child-centred approach: The curriculum is based on children's needs, interests and abilities. It promotes a child-centred approach where each child's individual experiences and perspectives are taken into account when planning and delivering activities.
- Play-based learning: Play is recognised as a central component of early childhood education. The framework promotes play-based learning as a means for children to explore, experiment and understand the world around them.
- Social and emotional development: Stories and narratives are used to promote social and emotional skills such as empathy, perspective taking and conflict resolution.

Activities are designed to help children cope with social situations and express their emotions in a healthy way.

- Language and communication: Language development is a key focus, with an emphasis on developing both verbal and non-verbal communication skills. Storytelling, reading and interactive discussions are integral parts of the curriculum to improve children's language skills.
- Cognitive and critical thinking: The curriculum includes activities that develop critical thinking and problem-solving skills. Children are encouraged to ask questions, explore concepts and develop logical thinking through a variety of educational experiences.
- Creativity and imagination: Creative expression is encouraged through art, craft, music and drama. The curriculum supports activities that stimulate the imagination and allow children to express themselves creatively.
- Scientific and Mathematical Understanding: Children are introduced to basic scientific and mathematical concepts through hands-on activities and exploration. The curriculum aims to make these concepts accessible and engaging for young learners.
- Cultural and Environmental Awareness: The curriculum framework promotes an understanding and appreciation of different cultures and the environment. Activities are designed to instil respect for diversity and promote sustainable practices.
- Family and community involvement: Family and community involvement is seen as essential to the success of early childhood education. The framework encourages educators, parents and community members to work together to create a supportive learning environment.
- Integration of digital tools: While traditional methods of storytelling and education are valued, the framework also recognises the role of digital tools. Interactive history apps, audio books and digital storytelling will be integrated to enrich the learning experience.

The educational framework incorporates storytelling into the exploration of various topics and suggests the use of digital tools to promote work with multimedia elements.

However, there is no direct link between storytelling and ESD. Although the ESD topics and competences are addressed in the educational framework plan, they are not linked to storytelling. The basic document "Living values, educating values" also addresses ESD topics and competences. It is therefore very much at the discretion of the educators, the management of the educational institutions and the respective communities whether and to what extent sustainability is taken up and also linked to storytelling in some way.

6.2.2 Entry Points for Storytelling

In ECEC in Austria, there are various opportunities to integrate storytelling into the curriculum in order to promote children's learning and development and to convey values in the sense of ESD.

A central point is the daily routine, especially during the morning circle. Stories can be read aloud to facilitate a relaxed arrival and create a sense of community. The morning circle also provides time to introduce new topics or concepts through exciting stories. Short stories or story fragments can also be used for the transition between different activities to make the transition smoother.

Thematic units offer another opportunity to include stories. For example, children can gain a better understanding and appreciation of the natural world through stories about nature, community and environmental protection. Similarly, fairy tales, legends and myths from Austrian and other countries can be used to promote cultural awareness and appreciation of different traditions. This helps children to understand and respect different traditions and values.

Stories also play an important role in the area of social and emotional development. Narratives that deal with social situations, emotions, and conflict resolution can help to convey empathy, perspective-taking, and problem-solving skills.

Storytelling also stimulates creative expression and imagination. Dramatic play, where children act out stories or invent their own, promotes creativity and imagination. Art and craft activities can also be linked to stories by having children create illustrations or props for the stories they have heard.

For cognitive development, stories that focus on problem-solving offer an opportunity to promote critical thinking and logical reasoning. Narratives that explain scientific concepts in a playful and engaging way make complex ideas more understandable for children.

Digital stories provide a modern complement to traditional storytelling methods. Interactive story apps and digital storytelling tools offer a multimedia experience that actively involves children in the story. Audiobooks and storytelling podcasts can also be used during quiet times or breaks to promote listening skills and concentration.

Family and community activities are also an important part of early education. Storytelling events, where family members and community members are invited to share stories, strengthen the connection between home and school. Story bags, containing books and related activities, can be taken home to encourage family involvement.

In summary, storytelling plays an important role in pre-school and kindergarten education as it creates a rich learning environment that supports children's cognitive and emotional

development. Educators use different storytelling methods such as socio-dramatic play, reading aloud and digital tools to actively engage children in learning experiences.

6.3 Examples of Good Practices

A successful creative storytelling practice can be an innovative method or tool that enables a holistic integration of arts-based learning, child-centred methods and the use of analogue and digital storytelling tools. Creative storytelling aims to enable and promote young children's understanding and awareness of sustainable development. It emphasises engagement, creativity and inclusivity and ensures that learning about sustainability is accessible, interactive and appeals to different types of learners and cultural backgrounds. Through these principles, young learners can be inspired to engage in and contribute to sustainable development from an early age.

6.3.1 Example 1

An example of successful storytelling practice is the programme "A Kingdom for the Future" of Energy Autonomy Voralberg". The participants - (future) educators and assistants for elementary education programmes - learn how to teach sustainability in kindergarten in a child-friendly and varied way.

The annual project introduces children to climate protection and climate change in an imaginative and playful way. Together with the king and his thumb, the children become royal children who experience many climate adventures: One day, the King has a headache and does not know what to do. The thumb has the idea of going out into the fresh air. The king and his thumb set off to enjoy the fresh air in the forest. The story also teaches children how important the forest is for us humans and how photosynthesis works. The main themes of the seminar are consumption, food, waste and mobility, using various building blocks to illustrate the link between everyday life and climate protection.

More information about the seminar you can find [here](#).

6.3.2 Example 2

Another example of successful practice is the #17Goals project of the radio play series "It will happen ... 17 Stories from the Land of Tomorrow". The project was created in collaboration with the Tonies and the NGO Engagement Global. The adventures of little Dominique and the magical parrot Ari are told in 17 radio play episodes for children from the age of 5. The content is based on the sustainability goals of the United Nations (UN) and

conveys in a playful and child-friendly way that everyone - big or small - can make a positive difference in everyday life. To bring this idea to life, the quintessence of the SDG's was transformed into 17 adventure stories in collaboration with the well-known children's book author Rolf Barth, which children can experience together with little Dominique, the main character of the radio play series, on their Tonie Box (playback device). Dominique lives with her parents in the land of TODAY, until one day she is visited by a magical parrot called Ari, who shows her the land of TOMORROW.

Each story is themed around one of the 17 Sustainable Goals. But rather than being superficially didactic and moralising, they aim to be playful and intuitive. The stories introduce children to these sometimes-complicated issues and global challenges in a playful way and encourages discussion with parents about what they have heard. The focus is always on the fun of listening and the goal of inspiring children's imaginations with stories and characters from the land of TOMORROW.

More information about the project you can find [here](#).

6.4 Recommendations

This section presents recommendations for teaching sustainability and the SDGs using engaging storytelling techniques. In this case, these are primarily aimed at ECEC educators. However, in order to take a holistic approach, the involvement of different stakeholders is also important: if the inclusion of storytelling is required at the level of the National Curriculum Framework, the involvement of the government is needed. Reforms in infrastructure and facilities regarding energy efficiency for example also require appropriate stakeholders.

These proposals aim to empower teachers by providing them with the tools and knowledge they need to integrate storytelling into their classrooms. Collaboration with SDG experts and relevant NGOs is also important in this regard. In addition, strategies for a holistic educational approach and personalised learning pathways are proposed to promote interdisciplinary teaching of the SDGs and strengthen teachers' critical thinking and problem-solving skills.

Possible approaches for Austria

Early childhood offers a crucial window of opportunity to shape a child's holistic development and build a foundation for their future. The European Pillar of Social Rights states that all children have the right to affordable, high quality early childhood education and

care. The early years of a child's life lay the foundations and skills for learning that will be built upon throughout life. Learning is a gradual process. Building a strong foundation in the early years is an important prerequisite for higher skill development and later educational success, as well as being essential for children's health and well-being. Participation in early childhood education and interaction with well-trained and highly qualified professionals is beneficial for all children, especially those from disadvantaged backgrounds. It helps to prevent the emergence of early skills deficits and is therefore an essential tool in combating inequalities and educational poverty (Federal Ministry of Education, Science and Research, 2022).

Socially disadvantaged groups in particular benefit from early childhood education. Children who receive childcare from an early age have better educational, income and health outcomes in the future. This also promotes social mobility (Julius Raab Foundation, 2021).

The demand for ECEC for children aged zero to 6 is rising in Austria, but a shortage of trained professionals has led to limited availability. This is especially true for children under three, where attendance rates are particularly low. According to the Federal Ministry of Education, Science, and Research (2022), key factors contributing to this shortage include:

- Varied working conditions across federal states and municipalities, including differences in salaries, group sizes, staff-child ratios, and preparation times.
- Particularly men, due to low societal recognition and, in some cases, inadequate pay, often perceive the profession as unattractive.
- High turnover rates among staff, driven by retirements and the lure of better working conditions elsewhere, further exacerbate the issue.
- These challenges reflect broader disparities in the ECEC system across Austria, requiring immediate action to ensure quality and continuity in early childhood education.

The starting point for embedding the SDGs and ESD issues in Austrian ECEC therefore appears to be complex. There are already some hurdles to overcome in order to optimise the education system for this age group of children. Nevertheless, ESD and the SDGs are important, especially in ECEC, as they address key issues and competences for children's future.

Based on the analysis, several key recommendations were formulated to improve teachers' competencies in education for sustainable development and the SDGs through the use of storytelling. Firstly, emphasis should be placed on integrating storytelling into the curriculum. In addition, collaboration with SDG experts, NGOs and academic experts is essential to ensure relevance and effectiveness.

When developing educational materials and toolkits, project partners can more effectively support the integration of the above elements by providing a specific methodological framework with a whole school approach and customised learning pathways that provide valuable strategies for future activities.

A Whole School Approach emphasises in particular the link between different subjects and life skills, and aims to prepare children for the challenges of the real world beyond traditional areas of learning. This interdisciplinarity is also in line with the SDGs and reflects the world we live in. Furthermore, this approach can be adapted for teachers by integrating cross-curricular lessons on the SDGs. For example, combining science, geography and social studies to address climate change and its impact on local communities can provide a holistic understanding. This approach not only deepens knowledge, but also develops critical thinking and problem-solving skills in teachers.

In addition, the specific nature of the topic and the constraints imposed by the academic calendar pose a challenge, as many educators may feel overwhelmed by the complexity of the SDGs and the need to integrate them into their existing curriculum. Solutions to these challenges include modularising workshops and learning materials so that teachers can choose the topics that best suit their needs and interests, and allowing for flexible scheduling to accommodate the academic calendar. In addition, fostering a culture of peer learning and support can reduce feelings of isolation and overwhelm, thus easing the transition.

6.5 Conclusion

In conclusion, this country analysis shows the value and the practice of storytelling for integrating sustainability and the Sustainable Development Goals into Early Childhood Education in Austria. The approach taken in the Creative Storytellers project illustrates why we should focus on storytelling to embed sustainable views and shape children's understanding of themselves and the world around them with sustainability as a guiding principle.

In many ways, through stories and picture books in libraries, children can discover a sensual, emotional and playful approach to the big questions of life (see 5 P's: Planet, Peace, Prosperity, People, Partnership) and be encouraged to ask further questions. Where this is done with joy, perhaps a spark will be ignited in parents and other educators, who will then be inspired to explore the many possibilities of sustainable storytelling themselves. In this way, sustainability should lose its awkwardness and become a natural part of everyday life for families, nurseries and libraries.

In this way, more and more people - children and adults alike - will gradually be able to associate seemingly unwieldy terms such as "sustainability" and "Agenda 2030" with a positive, sensual and motivating idea or "story", and to translate and understand abstract buzzwords such as the "5 Ps" as an encouraging and vibrant message for their lives (Waldworte, 2020).

In practice, storytelling is used in a variety of ways in early childhood education. Teachers and parents use traditional fairy tales and fables, but they can also create their own stories tailored to the children's current needs and experiences. Interactive elements, such as involving the children in the storytelling or co-creating stories, can increase the effectiveness.

To strengthen ESD and the Sustainable Development Goals in Austria's curriculum, stakeholders must make decisive actions. This includes allocating necessary resources to incorporate these themes into teacher training and promoting a holistic approach to sustainability. Existing initiatives like storytelling and ESD workshops by NGOs, academic institutions, and experts should be more visible, possibly through a centralized platform, to create a network and integrate them into teacher education.

This approach could also elevate the importance of storytelling, highlighting the diverse facets this tool offers. By showcasing its potential, storytelling can be better integrated into educational practices, enriching the teaching of sustainability and other key topics.

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<https://www.creative-story-tellers.eu/>

Promoting children's understanding of sustainable development through multimodal story-telling in Early Childhood Education and Care (ECEC)

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