

Primary School Teachers' Views on the Integration of Sustainable Development into Learning

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ABSTRACT

In this study, we sought an answer to the question of what can be done to integrate sustainable development into learning environments in the context of teacher opinions. We followed a case study design to achieve this goal. The research's study group consists of 15 primary school teachers from northwest Turkey, who were chosen using criterion sampling. We used an interview form to gather research data and analyzed it with content analysis. Teachers think incorporating sustainable development into the learning environment brings many benefits to children. According to findings, sustainable development provided many gains to students. Findings in the context of teacher opinions were: 1) eco-friendly behavior; 2) literacy; 3) awareness of green technologies; and 4) awareness of green professions. In this context, sustainable development should be integrated into primary school curricula. Also, in the study, we emphasize a sustainable education for a sustainable future. In this context, the outputs of sustainable development should be used effectively in education and training environments.

Keywords: Sustainable development, primary school teachers, green technologies, green professions.

Introduction

Our institutions' and cities' physical and cultural structures and attitudes unconsciously link nature to disasters (Sanera & Shaw, 1999). The distinction between humans, other animate or inanimate beings, and machines is made more difficult by rapidly advancing digital technology, which also portrays man as a supernatural being. The physical skills and feelings of our children, who spend less time in nature, blunt their feelings toward nature, and their experiences are getting worse, despite the post-modern idea that reality is only a fiction promising people limitless possibility (Louv, 2005). Because of the lack of experiences, nature for new generations becomes an abstraction rather than a reality. It is treated as a commodity that can be watched, consumed, dressed in, and even ignored daily (Louv, 2005). The most dreadful act of human interference with nature is the introduction of hazardous and even deadly materials into the oceans, rivers, air, and soil (Carson, 1962). The world's ecological balance has been upset by its production and consumption practices over the past 200 years. The

environment in which we live is contaminated by industrial flue gases, particularly by the toxic wastes produced by the chemical industry (Yücel & Ekmekçiler, 2008).

Environmental concerns compel us to consider how our actions will affect future generations of people (Des Jardins, 2006). Preschool and primary school years are crucial for preventing environmental problems, which are getting worse, and for resolving them, particularly in terms of early intervention, just as they are for all societal segments. Young children will benefit from environmental education studies because they will learn more about the environment, find solutions to environmental issues, and become more sensitive to the environment. Now that the need for environmental education has been acknowledged, it is time to step back and reevaluate the strategies and messages used in this education (Sobel, 2014). Intervention programs in the early years are crucial for people to become conscious of their consumption patterns. First and foremost, the program's practitioners must be aware of something to raise awareness.

Sustainability and Sustainable Development

Sustainability maintains ecological system diversity and reproduction. In other words, sustainability ensures the continuation of human life and natural resources. The foundation of sustainability is the efficient use of natural resources, the reduction of waste, the recycling of resources, and environmental protection. On the other hand, sustainable development refers to development that meets the needs of present generations without compromising the needs of future generations. Over time, the depletion of the ozone layer, the contamination of potable water, the excessive accumulation of nitrogen in the soil, and negative changes in biodiversity highlight the importance of sustainable development (Rockström et al., 2009). In this context, education is portrayed as the most fundamental process for ensuring sustainable development. Because education for sustainable development enables the development of knowledge, values, and skills in individuals so that they can participate in decisions about what to do locally and globally to improve the quality of life of individuals without harming the future, it is essential (Hopkins & Mckoewn, 2002; Summers et al., 2000). In this regard, schools should implement a systematic environmental education program from an early age in order to ensure sustainability. Sustainable environmental education programs are essential for developing individuals' attitudes, values, knowledge, and abilities.

The goal of sustainable education is to equip people with a variety of skills, including self-expression, mutual evaluation of natural and artificial systems, insight into cause-and-effect relationships, communication and teamwork with others, behavioral orientation, and critical, creative, reflective, and analytical thinking (Hopkins & McKeown, 2002). In this context, the three basic functions expected from sustainable development-oriented education can be summarized as informing, instilling sensitivity and creating behavioral change.

The Relationship Between Environmental Education and Sustainable Development

The first step in becoming an environmentally conscious citizen is to behave responsibly. Numerous internal and external factors impact environmental awareness, which is recognized as the first stage of the learning process for environmentally sensitive behaviors. However, more than awareness is required. In addition to being environmentally conscious, one must also have a fundamental understanding of environmental issues, experience anxiety, and have the drive to act (Kamaruddin et al., 2016). People need to be concerned about the environment to engage in

these behaviors. Concern over environmental issues is called environmental anxiety (Eom et al., 2016). People with severe environmental concerns also exhibit highly environmentally friendly behavior (Albayrak et al., 2013). Environmental awareness influences people to act environmentally friendly (Kim & Damhorst, 1998). According to Bang et al. (2000), people who are very concerned about the environment are ready to pay more for renewable energy. Atay et al. (2019) determined that environmental concerns lead individuals to use environmentally friendly practices. According to studies, people who care about the environment and have a positive attitude toward ecologically friendly products are more likely to buy them (Hasnain et al., 2020; Lasso, 2020). Ling Tan et al. (2019), Kar-Yan and Yazdanifard (2014), Suki (2013), and Bang et al. (2000) determined that consumers with environmental concerns and sensitivities are more inclined to buy environmentally friendly products.

Environmental identity is another concept related to environmental education. Environmental identity is the meaning that an individual attributes to himself the environment (Stets & Biga, 2003). Environmental identity is a component of how individuals perceive the world, form relationships with the environment, and form self-concepts, such as the significance of the environment to the individual. The notion of environmental identity is an integral part of our identity. Environmental identity refers to individuals' self-perceptions about the environment, identification with the environment, and their relationship with the environment (Clayton, 2003; Kals & Ittner, 2003). Individuals with an environmental identity consider the environmental consequences of their actions when making decisions. This circumstance influences the individual's consumption habits (Payne, 2001).

Many academic disciplines in educational institutions include sustainability and sustainable development in the name of environmental education. This is one of the factors contributing to teachers' need for environmental knowledge (Waswala et al., 2019). However, alternate solutions should be developed to overcome this ignorance and address environmental issues (Ongon et al., 2021). All curricula should specifically cover ideas like eco-friendly technologies, green jobs, and environmental citizenship because 21st-century technology influences one's awareness of the environment. For protecting the environment in this context, choosing eco-friendly technological tools, and showing interest in green careers are crucial. As a result, the technological tools people prefer are related to the environmental education people have received and their environmentally friendly behavior.

Environmentally friendly behavior is defined as the capacity to protect the environment, address environmental issues, and engage in actions that support the sustainable exploitation of the environment (Klein & Huffman, 2013; Schultz & Kaiser, 2012). Individuals' actions that support environmental sustainability can be summed up as practices like conserving energy, washing clothes less frequently, and recycling paper waste (Lange & Dewitte, 2019; Mesmer-Magnus et al., 2013). These actions are also among the fundamental conditions for sustainable development.

Current Study

Teachers play a significant role in helping students acquire ecological citizenship skills and ecological literacy (Ferreira et al., 2016). An ecologically literate person gathers information using scientific method skills, establishes cause-and-effect relationships, and ascertains the environment's biophysical, social, and interrelationship components (McBride et al., 2013). Although science provides short-term solutions to some environmental issues, there is a need for a change in which eco-friendly practices are adopted (Ferreira et al., 2016). To ensure that future generations live in a healthier environment, raising ecologically literate people is essential (Yoleri, 2012). According to this viewpoint, ecological literacy instruction should be multidisciplinary and comprehensive, view people as a part of nature, concentrate on how people interact with ecosystems, and show how to achieve sustainable development through this instruction (Hammerstein et al., 2019).

Environmental education is crucial for maintaining a sustainable way of life and protecting and advancing natural education (Suarlin & Ali, 2020). Environmental education seeks to help people and societies comprehend the nature of the natural world and to impart environmental knowledge, values, attitudes, and practical skills (Suarlin & Ali, 2020). It is also true that, especially in developing nations, people must have the correct information, abilities, and attitudes about sustainable development (Debrah et al., 2021). People should be given environmental awareness training and encouraged to adopt it as a way of life in order to protect the environment and ensure sustainable development (Bertiz, 2010). Education is just as crucial for sustainable development as eco-friendly activities and environmental empowerment awareness, which can only be developed slowly by offering short-term education or training (Nasibulina, 2015). Sustainable development encourages participation, activity, and education about the environment, equality, and social justice. Because it can develop consciousness and mold human behavior, sustainable development is

essential (Nasibulina, 2015). In this setting and the context of teachers' opinions, we sought an answer to the question of what can be done to integrate sustainable development in learning environments. Within the parameters of the information, we collected from primary school teachers, we structured our research design.

Methods

Research Design

In order to ascertain primary school teachers' opinions on sustainable development and environmentally friendly technologies, we conducted the research as part of a case study.

Participants of the Study

The study was conducted with teachers working in different primary schools in the districts of Istanbul in the 2023-2024 academic year. We identified classroom teachers with at least ten years of experience who had previously worked in public primary schools before we began the research-15 Istanbul-based classroom teachers who are participants in the study. Using the criterion sampling technique, one of the purposive sampling types, we selected the research participants. In this situation, our criteria would be being a primary school teacher, having at least ten years of experience, and having experience teaching about the environment, sustainability, sustainable development, and environmentally friendly technologies in the classroom.

Data Collection and Research Context

We used semi-structured interview to gather the data for the study. Eleven interview questions were written during the development of the interview form after a review of the pertinent literature. To get field experts' opinions, the form was sent to two primary school teachers, four academicians, who had doctoral degree in primary school education. We modified some questions in response to expert feedback and eliminated two questions to create a pilot application. As a result, prior to the application, we assessed the questions' clarity and gained experience. In keeping with the direction of the research, we asked a few questions that are referred to as probes to increase the richness of data in the interview questions and deepen the participants' perspectives.

We examined the agreement between encoders regarding the interview form with Miles and Huberman's (1994) formula and determined the agreement as .85. The final version of the form includes nine open-ended questions (i.e., What might be the results of integrating sustainable development into educational environments? What are the contributions of integrating sustainable development into

educational environments for children? What are the contributions of sustainable development to providing children with green technologies and professions? what are the positive outcomes of sustainable development? What literacy is required for sustainable development?). We recorded the data of our face-to-face interviews with the teachers with a voice recorder to prevent data loss.

Data Analysis

We used the content analysis technique to examine the data gathered. The process of scanning qualitative texts for recurring words and themes, distilling them down to any qualitative data, and making sense of them is called content analysis (Patton, 2015). We first read all the data through the content analysis. The data was then put through the extraction process. The data were coded in the second stage, and we arrived at the themes by connecting the codes. In the study, we made coding in the form of brief notes in this direction. By combining repeated coding, we came up with themes (categories). In this study, we used creative variation. By deriving the coding from the data and the themes from the coding in the data analysis, we made abstraction in this direction using an inductive method. We coded the participants in the study with the letter "T" without disclosing their identities. For instance, "T-1" represents the first participant, and "T-15" for the fifteenth.

Reliability and Validity

Various methods were used in the research to collect accurate and trustworthy data. First, we established that research participation was entirely voluntary. Without disclosing the names of the participants, we also reported the research findings to the research under a fictitious name. Additionally, to ensure validity, the data were voice-recorded to prevent data loss, verified by independent researchers, given in-depth descriptions, and had one-to-one quotations from the teacher's statements to support the analyses. We evaluated the applicability of study results in various contexts. In the study, we looked at the similarities and differences between the coding and theme creation done at various points in the later analyses. As a result, we coordinated and double-checked the coders' compatibility.

The Role of Researchers and Ethics

We first received approval from the university's social and human studies ethics committee before beginning the study. Ethics committee approval was obtained from Yildiz Technical University Social and Humanitarian Ethics Committee (Tarih: 05.12.2023, Sayı: E-2023/12). The participants were also informed that their interviews would be audio recorded, and we obtained their verbal and

written consent. We made the teachers aware of the research data's confidentiality. Additionally, we let them know that they could leave the study at any time and not have to answer any questions they didn't want to. We took steps to ensure that the interview was conducted as impartially as possible during the data collection process. In this regard, we were careful not to assign judgment to the participants' actions and words or to instill expectations in them.

Results

This study examines the motivations for primary school teachers to incorporate sustainable development into their teaching practices. Teachers believe incorporating sustainable development into the learning environment has numerous advantages for students. According to the teachers, we communicated to students the achievements of sustainable development education through themes. The opinions of teachers four categories.

These themes are;

- 1) Eco-friendly behavior,
- 2) Literacy,
- 3) Awareness of green technologies,
- 4) Awareness of green professions.

These themes are supported by direct references and comments. Below are detailed descriptions of the themes.

Eco-Friendly Behavior

According to primary school teachers, including sustainable development problems in their teaching methods has many advantages for the students. Teachers believe that through this process, kids learn how to behave in a way that is good for the world. The behaviors of the students toward the environment are compiled in Table 1.

Table 1.
Eco-friendly Behavior

Theme	Codes	Sample Evidence	f
Eco-Friendly Behaviour	Strives to reduce harm to the environment	In the learning process of sustainable development, students become aware of the damage caused by people to the environment, they think about what they can do (T-7)	4
	Tries to strike a balance between man and nature	I see that students are trying to understand nature, and people express what they can do to protect it by not doing (T2).	3
	Uses resources efficiently	I can say that my students have gained awareness about recycling. Now they use the paper they will use more carefully (T-5).	2
	Efforts to avoid waste and saves money	We took out the ecological footprint of our classroom, the children noticed that we produced a lot of paper waste, they tried to reduce it by producing many ideas (T-3).	2

Teachers assert that a learning environment focused on sustainable development raises students' knowledge of preventing environmental harm and preserving the environment. According to T-11, "sustainable development makes it possible to use agricultural territory effectively and distribute resources equally among all people. Every child can grow up in a just society in this manner". Additionally, it broadens their understanding of the efficient use of agricultural lands and water resources and the fair use of environmental resources. K-6 "I believe that through stewardship, we can use more of the planet's finite resources. In order to prevent problems for future generations, we must build a sustainable society".

Literacy

Teachers stressed that when learning processes include sustainable development, students' environmental literacy improves. In the teachers' opinion, these kinds of literacy should be present in everyone. Children will become more environmentally conscious due to these literacy activities, and they will grow to believe that the environment is a companion rather than an adversary. Table 4 contains information on these reading skills.

Table 2.
Literacy

Theme	Codes	Sample evidence	f
Literacy	Water Literacy	... they know more about the importance of water saving and water (P-5)	2
	Agricultural Literacy	... I can say that they can do basic planting work (P-10)	2
	Food and Nutrition Literacy	... acquire health nutrition knowledge (P-7)	2
	Environmental Literacy	... take action to protect the health of the environment (P-7)	1
	Recycling and Recovery Literacy	... started to prefer recyclable products (P-2)	1
Ecological Literacy	... they strive to reduce their carbon footprint, protect and diversify the ecological balance, plants and animals (P-4)	1	

Teachers reported that incorporating sustainability and sustainable development into the educational process helps students develop an understanding of water, farmland, food and nutrition, the environment, recycling, and ecological literacy. For instance, K-8 asserts that "we must place significance on sustainable development if we want children to become ecological citizens. Another teacher stressed the need for ecological citizens to uphold their and the natural world's rights. One should be ecologically literate for protection because nature has rights similar to those of people (T-9). The teachers believe that children are the future's adults and that their literacy will help them become responsible citizens. E.g.

K-4 "Ensuring human growth is the primary goal of development. However, if we disregard sustainability as we progress, we endanger the future of our children. This balance should be taken into account as much as feasible as we progress. Materials are scarce, but if we use them wisely, they can last for many years. In this way, we should teach our kids about the world while we are raising them. A kid should be educated in ideas like recycling, water conservation, and food safety".

Awareness of Green Technologies

The teachers claim that incorporating sustainable development into the learning process helps students understand how to use green technology. Students' knowledge of numerous green innovations has increased in a sustainable learning process. Table 3 lists green tools that teachers believe can aid in sustainable development.

Table 3.*Awareness of Green Technologies*

Theme	Codes	Sample evidence	f
Awareness of Green Technologies	Electric School Buses	I never forget, I learned that for the bus service he came to school, my teacher said that if the buses were electric, it would harm the environment less (T-3)	4
	Waste Management Systems	Particularly, students' awareness about residues has increased, they are willing to recycle wastewater (T-7).	3
	Schools That Produce Their Own Energy	I'm a student, teacher, can't we meet the energy needs of our school with solar energy? His saying made me proud (T-11).	2
	Rechargeable Battery	We can understand that students are sensitive even in the technologies they use. Now most of them prefer rechargeable batteries instead of disposable batteries (T-6).	2

In order to guarantee sustainable development, primary school teachers emphasized the use of eco-friendly green technologies: Concerning sustainability, we ought to prioritize environmentally friendly innovations first (T-1). Teachers claim that as part of the sustainable development process, students have learned about various green technologies, including the need to build more schools that use renewable energy sources, rechargeable batteries, leftover management systems, and electric school flings. Supporting implicit learning will, in the opinion of the teachers, make children aware of sustainable growth. According to K-2, environmentally friendly technologies should be used in schools to support this scenario. Children will thereby automatically comprehend the significance of these technologies. Only this year's events can be communicated to future generations. According to the teachers, our nature is under tremendous threat. Technology magnifies this impact. Learning environments should incorporate sustainable environmental instruction from an early age to be safe. Individuals can only become conscious in this manner. E.g.

K-9 "Over the past century, the number of people has more than twice to eight billion. Even though we cannot entirely stop energy use and environmental damage, we can limit it. I believe that by utilizing resources sustainably and incorporating green technology into every industry, we can meet the needs of all living creatures while preserving the environment".

Awareness of Green Professions

According to teachers, incorporating sustainable development into the classroom sparked students' interest in green careers. The occupations that students find appealing are mentioned in Table 4.

Table 4.*Awareness of Green Professions*

Theme	Codes	Sample evidence	f
Awareness of Green Professions	Renewable Energy Engineers and Technicians	My students were particularly interested in renewable energy, I heard many of them say that I will become an electrical engineer and produce green energy (T-9).	3
	Green Environmental Architect	One day I will never forget, a student of mine said that he would become an architect, but the buildings they made would be environmentalists, not an ordinary architect (T-5).	2
	Organic Agriculture Engineer	Unfortunately, we are not in a good position in agriculture, we should give environmental education to our students, especially for organic farming, most of which are GMOs (T-2).	2
	Natural Lawyer	My studies have participated in the environmental education process with interest, some say that they will become a nature lawyer to protect nature (T-8).	1

According to teachers, incorporating sustainable development into the learning environment heightens students' awareness of green employment. These professions include energy engineering, architecture, law, and organic agriculture, according to teachers. One educator stated that green jobs could be incorporated into any profession and are simple to convey to students of all ages, from kindergarten to college (T-10). The proliferation of these occupations in society will promote sustainable development and encourage individuals to engage in eco-friendly conduct. Thus, the fractured bond between humans and nature will be repaired, and we will leave future generations a cleaner, healthier, and more habitable world. E.g.

T-3 "We should start exposing kids to verdant meshes at a young age. We should teach green techniques in the same way that we teach other professions, such as education, law, engineering, and firefighting. By increasing kids' knowledge, we can make the world a better place to live.

Additionally, children will advocate for sustainability in all of their potential careers".

T-11 "In the interest of a livable world, we should educate our children about green jobs. We should emphasize to students that every profession has a responsibility to preserve the environment when we are instructing. Because unless environmental awareness becomes a social force as opposed to an individual pursuit, we cannot succeed. From the very beginning, the foundation for this should be carefully taught in schools".

Conclusion, Discussion and Recommendations

This study aims to determine why elementary school teachers should incorporate sustainable development into their lesson plans. Teachers claimed that by including sustainable development in the learning, the setting offers children several advantages. Teachers contend that students benefit significantly from learning settings that place a high priority on sustainable development. It is conceptualized as 1) eco-friendly behavior, 2) literacy, 3) awareness of green technologies, and 4) awareness of green professions.

According to the teachers, a learning process founded on sustainable development aids in developing environmentally friendly behavior, as the findings emphasize. Teachers stressed that students made gains in the process in question, including making efforts to lessen environmental damage, attempting to create a balance between humans and nature, using resources effectively, attempting to prevent waste, and making savings. Research in the literature backs up what we found. According to research, being in tune with nature and being social positively affects students' well-being (Pirchio et al., 2021). It is stated that natural environment experiences promote recovery from stressful experiences and enable individuals to recover their cognitive and emotional resources that are depleted during their daily life tasks, thus allowing people to adapt to the environment and supporting well-being (Nilsson et al., 2010). Another point is that most studies examining how environmental education initiatives have affected knowledge and attitudes have found a correlation (Liefländer & Bogner, 2014; Schmitz & Da Rocha, 2018). In line with these gains, it is meaningful for teachers to incorporate environmental education into the learning process from the early years.

Primary school students are the subject of this study. As a result, we emphasize the value of the Internet in the early stages of learning about the framework of sustainable development. Similarly, Uraş & Zengin (2019) suggested that education for sustainable development should begin in

childhood. At this point, providing individuals with a high-quality education from a young age will enable them to view issues from the viewpoint of social justice and support the social objectives of sustainable development (Barrett & Sorensen, 2015). Future-focused and strategic planning instruction in sustainable development will assist students in developing a more sustainable economy, environment, and societal order (Bell, 2016). As a result, the curriculum should include developing methods for teaching about sustainable development and global citizenship (D'Cruz & Osipova, 2011).

Another study finding is that teaching about sustainable development helps kids acquire some level of environmental literacy. According to the teachers, incorporating sustainable development into education processes helps the learning of literacy, such as "water literacy, agricultural literacy, food and nutrition literacy, environmental literacy, recycling and recovery literacy, ecological literacy" in children. The successful agreement of environmental sustainability and sustainable development depends on these literacy skills. The literature also backs up the results of our study. It draws attention to how crucial literacy is in the writings. For instance, Hui-Shuang (2018) emphasizes the significance of water literacy in developing a community that conserves water, given the deficiencies in students' fundamental water knowledge. The research done by Samendra et al. (2016) suggests a need to open creative courses in which water literacy is addressed for health, culture, and the future, given the deficiencies in students' basic knowledge of water.

It is well known that the idea of food literacy encompasses a variety of topics, including the environment's sustainability, the world's food system, health-related habits, and food and beverage culture and skills (Pendergast & Dewhurst, 2012). According to Zoellner et al. (2009), nutritional literacy is similar to health literacy in that it refers to a person's ability to access, process, and comprehend basic nutritional knowledge. According to Cimbaro (2008), nutritional literacy is the ability to use words to communicate knowledge about the connections between food systems and biological, social, and ecological systems. The significance of comprehending nutritional information, acting on this information, and continuously setting goals for healthy eating and nutrition were stressed by Block et al. in their 2005 study. As a result, the students' findings about food literacy acquired as part of our study's scope are crucial. The research supports our conclusions. According to Frick and Spotanski (1990), agricultural literacy should also include knowledge of the techniques and procedures employed in agriculture, as well as the fundamental agricultural ideas and how agriculture affects

society. According to Leising et al. (2003), how elementary school teachers incorporate agriculture lessons into the curriculum affects how literate their students are about agriculture. Similar to how teachers in this research said they included sustainable development to help students become more literate in agriculture. The pupils' ecological literacy improved; it was determined in the end. It also enables those with ecological literacy to be considered ethical customers. The structuring of individual learning processes that are impacted by sociopolitical, cultural, historical, economic, and ecological circumstances is referred to as ecological literacy (Hares et al., 2006). This conclusion is connected to the contexts mentioned in the literature at this juncture.

Another study finding indicates that a sustainable development curriculum raises students' awareness of green technologies. Teachers claim that integrating sustainable development into educational processes helps students learn about eco-friendly technologies like rechargeable batteries, trash management systems, electric school buses, and self-sufficient schools. Alternatives like green energies are possible to protect the ecosystem. According to Doan (2001), 15% of the world's energy needs in 2050 will be met by solar energy. In this situation, interest in eco-friendly innovations will grow daily. Solar energy panels can be installed on the roofs of school buildings to accomplish this efficiency (Parfit, 2005). Green technologies can also be produced by efficiently using renewable energy sources like solar and wind. With solar energy, environmental pollution brought on by fossil fuel use can be stopped, as well as the pace of growth in energy imports. Systems designed to generate solar energy take energy straight from the sun without using combustion-related gases (Parfit, 2005). An endless supply of energy can be obtained by using wind turbines singly and in groups (Walker & Jenkins, 2001). Therefore, encouraging the use of green technology and energy from a young age will help to preserve the ecosystem. The results of our study contribute to the objectives of the future of our society in this way.

Another study finding indicates that students become more knowledgeable about green careers through a learning method based on sustainable development. The teachers believe that incorporating sustainable development into educational procedures will increase students' awareness of careers such as those held by lawyers for the environment, organic agricultural engineers, green environmental architects, and engineers of renewable energy. These jobs are incredibly productive endeavors that safeguard the ecosystem and biodiversity, use less

energy, raw materials, and water, and produce less waste and pollution, or none (UNDP, 2008). Increased energy efficiency, renewable energy, mass transit, recycling, an increase in environmentally friendly companies, sustainable resource use, and environmental services are all examples of green employment (ILO, 2008; ILO & OECD, 2012). Green careers are advantageous for the environment and people's well-being. Employee efficiency is increased by green offices with plenty of natural light and ventilation, as well as by how well-lit and fresh the environment is. The literature supports our results in this area.

This research has some restrictions. Considering these restrictions and the results of our research, we would like to make some recommendations. Only the inclusion of teacher opinions is restricted in our study's top goal. Other research may examine the perspectives of students' parents. Another time, no other data collection methods were used in the research; only interview management was used. Using strategies like monitoring can enhance future research. Participants in our research total a comparatively small number. Other experiments can be done with more participants. In the research, the teacher's perspective was used to evaluate the students' accomplishments; the students themselves were not considered. It is possible to include students in future research. Quantitative measurement methods can also assess the benefits of sustainable development for students. Our study's teachers who incorporated sustainable development into their classroom claim that the students benefited in various ways. Therefore, professional development programs for more teachers can be designed to help them create learning environments where students can demonstrate environmentally friendly behaviors, improve their environmental literacy, and become conscious of green careers and technologies.

Ethics Committee Approval: Ethics committee approval was obtained from Yildiz Technical University Social and Humanitarian Ethics Committee (Date: 05.12.2023, No: E-2023/12)

Informed Consent: Written informed consent was obtained from pre-service teachers who participated in this study

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