



**SUSTAINABLE EDUCATION:
WHICH ARE THE NETHERLANDS' MOST
EFFECTIVE EDUCATIONAL STRATEGIES FOR
SUSTAINABILITY?**

Master thesis, Sustainable Entrepreneurship

University of Groningen

June 5, 2024

ELENI XENAKI

Student Number: S5691095
Ubbo Emmiuslaan 545
8917 JD Leeuwarden
tel.: +30 6956149011
e-mail: e.xenaki@student.rug.nl

Abstract

Sustainable education is crucial for preparing the next generation to tackle issues and promote sustainable development. This research delves into the educational practices that stimulate sustainability attitudes and behaviours in children, using the example of the Netherlands. By gathering insights from interviews with students, both effective sustainable practices and gaps in knowledge were uncovered, laying the groundwork for a framework to support sustainability education that could be applied worldwide. Inspired by programs in schools, this framework underscores the importance of introducing sustainability concepts early on, integrating them into the curriculum, providing training for teachers and forming partnerships with sustainable organizations. Through promoting consciousness and nurturing a culture of sustainability among students and educators this framework serves as a guide for countries looking to improve their sustainability education efforts. By addressing obstacles and embracing this framework schools worldwide can nurture individuals who are equipped to address challenges and contribute to a more sustainable future.

Table of Contents

Abstract	2
Table of Contents	3
Introduction	5
Theoretical Framework	8
Education for Sustainable Development.....	8
The Importance of Early Age Education.....	9
Forming Children’s Sustainable Behaviour.....	11
Education for sustainability in the Netherlands.....	15
Methods	15
Data collection.....	16
Data analysis	17
Findings	18

Practices That Work in Teaching Sustainability.....	18
Practices That Work in Teaching Sustainability.....	20
Areas of Improvement in Teaching Sustainability.....	22
Recommended Framework.....	24
Discussion and Conclusion	27
Theoretical Contributions	27
Practical Implications.....	30
Sustainable Education Framework.....	30
Importance of the Framework.....	32
Limitations.....	35
Future Research.....	36
Literature.....	38
Appendices.....	43
Appendix A: Table with participant’s information.....	43
Appendix B:Thematic coding of the interviews.....	44
Apendix C:Information sheet and the informed consent.....	50

Introduction

We live in an era that is dealing with a plethora of global challenges, from climate change to social inequality. These problems have been discussed for the last decades and we are the first generation since humankind was created that is dealing with the urgent task of finding solutions that will end climate change before it is too late. Most problems have a solution, but sometimes the solution can be found in a different perspective of the problem.

A big part of the solution to sustainability can come from education (UNESCO, 2023). The importance of education for sustainability and for fighting climate change is recognized in the United Nations, the Paris Agreement and the associated Action for Climate Empowerment agenda, which all highlight the urgent need of governments to educate, empower and engage all stakeholders on policies and actions that will bring an end to climate change (UNESCO, 2023).

Classrooms are places where knowledge is born and cultivated, perspectives are broadened, and aspirations are nurtured. They are the places where the next policymakers and entrepreneurs are building their core traits of character. It is within these “rooms” that the learning “seeds” of change are sown, and the ethos of the new generation takes root.

The Netherlands is one of the countries standing at the top of all sustainability charts. It is ranked on the 8th place in the current Climate Change Performance Index and is among the highest overall performers (Climate Change Performance Index Ranking, 2023). Building upon the role education plays in promoting sustainability actions and sustainable behavior, the Netherlands, with its high sustainability ranking, is an ideal case study to be examined through the lenses of its pedagogical system to investigate the sustainable educational practices it uses, as one of the factors contributing to the Netherlands’ overall high sustainability performance.

Furthermore, using the most modern pedagogical approaches is one of the features of the Dutch education system. Freedom of education is guaranteed under Section 23 of that country's constitution. This means that there is the freedom to found schools, to organize what happens in the classroom and to create the main principles of schools (freedom of conscience) (Netherlands Ministry of Education, Culture and Science, 1998). This is the epitome of progressive democracy and therefore there is a plethora of public and private schools in the country.

The Dutch pedagogical system can be a good practice example to be analyzed in order for it to serve as a framework for other, less sustainably developed countries. The main goal of this research is to analyze Netherlands' pedagogical approaches in its classes, schools, and seminars through the perceptions of former students regarding their sustainable experience in school and the methods which helped them to be more sustainable. In this way, it will be possible to create a recommendation for an educational framework that combines Netherlands best practices for sustainability and the feedback of students themselves.

From prior research we know that the education that children are exposed to during their early stages of life is crucial for the development of their character and overall perception of the world (Tabroni, Hardianty, & Sari, 2022). That is why it is important for the curriculum to further focus on sustainability in ways in which the children will be able to comprehend sustainability. Yet a complication comes about because we lack knowledge of the ways that students truly can comprehend sustainability as the curriculums are made by policy makers. By taking into account the most effective practices from the point of view of former Dutch students it is possible to create an educational framework regarding sustainability that focuses on efficient ways in which the students could become more sustainable.

All of the above can be of great help in answering the main focus of this paper which revolves around the question; "*What teaching methods stimulating sustainable values and behaviors are the most successful in an educational system?*" It is essential to understand the effectiveness of these methods to establish a foundation for practices that can mold present-day children into responsible and environmentally aware citizens of the future. This inquiry holds relevance amidst educational transformations as many nations are in search of successful models to incorporate sustainability into their curricula.

To unveil these successful teaching methods this research adopts a qualitative approach by collecting data through interviews with individuals who have experienced the Dutch educational system as students. Through testimonies and personal anecdotes, the study aims to pinpoint which teaching strategies and sustainability initiatives have had an impact on students' comprehension and involvement in sustainability matters. The perspectives shared by students offer insights into what works effectively within real classroom settings.

This research aims to gain an understanding of educational practices based on the real experiences of individuals who have participated in the Dutch education system. The combination of the already existing research with the new data will create the framework for sustainable education. Through its findings and conclusions, the research not only showcases approaches but also offers guidance for other educational systems looking to implement similar sustainability education initiatives. This is extremely relevant as climate change concerns become widely spread and it is more important than ever to create the responsible citizens of tomorrow. Therefore, the importance of this research lies in its potential to guide decision-makers, educators and stakeholders from countries who aspire to enrich their education

systems with successful sustainability practices. By examining the model renowned for its effective approach towards sustainability education, this study endeavors to extract fundamental components that can be tailored and implemented across various educational environments worldwide.

The paper proceeds as follows. The Theoretical framework section provides the fundamental theories informing the research. The data collection and analysis are elaborated in the Methods section of this paper. The Methods section is followed by the Findings section, elaborating on the information gathered. Finally, the contribution of the findings to theory and practice, as well as limitations and suggestions for further research are described in the Discussion and conclusion section.

Theoretical Framework

Education for Sustainable Development

Sustainability has become a global priority, as countries all over the world are now on a mission to balance their economic growth with social justice and environmental responsibility. What is now needed more than ever, is a global and concrete foundation which will be able to support the new sustainable era of the planet. A remarkable part of this foundation is education. Education plays a crucial role in shaping attitudes, behaviors, and practices towards sustainability (Sinakou et al., 2018).

In 1992, at the United Nations Conference “Environment and Development” in Rio de Janeiro, the Agenda 21 Global Action Program agreed that there is a strong need of integrating education for sustainable development in the curriculum of all fields, at all the levels of the educational

system (Płonka and Dacko, 2019). In this conference, a plethora of leaders that represented more than 100 countries highlighted the fact that high-quality education is the foundation for sustainable growth. Later on, the "Education Strategy for Sustainable Development" that was created by the United Nations Economic Commission for Europe in 2005 (UNECE, 2005) emphasized that there is a need to implement the Sustainable Education Development strategies in the educational systems.

Countries worldwide have implemented a plethora of initiatives with the goal of integrating sustainability education into their school systems and therefore cultivating environmentally conscious citizens. However, the extent to which every country has implemented sustainable education in its curriculum differs, influencing its sustainability.

The Importance of Early Age Education

It is important to take into consideration that research shows that education at a young age can make a huge difference in the development of children. Specifically, Early Childhood Education stimulates physical, spiritual, motor, intellectual, emotional, and social growth (Sunaryo, & Fauziati, 2023). It is crucial to nurture character traits from an early age as they greatly influence how a person behaves and makes decisions. By introducing character education the goal is to imbue values that empower individuals to positively impact society as they grow older. Hence establishing a foundation of education from an early stage is vital for shaping responsible members of society (Sunaryo et al., 2023).

The connection between morality and personal qualities, manners and the application of teachings in daily life is crucial. William Kilpatrick's philosophical conversations about moral

education align with expert viewpoints on character, ethics and religious beliefs (Sunaryo et al., 2023). Lawrence Kohlberg highlights that moral education advances through stages, laying the foundation for justice in growth (Sunaryo et al., 2023).

Jean Piaget posited that children's moral cognition evolves as they mature developmentally suggesting two phases; the stage where children perceive justice as fixed, and the autonomous stage where they acknowledge the flexibility of rules (Sunaryo et al., 2023). The theories of Kohlberg and Piaget propose that children in the conventional stage (around age 10) evaluate their moral reasoning based on the outcomes of their actions, viewing misdeeds in terms of punishment and virtuous conduct as fulfilling personal desires without considering others' needs (Sunaryo et al., 2023). Knowing all the above it becomes clear that implementing sustainability in the curriculum and in the teaching methods from an early age could be decisive to the development of the children's sustainable consciousness and ethics.

Fostering quality character traits from an early age is essential since these attributes shape an individual's conduct, actions and speech. Early childhood serves as a period for cultivating character traits—a practice long valued by nations, like Japan (Sunaryo et al., 2023).

Teaching children skills is relatively simple but teaching them values and character traits should begin early. The aim of introducing character education at an early age is to cultivate traits that help individuals make valuable contributions to society and the world around them as they mature (Sunaryo et al., 2023). All the above highlights the need for people and policymakers to implement sustainable education from an early age.

Forming Children's Sustainable Behaviour

It is important to understand where children get their sustainable behaviors. Research suggests that influences, from family, media exposure, time spent in nature, and interactions with peers, and educational experiences all play a role in molding children's eco behaviors (Hosany et al., 2022).

For instance, children who rely on cars for school transportation may develop a preference for driving due to its convenience leading to long term habits. Surrounding themselves with friends who prioritize recycling or opt for clothing made from ethically sourced materials can inspire teenagers to do the same (Hosany et al., 2022). Exposure to nature through activities like gardening and outdoor play or visits to areas can foster friendly behavior in kids. Additionally, being informed about climate change and marine pollution, through media coverage or educational initiatives can enhance children's awareness (Hosany, et al., 2022).

One of the accepted theories explaining children's sustainable behavior is consumer socialization/resocialization. In line with Ward (1974), consumer socialization pertains to how children learn the necessary skills, knowledge and attitudes to become consumers. Ward (1974) and Moschis & Churchill (1978) describe socialization as a combination of learning and modeling processes. As children grow up they observe the behaviors of those around them who act as role models, such as parents, peers and teachers (Ward, 1974). Building upon consumer socialization, environmental socialization (Gentina & Muratore 2012) is explained as the way in which children adopt behaviors through interactions with influential figures. This means that having role models and interacting with people important to children can shape how children will behave, including whether their behaviour will be sustainable. However, when it comes to

children's behavior, the concept of resocialization or reverse socialization emerges – where children influence their parents to embrace eco friendly practices, like saving energy, recycling choosing sustainable consumption habits and using green transportation methods (Gentina & Muratore 2012). Therefore, sustainability behaviour learned by children elsewhere but at home can, through the process of resocialization, be spilled-over to other family members.

Other frameworks regarding children's sustainable behaviour are the Norm Activation Theory proposed by Schwartz in 1977, the Theory of Planned Behavior introduced by Ajzen in 1985 and the Value Identity Personal (VIP) Model Theory developed by van der Werff and Steg in 2016. The Norm Activation Theory delves into how individuals react to threats affecting others by taking actions to mitigate those threats or by assuming responsibility on behalf of others. Within this theory personal norms play a role in predicting behaviors showcasing care for others through environmentally friendly actions. Mehdizadeh and Ermagun (2020) applied the Norm Activation Theory to explore children's commuting habits to school, revealing that kids from households with sustainable values prefer eco conscious transportation methods over using cars. Instilling values from parents to children is likely to influence their future behaviors.

The Theory of Planned Behavior, presented by Ajzen in 1985, suggests that intentions and actions are shaped by attitudes, social norms and perceived control. Attitudes are influenced by beliefs, social norms arise from expectations and perceived control pertains to how easy an action is perceived to be carried out. Research conducted by De Leeuw et al. (2015) revealed that high school students' attitudes, social norms and perceived behavioral control align with their intentions, which are then reflected in their practices.

The VIP Model proposes that children's belief in values impacts their sense of self in relation to the environment and their subsequent actions. A study conducted by Zeiske and colleagues (2020) in the Netherlands confirmed the connection between children's values, self identity and efforts, towards energy conservation.

The De Leeuw and colleagues study, from 2015, highlights how the attitudes, norms, perceived control, over behavior and intentions of high school students are closely linked to their adoption of practices. This information is important, in the context of teaching sustainability as it clarifies how students' attitudes and views impact their actions. Furthermore, the VIP Model underscores the significance of values and self perception in molding children's behaviors towards nature. Recognizing this connection is crucial to creating teaching approaches that foster environmental values and a deep ecological identity.

Easterling et al. (1995) suggest that connecting with nature is crucial for fostering children's environmental awareness, a fundamental aspect of nurturing sustainable behaviors in children. Engaging with nature from a young age can take various forms such as outdoor play, green spaces in urban settings, or environmental education in schools, and contributes positively to emotional well-being (Kahn & Kellert, 2020). Numerous studies have shown a strong link between exposure to nature and children's environmental attitudes and sustainable behaviors (Barrera-Hernández et al., 2020) like for example consumption patterns (Collado, Evans, Corraliza & Sorrel, 2015). Particularly, research acknowledges that childhood exposure to natural environments and interactions with the natural world (such as trees, plants, and animals) form essential human-nature bonds, pivotal in fostering children as proponents of sustainability (Nasrabadi, García & Pourzakarya, 2021).

Studies indicate that when children engage with nature more, even through indirect ways like looking at photos, they develop an emotional bond with the environment, which motivates them to take more eco friendly actions behaviours (Cheng & Monroe, 2012). Moreover, implementing nature focused environmental education programs has been proven to yield changes in behavior (Otto & Pensini, 2017). Particularly, Barrera Hernández et al. (2020) discovered a link between a child's connection to nature and their eco friendly behaviors impacting their happiness and welfare.

In summary, shaping children's habits involves a blend of factors such as family, friends, media, schooling and exposure to nature. Theories like consumer socialization, the Norm Activation Theory, the Theory of Planned Behavior and the VIP Model offer insights into how these behaviors take root and grow. By grasping these mechanisms, teachers, parents and policymakers can better nurture eco practices in children. This ensures that upcoming generations are instilled with the values, knowledge and drive to tackle issues and be more sustainable.

Education for sustainability in the Netherlands

The educational system in the Netherlands is currently working through the lens of the "mixed education system". This means that there is a diverse array of schools with varying teaching methodologies and ideologies from a young age (Suryani, Rusdinal, & Azwar, 2023). Despite this diversity in the curriculum, there are certain fundamental principles that are always existent in Dutch education. Its system adopts a collaborative ethos by actively encouraging students to engage in group study and cooperative learning. This is also apparent in the collaborative approaches that are often integrated into the curriculum together with the form of interactive learning experiences (Suryani et al., 2023).

The Netherlands, known for its innovative environmental policies and also for its sustainable initiatives in schools, is thriving sustainability-wise, especially if we compare it to the rest of the world (Environmental performance index, 2020).

The Netherlands' educational system can be studied in order to create a framework for less sustainably developed countries that takes into account the point of view of students. It is of extreme importance to introduce the opinion of former students to the dialogue about the education for sustainability in order to create a new framework that is of practical use. Therefore, the primary objective of this research is to analyze the pedagogical approaches that are being implemented in Dutch classrooms, schools, and seminars through the insights from former Dutch students about their experiences with sustainability in school and the most effective practices and approached of sustainable education. Through this approach, the main goal of this study is to find effective approaches and practices that stimulate sustainability and that can be easily applied to other settings and countries that have not yet implemented sustainability in their curriculum. Based on these approaches and practices, the study seeks to develop an educational framework that can be implemented in any country of the world.

Methods

To delve into the sustainability aspect of the system, a qualitative approach was deemed necessary. Qualitative research was chosen as the methodology for this study because it offered participants a chance to deeply reflect on their memories and share valuable insights. Given the nature of "sustainability in education" qualitative methods permitted an exploration of phenomena, experiences, memories and recommendations shared by participants. By engaging with Dutch students, it was able to capture their real life experiences, perceptions and attitudes

towards sustainability education. The process involved selecting six participants, designing interviews, and collecting and analyzing data to ensure the credibility of the research.

Data Collection

The main focus of this research is on the mandatory education system in the Netherlands, where school attendance is compulsory for all children aged from 5 to 16 (Gemeente Amsterdam, 2024). The choice to concentrate on the mandatory education and teaching methods experienced by participants when they were in this age group was based on several critical factors, including the fact that in contrast with higher education, it is the same for all, it includes the very malleable developmental stages of children, and has the potential of instilling sustainable values and behaviors early in life (Cantor, 2018).

The compulsory nature of education during these early years ensures that this study, and the framework that will be created as the result of the study, is comprehensive across the entire student population, providing an opportunity to implement the sustainability education framework systematically. As all children between the ages of 5 and 16 years have to attend school, educational policies can be designed to have a broad and consistent impact on them and the educational system.

Semi-structured interviews were chosen as the data collection method due to their adaptability. This approach facilitated gathering insights through responses while providing a flexible framework to steer conversations. Participants had the freedom to express their thoughts openly leading to insights and perspectives emerging during the discussions.

The process of selecting participants played a role in this study to ensure a range of perspectives. The decision to focus on students was based on their firsthand experience with education that stimulated sustainable attitudes in the Netherlands. These individuals had recently completed their education offering insights into the developments in educational practices related to sustainability. To be specific, all six people that were interviewed had graduated between 3 to 7 years ago. The participants came from all backgrounds in terms of gender and schools attended, providing a representation of experiences. Detailed information about the participants can be found in Appendix A.

The interview guidelines were tailored to meet the research objectives aiming to delve into the participants' encounters with education stimulating sustainability. The questions were carefully crafted to explore facets such as overall experiences, significant initiatives encountered, the influence of education on attitudes towards sustainability and suggestions for enhancement.

During the data collection phase, ethical standards were strictly followed, including obtaining consent from all participants. Virtual semi-structured interviews were conducted to accommodate participants' preferences and logistical constraints. Each interview was recorded with consent to ensure data documentation and transcripts were anonymized (See Appendix C for the information sheet and the informed consent).

Data Analysis

A thematic analysis approach was utilized to examine the interview transcripts through a process involving coding, categorization and theme identification.

The analysis started by getting familiar with the data and then coding statements or phrases. These codes were grouped into categories and refined into patterns and themes through continuous comparison and analysis. For instance, the analysis identified categories like "Extracurricular Initiatives" with codes such as "volunteering" and "clean-up" falling under these categories. An example of quotes of this code from former students was "Some schools organize extracurricular initiatives, such as volunteering and clean-up activities." and "These initiatives promote community engagement and environmental awareness among students."

The detailed results and thematic analysis will be discussed in the findings section offering an insight into the effective practices within the Dutch educational system. These findings are essential, for creating a framework of practices that can be modified and implemented in educational settings globally to promote sustainable development from an early stage.

Findings

The study explores the practices of sustainability education, in schools in the Netherlands examining methods and initiatives to improve students understanding of and involvement in environmental matters.

Practices That Work in Teaching Sustainability

From the interviews with the former Dutch students it was clear that early exposure to nature and sustainability concepts plays a vital role in promoting environmental awareness and appreciation. Former students emphasized that sustainability topics were frequently integrated into their studies with schools promoting sustainable behaviors that helped cultivate a culture of

sustainability among students and faculty. These insights highlight the significance of incorporating hands-on experiences into sustainability education.

Introduction to nature. The most apparent finding was that all participants started being introduced to Nature from a young age. During the analysis of the study's results some interesting and surprising aspects came to light especially regarding how indirect methods of teaching sustainability impacted students. One aspect pointed out was the effect that exposure to nature had on students' views and actions towards the environment. Contrary to what I thought, expecting a link between formal sustainability education and environmental consciousness, the findings emphasized how indirect approaches like being in nature influenced Dutch students' connection with the environment.

The data showed that interactions with nature, such as activities or field trips, played a role in raising awareness and fostering respect for nature among students. This highlights the value of holistic methods that involve hands-on learning and direct contact with the natural world. For reference, when the participants were asked about their most memorable experiences in school regarding sustainability that had an impact on them some of the answers from three different participants were: " [One of the most memorable sustainable experiences was] Providing students with opportunities to engage with the environment firsthand and develop a sense of appreciation for nature.", "Connecting with nature makes you more likely to take an interest in it.", "Field trips to environmental centers or sustainable farms were always memorable and taught us a lot about sustainability in practice." (Participants 2, 3, 5).

Incorporation into the curriculum. Another way sustainability was part of participants' school experience was through its incorporation into the curriculum. Specifically, although

sustainability education was not a course any of the participants mentioned, it was woven into existing subjects. For instance, one participant talked about learning about energy bulbs as part of their studies. By subtly including sustainability themes across disciplines, students gained an understanding of environmental issues. When asked about their favorite activities, most students answered they loved anything nature-related or activities in which they could use their hands and be in touch with nature. For example, one participant said "Hands-on activities like planting trees or building compost bins were highlights of my school years and made the concepts of sustainability tangible." (Participant 2).

Teacher promotion of eco-friendly practices. Teachers also played a role in promoting eco-friendly practices within the school setting. Students recalled teachers encouraging them to reduce paper usage, demonstrating ways to embrace sustainability in the classroom. For reference a participant recalled "Teachers were saying like, 'Okay, don't grab five papers if you only need one.' So, that was definitely part of it [starting to become more sustainable]." (participant 6). This focus on changing behaviors helped foster a culture of sustainability among students and staff alike. Another participant was intrigued by the way some teachers were using more sustainable ways of transportation, recalling "Well, the thing that intrigued us as kids was the fact that some teachers came with a bike instead of a car. That's definitely a thing. At that point of time, I linked that more towards health rather than the environment, right? With greenhouse gasses that are emitted from cars, for instance, instead of going by bike. So, it was a thing that was noticed" (participant 1). Another participant quoted "Teachers played a role in shaping sustainable behavior by modeling environmentally friendly practices." (participant 5).

Initiatives for waste management. Schools implemented initiatives for waste management like recycling bins and programs for waste separation. Participants mentioned that recycling bins were present in classrooms, showing a stance on managing waste. These efforts not only promoted waste disposal but also increased awareness about the significance of recycling and conserving resources. A participant recalled a specific project in which recycling and hands-on activities were implemented together: “I remember we had this project where we had to create something from recycled materials. It was really fun and helped us understand the importance of recycling.” (participant 4).

Table 1: Summary of Successful Practices

Practice	Description
Introduction to Nature	Early exposure to nature through activities such as field trips and zoo visits instils admiration and curiosity about the environment.
Incorporation into the Curriculum	Sustainability themes are woven into existing subjects, making concepts tangible for students.
Teacher Promotion of Eco-Friendly Practices	Teachers actively encourage eco-friendly behaviors, such as reducing paper usage, fostering a culture of sustainability.

Initiatives for Waste Management	Schools implement waste management initiatives, including recycling bins, to promote awareness and conservation of resources.
---	--

Areas of Improvement in Teaching Sustainability

Even though the Dutch educational system has a lot of strengths, some areas of improvement became clear as stated by the participants.

Enhancing sustainability education. Through the interviews, it became apparent that there were opportunities for enhancing sustainability education. For example, there is a lack of courses related to sustainability in the curriculum. While some sustainability initiatives were in place, participants pointed out the absence of sustainability classes or workshops during their education. This gap underscores the need for endeavors to integrate sustainability themes into the curriculum. For example, an interviewee said "We didn't have specific classes on sustainability. It was more integrated into other subjects or just discussed briefly." (participant 2).

Limited external partnerships. There were also limited external partnerships between schools and sustainable organizations. While some collaboration regarding recycling took place in some of the schools, all in all, participants observed a lack of substantial partnerships with external organizations focused on sustainability. While certain schools had waste management measures, there were no collaborations with stakeholders dealing with the topic, which was stated many times in the interview process with a participant stating "There weren't many partnerships with external organizations focused on sustainability." (participant 3). Establishing partnerships with

entities could enhance learning experiences. It is important to offer students practical opportunities to address sustainability issues outside the classroom.

Lack of inspirational figures. What the participants also noticed was that even though they paid attention to their teacher and they were influenced by them to an extent, this pattern was very sporadic and not intentional. There is a lack of inspirational figures in schools. Participants did not recall teachers or role models at school who motivated them in practices, with one interviewee stating "There weren't any specific teachers who stood out as sustainability role models for me." (participant 2). The lack of role models points to a chance for schools to offer teachers growth opportunities and encourage them to lead by example by actively promoting sustainable practices.

Table 2: Areas for Improvement

Area	Description
Enhancing Sustainability Education	Lack of dedicated courses or workshops on sustainability, indicating a need for integration into the curriculum.
Limited External Partnerships	Collaborations with external organizations focused on sustainability are lacking, hindering practical learning opportunities for students.

<p>Lack of Inspirational Figures</p>	<p>Absence of inspirational role models within schools to motivate students and promote sustainable practices.</p>
---	---

Recommended Framework

Based on the findings, the following suggestions on the elements to be included in education are put forth to improve fostering sustainable behaviour among students in schools in the Netherlands and other countries.

Exposure and awareness. It is of great importance for children to have exposure to nature in order to gain more awareness of it. It is very effective to introduce sustainability education at an early age through outdoor activities and excursions to instil awareness and respect for the environment. Moreover, discussions on sustainability and its economic effects should be included in the elementary school curriculum to establish a foundation for learning.

Structured curriculum integration. It is crucial to have a structured curriculum integration of sustainability. Educational systems should establish guidelines for incorporating sustainability themes into subjects ensuring a thorough approach to sustainability education. For example, sustainability related texts could be read during “literature” class, and recycling guides could be integrated during biology.

Integrating sustainability in the curriculum only through various classes or within various subjects will not be enough. With climate change approaching, it is of utmost importance for a

sustainability class to be developed and incorporated into the curriculum. In this class, the children would get educated regarding all the aspects of sustainability, climate change and what they can do to be responsible citizens.

Teacher training and exemplary behavior. For the above interventions to be possible, it is also necessary to ensure continuous teacher training. Schools should offer development opportunities for teachers to boost their knowledge and skills in delivering sustainability education. They should also encourage educators to lead by example by embracing and advocating practices within the school setting.

External collaborations. It is likewise important for schools to have external collaborations. In this way schools can cultivate partnerships with organizations dedicated to sustainability to enrich experiences and provide students with hands-on involvement opportunities. They can also work together with communities and businesses to develop hands-on projects and programs that tackle sustainability issues in the areas where schools are situated.

By putting these suggestions into action, schools can improve the impact of their sustainability education endeavors, empowering students to play a role in building a sustainable tomorrow.

Table 3: Recommended Framework for Improving Sustainability Education

Recommendation	Description
Exposure and Awareness	Introduce sustainability education at a young age through outdoor activities and excursions to instil awareness and respect for the

	<p>environment. Include discussions on sustainability and its economic effects in the elementary school curriculum to establish a foundation for learning.</p>
<p>Structured Curriculum Integration</p>	<p>Establish guidelines for incorporating sustainability themes into subjects, ensuring a thorough approach to sustainability education. Explore cross-disciplinary case studies that showcase applications of sustainability principles within the current curriculum. Develop a focused sustainability class and incorporate it into the curriculum.</p>
<p>Teacher Training and Exemplary Behavior</p>	<p>Offer development opportunities for teachers to boost their knowledge and skills in delivering sustainability education. Encourage educators to lead by example by embracing and advocating practices within the school setting.</p>
<p>External Collaborations</p>	<p>Cultivate partnerships with organizations dedicated to sustainability to enrich experiences and provide students with hands-on involvement opportunities. Work together with communities and businesses to develop hands-on projects and programs that tackle sustainability issues in the school's area.</p>

Discussion and conclusion

The research question this study wanted to answer was "*What teaching methods stimulating sustainable values and behaviors are the most successful in an educational system?*". The exploration of sustainability in education was approached through a lens concerning sustainable education in the Netherlands and firsthand data from former Dutch students.

Theoretical Contributions

This study makes progress in the field of Education for Sustainable Development (ESD) and early childhood education by expanding current theories and introducing new insights based on empirical data from the Netherlands.

Insights into Early Childhood Education for Sustainability and children behaviour

By showing how exposure to sustainability concepts at an early age influences long term attitudes and behaviors, the study underscores the role of early childhood education in instilling sustainable values (Sunaryo et al., 2023). The firsthand information gathered through discussions with students provided valuable insights into how early educational experiences impact a person's awareness of sustainability, enriching our understanding of existing theories on child development.

Furthermore this study enhances our knowledge about children's behaviors by exploring known theories like the Theory of Planned Behavior (Ajzen, 1985), Norm Activation Theory (Schwartz,

1977) and the Value Identity Personal (VIP) Model (van der Werff & Steg 2016). Through interviews the research sheds light on how these theoretical frameworks manifest in educational settings.

Relationship with Nature

The study emphasizes how developing a connection with nature plays a role in encouraging sustainable behaviors among children which can be confirmed by the literature (Kahn & Kellert, 2020). The findings suggest that the memorable school experiences for participants involved interactions with nature, supporting the idea that exposure to the natural world is crucial for fostering environmental awareness (Kahn & Kellert, 2020). Similarly, Easterling et al. (1995) and Cheng & Monroe (2012) propose that such interactions play a role in strengthening children's connection with the environment encouraging environmentally conscious behaviors. The research data highlights that incorporating nature based activities into frameworks can effectively nurture a commitment to sustainability.

Proposed Global Educational Framework

Incorporating approaches with student input results in an educational framework for promoting sustainability across diverse global contexts. This innovative contribution combines experience with underpinnings to create a comprehensive model that bridges the gap between theory and practice. The framework emphasizes the importance of integrating student perspectives to shape sustainability education advocating for an approach that complements top down policy initiatives like introducing sustainability education at a young age through outdoor activities, establish guidelines for incorporating sustainability themes into subjects, offering development

opportunities for teachers to boost their knowledge, cultivating partnerships with organizations dedicated to sustainability.

A framework for education can act as a roadmap for introducing and upholding sustainable practices within educational institutions. This framework would encompass elements such as curriculum design, teacher training, student involvement, community engagement and assessment criteria. By standardizing these components the framework highlights the most efficient approach to sustainability education in settings.

Curriculum Design. The curriculum should embed sustainability principles across subjects to make awareness a part of students educational journey. This may involve lessons on topics like climate change, biodiversity, renewable energy sources and sustainable lifestyle choices.

Teacher Training. Educators should be equipped with the knowledge and skills required to deliver sustainability education. This entails development opportunities focusing on current environmental issues teaching strategies for sustainability education and methods, for incorporating hands on learning experiences.

Student Engagement. It is essential to encourage students to participate in their learning. This can be done by involving them in hands on projects, outdoor activities and school wide sustainability programs that allow them to apply what they learn in real life situations.

Community Engagement. Schools should work together with groups, businesses and government bodies to enhance sustainability education. Collaborations can bring in resources, expertise and chances for students to get involved in projects that benefit the community.

Assessment Criteria. Schools need ways to evaluate the effectiveness of sustainability education. This could involve assessing students knowledge and attitudes towards sustainability as measuring how school wide sustainability efforts impact the environment.

This research expands on theories by underscoring the significance of hands on learning in sustainability education. It also adds to the expanding body of literature on sustainability education and offers insights for educators, policymakers and stakeholders looking to enrich sustainability education in their specific contexts.

Practical implications

This research presents implications that can benefit teachers, policymakers and sustainability focused organizations in enhancing sustainability education. Drawing from the framework and research results here are the practical implications.

Encouraging Nature Centered Learning

The study highlights the importance of introducing children to nature to nurture their environmental awareness and sustainable behaviors. Policy makers, and consequently the schools, should prioritize opportunities for nature centered learning such as field trips, outdoor activities and environmental education initiatives. These experiences help children develop a bond with nature increasing their likelihood of participating in eco actions. Tangible steps include establishing school gardens, organizing visits to farms or natural reserves and incorporating outdoor play into the curriculum.

Holistic Curriculum Integration

The research underscores the importance of integrating sustainability themes across subjects rather than addressing them in isolation. Policy makers and schools should incorporate sustainability throughout the curriculum. This may involve readings related to sustainability in literature classes, teaching concepts of energy in science lessons and exploring the aspects of sustainability in social studies classes. This comprehensive approach ensures that students understand the aspects of sustainability and its relevance to areas of life.

Introduction to Customized Sustainability Courses

One noticeable gap in the education system is the absence of classes focusing on sustainability. It is recommended that schools introduce courses centered around sustainability, climate change and environmental stewardship. These classes should encompass principles of living the scientific aspects of climate change and practical steps students can take to minimize their impact on the environment. By providing thorough education on these topics schools can empower students with the knowledge and abilities to tackle urgent environmental challenges.

Teachers Leading by Example

Educators play a role in shaping students attitudes towards sustainability (Ward, 1974). Research indicates the significance of development opportunities for teachers to enhance their grasp of sustainability concepts and teaching techniques. As mentioned in the theoretical framework, children observe the behaviors of those around them and get influenced by their role models, such as parents, peers and teachers (Ward, 1974). This means that having role models and interacting with people important to children can shape how children will behave, including

whether their behaviour will be sustainable. Furthermore teachers should be encouraged to demonstrate practices such as waste reduction and friendly transportation as a means to inspire students. Practical initiatives may involve organizing sustainability workshops for teachers offering support for classroom strategies and recognizing educators who actively promote stewardship.

Building Partnerships with External Organizations

Schools should look to work with nonprofits, local companies and community organizations to give students hands on opportunities in sustainability initiatives. These partnerships can provide resources, knowledge and real world applications of sustainability principles. Practical activities may involve organizing community actions, participating in sustainability projects and hosting guest speakers from environmental groups to share their insights with students.

Incorporating Student Input

To ensure that sustainability education is meaningful and impactful, it's crucial to include feedback from students. Schools should create avenues for students to express their thoughts, suggestions and experiences related to sustainability education. This could be achieved through surveys focus groups or student councils focused on matters. By involving students in decision making processes schools can tailor their programs to better meet the needs and interests of the learners.

Emphasizing the Importance of Role Models

The research highlights a lack of inspiring figures in sustainability education. Schools should actively showcase individuals who are making contributions to sustainable practices. One way to

enhance sustainability education in schools is by inviting activists, scientists and entrepreneurs to speak to students. They can share success stories of practices. Engage students, in mentorship programs led by individuals passionate about sustainability. These efforts can help schools build a community of individuals who are prepared to tackle global sustainability issues.

By integrating sustainability themes into the school curriculum and promoting eco practices, a framework that values sustainability can be nurtured among both students and faculty members globally. Such a framework that could be adopted in schools in order to promote an approach, to sustainability education without borders.

Importance of the Framework

By offering a flexible guide to integrate sustainability into the school curriculum this framework can set a standard for countries looking to enhance their sustainability education initiatives. The focus on developing curriculum, training teachers, engaging students involving the community and evaluating outcomes ensures a rounded approach to sustainability education.

In developed nations this framework can help establish and enhance existing sustainability education programs to ensure that all students receive high quality and targeted instruction on environmental issues. For developing countries the framework can provide the structure and assistance to implement sustainability education despite limited resources and obstacles.

The potential influence of this framework is substantial. By promoting a culture of sustainability in schools it can cultivate a generation of individuals equipped with the knowledge and abilities

to tackle today's complex environmental challenges. This shift can also contribute to movements towards sustainability aiding in achieving global sustainability objectives.

Connecting the findings, this research highlights the relationship between practical aspects of sustainability education. By tying the analysis of interviews and documents on the Dutch education system with broader educational theories this study offers a thorough insight into how organized sustainability initiatives can be put into practice and assessed. This unified method ensures that the conclusions drawn in the study are backed by evidence and relevant literature.

The research outcomes add to the growing pool of knowledge concerning approaches in sustainability education. They present a blueprint for institutions to emulate showing that well designed programs can make a significant positive difference, in students environmental attitudes and actions.

Adaptation for Developing Nations and other countries

Introducing this approach in developing or developed countries that do not include sustainability in education comes with both advantages and obstacles. These nations often face challenges making sustainability education highly relevant. However limited resources and infrastructure can make implementation difficult. This framework highlights the necessary and most efficient practices in order to integrate sustainability in education. In that way it creates a specific roadmap for stakeholder and policymakers to follow, without wasting resources in practices that do not seem to work. Sustainability education is crucial on a scale and the principles and strategies presented in this framework can act as a guide for improvement worldwide. By focusing on integrating sustainability topics into school curricula forming partnerships with

organizations and offering training for teachers, this framework presents an approach that can be adjusted to fit the circumstances and obstacles faced by different countries. Notably the framework offers a structure allowing for adaptation to various cultural, social and economic settings. Implementing such a framework globally could spark changes equipping generations with the knowledge, skills and values needed to tackle urgent environmental and societal challenges. By incorporating sustainability education into school systems this framework has the potential to help create a fairer, more resilient and sustainable future, for everyone.

Limitations

The study has some limitations that need to be considered. Firstly, the small number of students interviewed could limit the range of perspectives. While the insights gained from these interviews are valuable, having a larger and more diverse sample would give an understanding of sustainability education across groups and settings. Using data collection methods like surveys and analyzing data quantitatively could make the findings more generalizable and provide deeper insights into sustainability education in Dutch schools.

Another limitation is not being able to interview children in school or those experiencing new sustainability initiatives. While talking to children could provide insights into their views on sustainability education, getting consent for such interviews is challenging. Therefore this study relied on students' perspectives, which might not fully reflect the state of sustainability education in schools today.

Moreover, although this study specifically examined sustainability education in schools, it's crucial to recognize that educational approaches and priorities can differ across countries and cultural contexts.

Future research

In the future researchers could focus on addressing some of the limitations highlighted in this study to enhance our understanding of sustainability education and its impacts. To begin with, since the number of students interviewed was relatively small, upcoming studies could involve larger and more diverse groups of participants to ensure a wider range of perspectives. Using research methods, like surveys or longitudinal studies could help gather data from a variety of individuals enabling more thorough analyses of sustainability education experiences and outcomes.

Moreover, future research might explore ways of examining sustainability education, such as interviewing children currently receiving compulsory education or those exposed to new sustainability initiatives in schools. By obtaining consent and following guidelines researchers could gain valuable insights into students real time experiences and views on sustainability education practices and interventions.

Additionally, considering the evolving nature of sustainability as an area, upcoming studies could look into how sustainability education has progressed over time and its effects on educational approaches. Longitudinal studies monitoring changes in curriculum structures, teaching methods

and student achievements could offer insights into the effectiveness and longevity of sustainability education efforts in schools.

Furthermore future research could investigate how applicable sustainability education practices and frameworks are, across international settings. Studying the economic and political aspects that impact the integration of sustainability education allows researchers to discover ways to adjust and carry out methods, in various educational environments.

Upcoming research efforts should focus on overcoming the challenges highlighted in this study and further enrich our comprehension of sustainability education. By using research techniques exploring strategies and acknowledging the ever changing nature of sustainability researchers can significantly contribute to improving sustainability education on a global scale.

Conclusion

In summary this research has shed light on the practices of sustainability education in schools. By identifying strategies and areas for enhancement efforts can be directed towards enriching sustainability education and empowering students to play a role in building a future.

The suggested framework presents a roadmap for integrating sustainability into education, which can be tailored and put into practice in various countries, whether developed or developing. By promoting a culture of sustainability within schools this framework has the potential to nurture a generation of individuals who possess the knowledge and skills needed to tackle today's environmental issues and create a sustainable future.

Literature

Ajzen I. From intentions to actions: A theory of planned behaviour. J. Kuhl, J. Beckmann (Eds.), *Action Control*, Springer-Verlag, Berlin, Heidelberg (1985), pp. 11-39

Administrators and school leaders. *leren voor morgen*. (n.d.-a).

<https://lerenvoormorgen.org/en/doelgroep/bestuurders/>

Barrera-Hernández L.F. , Sotelo-Castillo M.A. , Echeverría-Castro S.B. , C.O.

Tapia-Fonllem, Connectedness to nature: Its impact on sustainable behaviors and happiness in children, *Frontiers in Psychology*, 11 (2020), p. 276

Cantor, P., Osher, D., Berg, J., Steyer, L., & Rose, T. (2018). Malleability, plasticity, and individuality: How children learn and develop in context1. *Applied Developmental Science*, 23(4), 307–337. <https://doi.org/10.1080/10888691.2017.1398649>

Cheng J.C.H. , Monroe M.C. , Connection to nature: children's affective attitude toward nature, *Environ. Behav.*, 44 (1) (2012), pp. 31-49

Climate Change Performance Index Ranking. (2023). <https://ccpi.org/ranking/>

Collado S. , Evans G.W. , Corraliza J.A., Sorrel M.A., *The role played by age on children's pro-ecological behaviors: An exploratory analysis*, *Journal of Environmental Psychology*, 44 (2015), pp. 85-94

Compulsory education - city of Amsterdam. (n.d.).

<https://www.amsterdam.nl/en/education/compulsory-education/>

2020 environmental performance index. 2020 Environmental Performance Index | Yale Center for Environmental Law & Policy. (n.d.).

<https://envirocenter.yale.edu/2020-environmental-performance-index>

De Leeuw, P. Valois, I. Ajzen, P. Schmidt, (2015), *Using the theory of planned behavior to identify key beliefs underlying pro-environmental behavior in high-school students: Implications for educational interventions*, *Journal of Environmental Psychology*, 42 (2015), pp. 128-138

Easterling D, Miller S, Weinberger N., Environmental consumerism: A process of children's socialization and families' resocialization, *Psychology & Marketing*, 12 (6) (1995), pp. 531-550

Effective professional learning communities? the possibilities ... (n.d.).

https://www.researchgate.net/publication/264681198_Effective_professional_learning_communities_The_possibilities_for_teachers_as_agents_of_change_in_schools

Gentina E. , *Muratore Environmentalism at home: The process of ecological resocialization by teenagers*. *Journal of Consumer Behaviour*, 11 (2) (2012), pp. 162-169

Hosany, A. R., Hosany, S., & He, H. (2022). *Children sustainable behaviour: A review and research agenda*. *Journal of Business Research*, 147, 236–257.

<https://doi.org/10.1016/j.jbusres.2022.04.008>

(PDF) measuring well-being and sustainability in the ... (n.d.-b).

https://www.researchgate.net/publication/335107460_Measuring_Well-being_and_Sustainability_in_the_Netherlands_the_first_Monitor_of_Well-being

Kahn P., Kellert S., Children and nature: Psychological, sociocultural, and evolutionary investigations, MIT Press (2002)

Mehdizadeh M., Ermagun A. (2020), “I’ll never stop driving my child to school”: On multimodal and monomodal car users

Meurs, S. van. (n.d.). How it works - eco-schools netherlands. Eco.
<https://www.eco-schools.nl/en/about-econ-schools/how-it-works>

Moschis G.P. , Churchill Jr G.A. , *Consumer socialization: A theoretical and empirical analysis Journal of Marketing Research*, 15 (4) (1978), pp. 599-609

Nasrabadi M.T. , García E.H. , Pourzakarya M. , Let children plan neighborhoods for a sustainable future: A sustainable child-friendly city approach, *Local Environment* (2021), pp. 1-18

Netherlands – climate performance ranking 2024: Climate change performance index.

Climate Change Performance Index | The Climate Change Performance Index (CCPI) is a scoring system designed to enhance transparency in international climate politics. (2023, December 8). <https://ccpi.org/country/nld/>

Netherlands Ministry of Education, Culture and Science. 1998.

[http://www.minocw.nl/english_oud/
edusyst/ednl101.htm](http://www.minocw.nl/english_oud/edusyst/ednl101.htm)

Networks. leren voor morgen. (n.d.). <https://lerenvoormorgen.org/en/netwerken/>

Otto S. , Pensini P. , Nature-based environmental education of children: environmental knowledge and connectedness to nature, together, are related to ecological behaviour, *Global Environ. Change*, 47 (2017), pp. 88-94

Płonka, A., Dacko, M. 2019. Secondary school youth and the idea of sustainable development – opinions and attitudes. *Scientific Papers of Silesian University of Technology - Organization and Management*, 139, 489-502.

Schwartz S.H. , Normative influences on altruism (1977), *Advances in Experimental Social Psychology*, 10 (1) (1977), pp. 221-279

Sinakou, E., Boeve-de Pauw, J., Goossens, M., Van Petegem, P. 2018. *Academics in the field of Education for Sustainable Development: Their conceptions of sustainable development. Journal of Cleaner Production*, 184, 321-332.

SDG's OP School. SDG Nederland. (2024, January 11).

<https://www.sdgnerland.nl/doe-mee/doe-mee-als-organisatie/sdgs-op-school-voor-organisaties/>

Sunaryo, I., & Fauziati, E. (2023). *Character education in early childhood based on Kohlberg's perspective*. *Early Childhood Research Journal (ECRJ)*, 6(1), 55–63.

<https://doi.org/10.23917/ecrj.v6i1.23022>

Suryani Ade Irma , Rusdinal, R., Azwar Ananda, & Nurhizrah Gistituati. (2023). *The Netherlands Education System*. *International Journal Of Humanities Education and Social Sciences (IJHESS)*, 2(5). <https://doi.org/10.55227/ijhess.v2i5.458>

Tabroni, I., Hardianty, D., & Sari, R. P. (2022). The importance of early childhood education in building social and emotional intelligence in children. *Jurnal Multidisiplin Madani*, 2(3), 1219–1226. <https://doi.org/10.54259/mudima.v2i3.508>

Van der Werff E. , Steg L.. The psychology of participation and interest in smart energy systems: Comparing the value-belief-norm theory and the value-identity-personal norm model

UNESCO (2020). Education for sustainable development toolbox. Available at:

<https://en.unesco.org/themes/education-sustainable-development/toolbox>

What you need to know about education for sustainable development. UNESCO.org. (n.d.).

<https://www.unesco.org/en/education-sustainable-development/need-know>

Ward S., *Consumer socialization*, *Journal of Consumer Research*, 1 (2) (1974), pp. 1-14

Zeiske N. , Venhoeven L. , Steg L. , van der Werff E. (2020), The normative route to a sustainable future: Examining children's environmental values, identity and personal norms to conserve energy, *Environment and Behavior* (2020)

Appendices

Appendix A: Table with participant's information

Participant	Gender	Age Range	Status	Location
1	Male	21-26	Master's student	Friesland, Netherlands
2	Male	21-26	Master's student	Rotterdam, Netherlands
3	Female	21-26	Master's student	Groningen, Netherlands
4	Female	21-26	Master's student	Groningen, Netherlands
5	Female	21-26	Master's student	Friesland, Netherlands
6	Male	21-26	Master's student	Groningen, Netherlands

Appendix B: Thematic coding of the interviews

Shortcomings/Lack of Sustainability in Dutch Educational System:

- Limited Formal Integration of Sustainability:
 - "I think there were not explicitly teaching us on sustainability when I was in primary school or high school."
 - "I don't really remember that we like thought about those things you could do. It was not part of the program."
 - "Sustainability wasn't really on the radar in terms of what we were learning. It was more focused on traditional subjects."
- Lack of Dedicated Courses or Curriculum:
 - "Not really sure if it was about sustainability, but I guess it's more than a normal high school when you don't have all of this stuff."
 - "I'm not really sure if it was about being sustainable, but it could really be this because we chose to recycle all the car parts."
 - "We didn't have specific classes on sustainability. It was more integrated into other subjects or just discussed briefly."
- Absence of Role Models and Mentorship:
 - "One person, no. It's just a combination of factors."
 - "In primary school, no, because I was also not really aware about sustainability."
 - "There weren't any specific teachers who stood out as sustainability role models for me."
- Limited Collaboration with External Organizations:

- "No, I don't think so."
- "We one time did clean the trash in the area. So maybe that was a cooperation with the Ministry of Environment."
- "There weren't many partnerships with external organizations focused on sustainability."

Recommendations for Enhancing Sustainability Education:

- Integration of Sustainability Across Curriculum:
 - "Reform the curriculum to integrate sustainability principles across various subjects."
 - "Incorporating sustainability-related topics into existing lessons can help students understand the interconnectedness of environmental, social, and economic systems."
 - "The curriculum should reflect real-world issues, including sustainability, to prepare students for the future."
- Development of Dedicated Sustainability Courses:
 - "Introduce dedicated sustainability courses or modules that cover topics such as climate change, renewable energy, and sustainable development."
 - "These courses should provide students with a solid foundation in sustainability science and empower them to address complex environmental challenges."
 - "Having standalone courses on sustainability would give it the attention and focus it deserves."

- Teacher Training and Professional Development:
 - "Provide educators with training and professional development opportunities focused on sustainability education."
 - "Equipping teachers with the knowledge, resources, and pedagogical strategies necessary to effectively teach sustainability topics can make the quality of student engagement better."
 - "Teachers need support and training to confidently integrate sustainability into their teaching practices."
- Promotion of Experiential Learning and Outdoor Education:
 - "Emphasize experiential learning opportunities, such as nature-based activities, outdoor education, and field trips."
 - "These hands-on experiences can complement classroom learning and inspire students to take action for sustainability."
 - "Outdoor education encourages students to connect with nature and develop a sense of responsibility towards the environment."

Strengths of Dutch Educational System in Sustainability:

- Nature-Based Activities and Outdoor Experiences:
 - "The Dutch educational system emphasizes nature-based activities and outdoor experiences."
 - "Providing students with opportunities to engage with the environment firsthand and develop a sense of appreciation for nature."

- "Connecting with nature makes you more likely to take an interest in it."
- "Field trips to environmental centers or sustainable farms were always memorable and taught us a lot about sustainability in practice."
- Extracurricular Initiatives and Community Engagement:
 - "Some schools organize extracurricular initiatives, such as volunteering and clean-up activities."
 - "These initiatives promote community engagement and environmental awareness among students."
 - "Getting involved in extracurricular activities fosters a sense of responsibility towards the environment."
- Student-Centered Learning and Critical Thinking:
 - "The Dutch educational system values student-centered learning and critical thinking."
 - "Encouraging students to explore sustainability issues from multiple perspectives fosters creativity, collaboration, and problem-solving skills."
 - "Students are encouraged to question, analyze, and evaluate information, including sustainability-related topics."
- Progressive Policies and Environmental Initiatives:
 - "The Netherlands has implemented progressive policies and environmental initiatives at the national and local levels."
 - "These initiatives provide a supportive framework for integrating sustainability into education and inspiring future generations to become environmental leaders."

- "The government's commitment to sustainability sets a positive example for students and educators."
- Sustainable Behavior Encouragement:
 - "Teachers were saying like, 'Okay, don't grab five papers if you only need one.' So, that was definitely part of it."
 - "Well, the thing that intrigued us as kids was the fact that some teachers came with a bike instead of a car. That's definitely a thing. At that point of time, I linked that more towards health rather than the environment, right? With greenhouse gasses that are emitted from cars, for instance, instead of going by bike. So, it was a thing that was noticed, but also because it was very Dutch."
 - "Teachers played a role in shaping sustainable behavior by modeling environmentally friendly practices."
 - "Small actions like using energy-efficient bulbs and biking to school were encouraged by teachers."
 - "Behavioral changes were promoted in the classroom, such as reducing paper waste and conserving energy."
- Sustainability Implemented in Curriculum:
 - "We learned some basic stuff about energy-saving lamps, instead of lamps that immediately get, you know."
 - "The curriculum included discussions on energy-saving practices and the importance of reducing waste."
 - "Topics like energy efficiency and waste reduction were incorporated into lessons."

- “I remember we had this project where we had to create something from recycled materials. It was really fun and helped us understand the importance of recycling.”
- “Hands-on activities like planting trees or building compost bins were highlights of my school years and made the concepts of sustainability tangible.”

Appendix C: Information sheet and the informed consent

INFORMATION SHEET

TITLE OF THE STUDY

Dear

Thank you for your interest in participating in this research. This letter explains what the research entails and how the research will be conducted. Please take time to read the following information carefully. If any information is not clear kindly ask questions using the contact details of the researchers provided at the end of this letter.

WHAT THIS STUDY IS ABOUT?

I am interested in findings regarding the education for sustainable development that are most impactful in the Netherlands. Therefore I will be asking former Dutch students regarding their education and their experience in sustainability in it. I will be interviewing 6-8 people.

The interviews will shed light on which are the best sustainable strategies in education from the perspective of the receptors of the education.

The research is not sponsored or funded.

WHAT DOES PARTICIPATION INVOLVE?

It involves genuinely sharing the true experience of the participant. The interview is expected to be one hour long.

DO YOU HAVE TO PARTICIPATE?

Participating in the research is absolutely voluntary. The participant can withdraw from the study up until the moment the data has been analysed. The participant can choose not to answer questions without consequences or providing reasons.

ARE THERE ANY RISKS IN PARTICIPATING?

There are no potential risks of participating as the whole procedure is anonymous, and the participants can only answer questions they feel comfortable with.

ARE THERE ANY BENEFITS IN PARTICIPATING?

There are no direct benefits but the research may contribute to further knowledge on the topic of sustainable education and furthermore sustainability in general.

HOW WILL INFORMATION YOU PROVIDE BE RECORDED, STORED AND PROTECTED?

I will record the interviews in order for them to be transcribed. The transcriptions will be anonymised, with no mention of personal data, and recordings deleted after the transcripts have been made.

No data identifying participants will be stored, only anonymised data. Also RUG Google drive is associated with my student email address so the data stored there will be disposed of within three

months of the termination of my student status at RUG.

WHAT WILL HAPPEN TO THE RESULTS OF THE STUDY?

It will be presented in RUG and will be read by my supervisor.

ETHICAL APPROVAL

The research study has obtained ethical approval from the Campus Fryslân Ethics Committee and I will uphold myself to relevant ethical standards.

INFORMED CONSENT FORM

By signing the informed consent form it means that the participant has the intention to participate while still being able to withdraw at any time before the data is analysed.

WHO SHOULD YOU CONTACT FOR FURTHER INFORMATION?

Primary contact

Eleni Xenaki

Email: e.xenaki@student.rug.nl

Supervisor

Valerija Golubic

Email: v.golubic@rug.nl

INFORMED CONSENT FORM

Title study:

Name participant:

Assessment

- I have read the information sheet and was able to ask any additional question to the researcher.
- I understand I may ask questions about the study at any time.
- I understand I have the right to withdraw from the study at any time before the data has been analyzed without giving a reason.
- I understand that at any time I can refuse to answer any question without any consequences.
- I understand that I will not benefit directly from participating in this research.

Confidentiality and Data Use

- I understand that none of my individual information will be disclosed to anyone outside the study team and my name will not be published.
- I understand that the information provided will be used only for this research and publications directly related to this research project.
- I understand that data (consent forms, recordings, interview transcripts) will be retained on the Google drive of the University of Groningen server, in correspondence with the university GDPR legislation.

Future involvement

- I wish to receive a copy of the scientific output of the project. YES/NO
- I consent to be re-contacted for participating in future studies. YES/NO

Having read and understood all the above, I agree to participate in the research study: yes / no

Date

Signature

To be filled in by the researcher

- I declare that I have thoroughly informed the research participant about the research study and answered any remaining questions to the best of my knowledge.
- I agree that this person participates in the research study.

Date

Signature