

Article

Addressing Challenges in Kazakh Education for Sustainable Development

Perizat Yelubayeva ^{1,*}, Erkan Tashkyn ² and Gulzat Berkinbayeva ³ 

¹ Foreign Languages Department, Al-Farabi Kazakh National University, Al-Farabi Ave. 71, Almaty 050040, Kazakhstan

² Department for Digitalization of Education, Kazakh Ablai Khan University of International Relations and World Languages, Muratbayev Str. 200, Almaty 050500, Kazakhstan; erkantaskin@gmail.com

³ Interdisciplinary Education Center, Narxoz University, Zhandosova Str. 55, Almaty 050035, Kazakhstan; guzi86@mail.ru

* Correspondence: perizat_fmo@mail.ru; Tel.: +7-707-756-3767

Abstract: Sustainability education equips individuals with the knowledge, skills, and values to address complex environmental, social, and economic challenges. Like many other nations, Kazakhstan recognizes the importance of integrating sustainable development principles and values into education to foster a sustainable and resilient future. However, several hurdles, such as the COVID-19 lockdown, have impeded the country's effective implementation of Education for Sustainable Development. The study explores these barriers and constraints and proposes potential strategies for advancing sustainability education practices in the Kazakh educational scene. This study used a qualitative methodology involving interviews with first-year students from four Kazakh universities. The study results show that preserving the role of education in fostering a sustainable society will pave the way for a brighter and greener future for the nation and its citizens beyond lockdown. The findings revealed that using the transformative power of education, Kazakhstan, with its more sustainable and inclusive education system, can nurture a generation equipped with the knowledge, skills, and values necessary to advance the country towards a sustainable future. The findings and conclusions of this study can guide policymakers, educators, and stakeholders in better addressing the challenges of sustainable development in Kazakhstan and enhancing ESD practices in Kazakh schools and institutions.

Keywords: Kazakh education system; Sustainable Development Goals; Education for Sustainable Development; advancing education practices; inclusive education system; language education



Citation: Yelubayeva, P.; Tashkyn, E.; Berkinbayeva, G. Addressing Challenges in Kazakh Education for Sustainable Development. *Sustainability* **2023**, *15*, 14311. <https://doi.org/10.3390/su151914311>

Academic Editors: Carla Susana Marques, Carla Mascarenhas, Anderson Rei Galvão, Vítor Braga and Alexandra Braga

Received: 31 July 2023

Revised: 19 September 2023

Accepted: 21 September 2023

Published: 28 September 2023



Copyright: © 2023 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

Kazakhstan, a vast and resource-rich nation in Central Asia, is committed to sustainable development, as evidenced by its inclusion of the United Nations' Sustainable Development Goals (SDGs) in its national development strategy. Education for Sustainable Development (ESD) is crucial in achieving these goals.

Attaining sustainable development (SD) requires a complete overhaul of mindset and actions. Individuals must take bold and decisive steps to make significant progress towards sustainability and act as catalysts for sustainability to effectively address challenges outlined in the Sustainable Development Goals (SDGs) and promote a sustainable planet. Critical ecological challenges demand immediate attention from all societal sectors, including education. Education for Sustainable Development (ESD) is globally acknowledged as a pivotal approach for promoting sustainable development and tackling 21st-century challenges [1–4]. ESD aims to cultivate skills that allow people to consider the social, cultural, economic, and environmental effects of their actions, both presently and in the future, on local and global scales [1] (p. 6). Furthermore, it equips individuals to act sustainably in complex scenarios, often demanding exploring novel paths [2]. Ultimately,

ESD encourages individuals to engage in SD-driven social and political processes. The term education is seen as the main instrument of socio-political changes, described by UNESCO as follows: “... Education can, and must, contribute to a new vision of sustainable global development ... Education has a responsibility to be in gear with 21st-century challenges and aspirations and foster the right types of values and skills that will lead to sustainable and inclusive growth and peaceful living together ...” [3] (p. 7).

ESD plays a crucial role in empowering individuals and societies to address the challenges posed by environmental, social, and economic sustainability [4–7]. The COVID-19 pandemic has shown the importance of prioritizing socio-emotional and non-cognitive skills in education [6,7]. Shi and Guo state that individuals must change their behavior, engage with society, and tackle its problems to overcome challenges and achieve long-term growth [7]. Bogner emphasizes that a stronger sense of connectedness and responsibility towards the natural world can contribute to sustainable behaviors and environmental conservation efforts [8]. Jacobs and Chau emphasize that education is pivotal in conveying crucial health information, shaping public perceptions, and influencing behavioral responses during the pandemic [6]. This is why ESD is becoming increasingly important.

Within the global ESD framework context, Kazakhstan (KZ) is also committed to SD, as evidenced by including the UN SDGs in its national development strategy [9–13]. It has taken several initiatives to implement ESD and address sustainability issues to create a secure, fair, and prosperous shared future. The country embraces new regulations and technologies to improve society’s well-being, promote employment growth, enhance education competitiveness, and provide adequate healthcare services [9,10]. For instance, Kazakhstan has developed the “Concept of Kazakhstan’s Transition to Sustainable Development for 2007–2024” (2006), a guiding framework for various sectors, including education. Later, the concept of education development of the Republic of Kazakhstan for 2022–2026 was approved (2017). The government has revised the national curriculum to incorporate ESD principles and content across different grade levels and subjects. This involves including topics related to environmental sustainability, social responsibility, and economic sustainability. It has also implemented training and professional development programs for teachers to equip them with the knowledge and pedagogical skills necessary to teach ESD effectively.

Adopting the SDG methodology and indicators in Kazakhstan presents a unique chance for the country to adjust its strategic planning and monitoring system to meet international standards. This is achieved by considering how Kazakhstan’s program documents, particularly “Strategy 2050” and its associated programs, align with global development objectives. Kazakhstan hosted the prestigious “EXPO-2017”, which led to the creation of the “Energy of the Future” Center for Green Technologies and Investment Projects with the support of the United Nations. These efforts have made significant strides in fulfilling the SDGs globally.

Although notable accomplishments exist, there is still significant room for development and enhancement, and several challenges must be addressed to enhance the contribution of Kazakh education in creating a fair and sustainable world. One major challenge that requires attention is the need for more understanding and knowledge about ESD among various groups, including policymakers, educators, students, and the general public [10–12]. The COVID-19 pandemic, which caused schools to shut down around the globe, made this issue even more pressing [7]. Furthermore, the current curriculum in Kazakh education should focus more on sustainability issues and emphasize the development of critical thinking and problem-solving skills necessary to achieve sustainable development. There are concerns among ESD experts that progress towards sustainability could be faster and more robust despite promising terrain [9,10]. Khajieva and Aida believe that a complete shift in the overall paradigm of education and society is necessary for sustainability. According to experts, education is often a part of the problem, as it can reinforce individualism, unsustainable lifestyles, and consumption patterns [9]. In addition,

advancing social modernization entails adjusting the economic and social components to meet the demands and expectations of contemporary society [10].

The population of KZ has reached 19.8 million people as of 1 June 2023, an increase of 18.7% over the past decade, according to the report of the Bureau of National Statistics Agency for Strategic Planning and Reforms of the Republic of Kazakhstan (<https://stat.gov.kz/en/>, accessed on 17 June 2023) (SDG 3). Out of the 5,900,000 families residing in the country, over 980,000 do not have any documented income, such as pensions, social benefits, or targeted social assistance, as reported by the Ministry of Labour and Social Protection of the Population. It also stated that in 2022, 657,300 individuals from 127,600 families were given targeted social assistance (SDG 10). Over 3 million citizens belong to vulnerable groups, with the most susceptible residing in the Turkestan region and the city of Shymkent [14]. Additionally, according to the UN Office in Kazakhstan briefing report on Kazakhstan's commitment to the 2030 Sustainable Development Agenda held in Astana in September 2023, Kazakhstan ranks 32nd out of 113 countries regarding food security (SDG 2). It is reported that maternal mortality has decreased by 73% since 1993 (SDG 3), 93.9% of the population uses clean fuel and technology for cooking (SDG 6), and 83.5% have access to a 4G mobile network (SDG 9); 100% of all primary school students are provided with free meals at schools (SDG 2). A hybrid teaching model introduced by the Ministry of Education has proven its effectiveness and reliability in pandemic conditions (SDG 4). Additionally, the whole population of the county has access to electricity (SDG 7). The report also states that Kazakhstan is the most urbanized country in Central Asia, with 38.2% of the population rural and 61.8% urban (SDG 11). It is worth noting that the Kazakh government launched an online employment platform (Enbek.kz) for individuals to provide job search services and obtain public services and employment support measures (SDG 8). The platform is free, covers all sectors of the economy, and provides services in every district and village of the country [15].

All these factors have affected initiatives on adapting SDGs to the national context, promoting and implementing the ESD agenda in Kazakhstan. This study explores these and other barriers and constraints. It proposes potential solutions to achieve its development goals outlined in Strategy 2050 and the subsequent reform agenda in the Kazakh educational scene, mainly language classrooms. Education experts outline the role of language teachers in promoting environmental consciousness and sustainability in language classrooms [16–19]. Therefore, this study used qualitative structured interviews to explore first-year Kazakh students' views on ESD practices and how the latter is displayed in their Kazakh and/or English classrooms' context. Two research questions guide this study:

- What is the perception of first-year Kazakh students towards ESD practices?
- How do ESD practices show up in language classrooms?

ESD is an all-encompassing approach to education that focuses on various aspects, such as learning outcomes, pedagogy, and the learning environment [17–19]. It goes beyond incorporating topics like climate change, poverty, and sustainable consumption into the curriculum. ESD also fosters interactive, learner-centered teaching and learning environments. For instance, Bill Gates believed that to achieve this, ESD requires shifting from teaching to learning, promoting action-oriented, transformative pedagogy that supports self-directed learning, collaboration, problem-solving, interdisciplinarity, and integrating formal and informal education. These pedagogical approaches are essential in developing competencies for promoting SD [20].

Education experts claim teachers can effectively contribute to ESD initiatives, empower students to become responsible global citizens, and foster a culture of sustainability in education [17–19,21]. Experts also believe that involving students in activities that aim to improve the world has a lasting influence on their students' future views and personalities. Goulah defines teachers as the most significant factor in the context of learning. SD-focused classroom activities allow students to learn more profoundly when their studies are linked to their world and the one they will inherit [17]. Chau and Shunmugam state that teachers are always at the forefront of educational changes, introducing student

autonomy, group work, project work, case studies, and communicative tasks that teach students to become active doers and thinkers, not passive recipients of knowledge [19]. Maley argues that the greatest of all pedagogical misconceptions is that people learn what they are studying now. Integrated with educational aims, training in forming sustainable attitudes may be more important than geography or history lessons since these attitudes fundamentally affect their students' future attitudes and personalities [21] (p. 348). He, alongside Jacobs and Dillon [19], believes that language educators have a significant role in shaping the mindset of learners and inspiring them to act. Unlike other subjects with specific content to impart, language teaching can incorporate a wide range of topics. Language education, including second-language instruction, can foster awareness and encourage participation by integrating environmental concerns like recycling, sustainable energy, and animal welfare. Moreover, engaging in sustainable practices is crucial for creating compelling online learning experiences in higher education institutions. By incorporating activities promoting sustainability, we can make practical scenarios relevant to our current implementation stage [7] (p. 3). So, education and language education, in particular, as a holistic and transformative approach, equips learners with the knowledge, skills, values, and attitudes necessary to contribute to sustainable development and address global challenges.

2. An Overview of Kazakhstan's Efforts in ESD

Kazakhstan has made significant strides in promoting SDGs. In the early 2000s, it recognized the importance of sustainable development and began integrating it into its national policies and strategies. Efforts were made to raise awareness about environmental conservation, resource management, and social responsibility [22–24]. In 2002, KZ ratified the Johannesburg Plan of Implementation, reaffirming its commitment to sustainable development and highlighting the role of education in promoting sustainability. The period 2003–2012 was recognized as the period for implementing the ESD in education policies. In 2003, KZ adopted the United Nations Millennium Development Goals (MDGs) and committed to achieving the targets by 2015. Education was identified as a crucial component of sustainable development, and steps were taken to align educational practices with the MDGs. The same year, the Kazakh government launched the State Program on Environmental Education to incorporate environmental education into the national curriculum.

Kazakhstan actively participated in international initiatives, such as the UN Decade for ESD (2005–2014), to promote ESD and exchange best practices. In 2008, the Ministry of Education and Science issued a directive on integrating environmental education into the education system, highlighting the importance of ESD. Since then, the education community has done much to develop ESD strategies and initiatives. Later, KZ introduced the National Education Development Strategy for 2011–2020. The strategy emphasized the importance of Education for Sustainable Development, aiming to develop an environmentally literate and socially responsible society. In 2013, the government created the State Program for the Development of Education and Science, emphasizing ESD integration into educational policies and practices [23].

With the adoption of the Sustainable Development Goals (SDGs) by the United Nations in 2015, KZ embraced the global agenda and incorporated the SDGs into its national development plans. Education for Sustainable Development has become integral to the national education system. The National Strategy for Sustainable Development 2050, adopted in 2015, recognized the importance of ESD in achieving Sustainable Development Goals and outlined specific actions to promote ESD. KZ participated in the Global Action Program on ESD launched by UNESCO, further demonstrating its commitment to ESD and aligning its efforts with international frameworks. Kazakhstan has been a pathfinder in the region as part of the Digital Public Goods Alliance's (DPGA) efforts to ensure country leadership in discovering and developing digital public goods (DPGs). The objective of the pilot initiative was to engage Kazakhstan's innovation ecosystem in creating and implementing DPGs that address national priorities in education and inclusion aligned

with international standards. UNICEF KZ works with private- and public-sector partners and the government to strengthen local capacity to build, maintain, and contribute to DPGs. The promotion and scale-up of DPGs in Kazakhstan by UNICEF allow for active support of the national concept of DigitEL 2025.

The next stage was devoted to curriculum reforms and teacher training. Kazakhstan embarked on curriculum reforms to integrate ESD principles and content across different subjects and educational levels. Emphasis was placed on integrating environmental education, promoting social and economic awareness, and fostering critical-thinking skills among students. Recognizing the crucial role of teachers in promoting Education for Sustainable Development, Kazakhstan invested in teacher training and professional development programs, equipping educators with the knowledge, pedagogical approaches, and resources to integrate ESD into their teaching practices. Kazakh schools have incorporated ESD into their programs and courses. Sustainability-related disciplines, research, and projects are encouraged, fostering a culture of sustainability among students and academia. Simultaneously, environmental education centers were established across KZ as platforms for hands-on learning experiences, ecological research, and community engagement. These centers aim to raise awareness, build capacity, and facilitate collaboration among educators, students, and communities. Under the Green Schools Initiative, which focused on creating environmentally friendly and sustainable learning environments, schools were encouraged to implement energy-saving practices, waste management systems, and eco-friendly initiatives.

To strengthen partnerships and community engagement, KZ has actively engaged stakeholders, including educational institutions, civil society organizations, businesses, and local communities, in developing policies, sharing best practices, and implementing ESD initiatives effectively. Collaborations with international organizations, such as UNESCO and OSCE, facilitated capacity-building initiatives and knowledge exchange in ESD and supported the ESD implementation projects and programs in cooperation with local stakeholders, for example, the Green Bridge Partnership Program and the Clean Energy Partnership Program. In addition, the government has launched community-led initiatives and public awareness campaigns to promote sustainability practices and engage the broader public in ESD activities. It includes organizing workshops, conferences, and public events to engage communities and individuals in sustainable development activities. Additionally, KZ organizes national ESD competitions and awards to recognize and promote outstanding initiatives and practices in ESD. These initiatives encourage innovation, creativity, and engagement in addressing sustainability challenges. All these initiatives reflect Kazakhstan's commitment to ESD and its efforts to create a sustainable and environmentally responsible society. By integrating ESD into education systems and practices, KZ aims to develop a knowledgeable and proactive community that thinks creatively and critically to contribute to the country's Sustainable Development Goals.

KZ has been firmly committed to promoting ESD in its education system. The government's efforts have included policy development, curriculum reforms, teacher training, and community engagement. Steps are underway to strengthen the integration of sustainable development principles and values across all levels of education, promote research and innovation in sustainable development, and foster a culture of sustainability among students, teachers, and communities. By aligning its initiatives with international frameworks and actively participating in global ESD programs, KZ has demonstrated its dedication to creating a sustainable and environmentally responsible society.

3. Materials and Methods

This section will discuss the research methodology used to gather and analyze data for this study. Firstly, we will describe the research design, which includes the sampling procedure, research setting, and data collection instruments. Secondly, we will briefly overview the analysis and interpretation process.

In this paper, we used a case study as a qualitative research design to gain in-depth insights into students' understanding of our research question and objectives. Conducting a

case study as a qualitative research design involves comprehensively exploring a particular case or a small number of cases to comprehensively understand a specific phenomenon or issue within its real-world context [25] (p. 16).

Since 2015, Kazakhstan has introduced reforms to the national curriculum to align with international sustainability goals and principles. Our case aimed to determine Kazakh students' perception of ESD based on their experience during high school, particularly in language classrooms. We employed first-year students from four Kazakh Universities for the focus group.

Seidman claims that if the researcher's goal is to understand the meaning people involved in education make of their experience, then interviewing provides a necessary if not completely sufficient, way of research [26] (p. 11). So, as the data collection method, the interview with the focus group was conducted to understand their experiences and perspectives, explore the process of integrating SDGs into the national curriculum, and understand the challenges and successes of the curriculum reform.

The interviews were conducted on 16–20 April 2023. Following the discussions, each question was thoroughly analyzed. The analysis of interview questions focused on coding and categorizing data patterns to identify meanings and topics. This process aimed to create a cohesive data structure and ensure its reliability.

3.1. Statement on Ethics

Our interview adhered to all necessary ethical and scientific standards for conducting research with humans, as outlined in the HRA's (Human Research Act) Article 51, paragraph 2, which states, "Research Ethics Committees may advise researchers in particular on ethical questions and, if so requested by the researchers, comment on research projects not subject to this Act, and specifically projects carried out abroad." We collected data on gender, age, area, and region of arrival and study status in a pseudo-anonymous manner.

3.2. Data Analyses

Our study included 186 first-year students from four Kazakh universities (al-Farabi Kazakh National University (al-Farabi University), Kazakh Ablai Khan University of International Relations and World Languages (Ablai Khan University), Narxoz University and Kazakh–British Technical University (KBTU)). The participants represented almost all parts of Kazakhstan and studied in various areas of training programs; there were 92 female and 94 male interviewees. Before the interviews, the participants were requested to provide informed consent, outlining the significance of their feedback for the relevant research. Most interviewees quickly agreed to answer the questions, while others initially hesitated but eventually agreed. The survey procedure maintained the confidentiality of the data and did not include respondents' names. However, they were asked to indicate their geographical origin: urban (big cities and towns) or rural (villages) (see Table 1). Participants were selected using a non-probability sampling method. We use non-probability sampling to select individuals based on predefined criteria, such as (1) arrival region to include participants from all 14 regions of Kazakhstan, (2) gender to provide equal access to the interview, and (3) area to define whether the participants are from an urban or rural area.

Table 1. Gender distribution of participants.

Background		Participants	Percentage
Gender	Female	92	49%
	Male	94	51%
Regions	Akmola	17	9%
	Aktobe	14	7.5%
	Almaty	15	8%

Table 1. *Cont.*

Background		Participants	Percentage
Regions	Atyrau	11	6%
	East Kazakhstan	12	6.5%
	Zhambyl	10	5.5%
	West Kazakhstan	9	5%
	Karaganda	9	5%
	Kostanay	17	9%
	Kyzylorda	11	6%
	Mangystau	8	4.5%
	Pavlodar	15	8%
	North Kazakhstan	13	7%
Area	Turkestan	25	13%
	Urban	69	37%
	Rural	117	63%

4. Results and Discussion

A qualitative method was used in the interview to understand how Kazakh students practice ESD initiatives in their classrooms. The first question asked the respondents about their familiarity with “SDGs” and understanding of ESD principles. More than half of respondents confirmed that they were aware of these terms. Some students explained ESD as a new educational approach due to globalization, new media, and digital culture. Almost one-third emphasized that SDGs are essential for developing 21st-century learning skills that integrate social, economic, and environmental dimensions to promote a sustainable society. Additionally, eleven respondents mentioned ESD involves using information and communication technology (ICT) and addressing global issues in the classroom by teachers and students (see Table 2).

Table 2. Interview Question 1 results.

Categories	Participants		Percentage	
	Urban	Rural	Urban	Rural
Aware	41	15	73%	27%
Not aware	7	40	15%	85%
Know but do not understand the importance	32	51	38%	62%

The interview Question 1 results revealed a lack of comprehensive knowledge about sustainable development among students. The respondents’ answers demonstrated that the concept must be thoroughly integrated into the national curriculum. The limited exposure to sustainability concepts restricts the ability of students to appreciate the interconnectedness of social, economic, and environmental issues.

During the second part of the interview, the discussion focused on sustainable education practices within the classroom. Most rural students claimed that after enrolling in Almaty universities, they realized they faced inequality in educational opportunities regarding qualified teaching staff, access to technology, a curriculum focused on viability, and many other problems. Participants expressed general concern about unequal access to quality education for all learners of Kazakhstan. They also outlined the role of technology in bridging gaps in education. Although participants were not currently part of the Kazakh education system, many could explain that achieving sustainable development

is possible through educators' determination and hard work. One participant explained: "Teachers can implement sustainability-focused activities in the classroom by creating an environment where students are active participants rather than passive learners." Some individuals have pointed out that their classes primarily focused on theory and lacked instruction on critical skills necessary for sustainable development, such as critical thinking, problem-solving, and innovation. That prevented students from developing the capacity to create viable and sustainable solutions for real-world issues. However, most students from big cities mentioned that their teachers use these methods regularly. They explained that they seemed more engaged and interested when traditional teaching approaches were changed to newer ones, integrating SD activities into their lessons. At the same time, some teachers stuck to the content in the textbook and used familiar teaching methods. Some mindful students noted that a substantial portion of those who prefer traditional methods lack the requisite training and resources to impart knowledge on sustainability effectively. This shortage is further amplified in rural regions, exacerbating the urban–rural disparity in the quality of education.

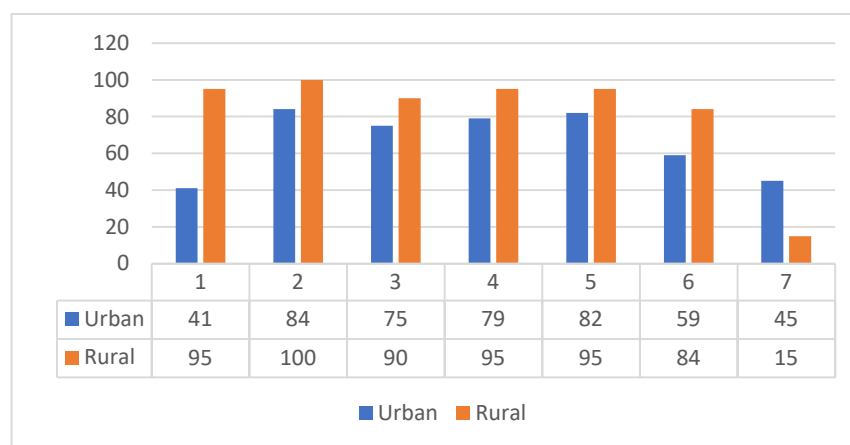
In addition, participants were asked to indicate the primary objectives of sustainable development (SD) education. Participants acknowledge that incorporating sustainability practices into classrooms can boost student motivation and involvement in the learning process. Students require fresh teaching techniques and alternative learning methods to deviate from traditional approaches. Survey respondents agreed that integrating SD principles fosters a dynamic classroom environment and enhances student academic performance. One student shared her English teacher's approach, where her teacher motivates students to communicate in English within the classroom. She achieves this by asking them to share their opinions on media texts such as TV shows or movies. She added that all her classmates were impressed by their motivation and engagement in communicating despite making some errors. Participants believe sustainability-driven education helps enhance students' critical and creative skills. The core of teaching sustainability literacy is critical thinking. It involves nurturing students' ability to use real-life situations effectively and independently comprehend, examine, interpret, and evaluate their meanings. Moreover, the ability to communicate and create empowers students to engage intellectually, culturally, and civically.

During the study, the interviewees were asked about the main obstacles their teachers face when creating a more sustainable and inclusive educational environment for their students. The students confirmed that the scarcity of facilities and educational materials was the primary challenge to address. They emphasized that financial constraints hinder the establishment of a strong foundation for sustainable education. Despite the government's efforts, there is still a pressing need for increased funding in education, specifically for resources, infrastructures, and academic inputs that empower individuals with the knowledge, skills, and values necessary to contribute to a sustainable and prosperous future, particularly in rural schools. Their concerns were also expressed regarding the adequacy of existing teacher training programs in re-training educators to deliver sustainability-focused education throughout the COVID-19 lockdown. Many teachers needed help to embrace sustainable practices and adjust to teaching in an online environment. They believe introducing sustainable online practices in pre-service teacher training effectively enhances their capacity as sustainability educators. Most rural participants outlined that the educational system mainly operates in Russian and less in Kazakh, creating obstacles for native speakers. Limited access to qualified education in their mother tongue affects these children's ability to fully comprehend and engage with the curriculum, potentially resulting in lower educational outcomes. The list of challenges revealed during the interview is given in Table 3.

Table 3. Challenges revealed during the interview.

Challenges Revealed	
1	<i>Unequal access to quality</i>
2	<i>Lack of funding</i>
3	<i>Curriculum adjustment</i>
4	<i>Keeping up with technological advancements</i>
5	<i>Lack of teacher training</i>
6	<i>Cultural differences</i>
7	<i>Building partnerships</i>

By the end of the interview, the respondents were asked to share any additional comments or recommendations. Almost all respondents hoped that all stakeholders would implement policies and invest in facilities and training to transform the educational system to mirror sustainable practices. They also hoped for a significant overhaul of the syllabus and teaching methods aligned with ESD at all grades and levels of education, including online, and just over two-fifths of urban respondents emphasized the need for a partnership between home and school to raise awareness and foster a holistic understanding of the complex interplay between societal, economic, and environmental dimensions. They noted that environmental exposure often begins at home, and ESD should critically address students' out-of-school experiences. Nevertheless, most rural respondents did not support it, claiming that kind of network would not be effective as it necessitates primarily the development of their parents' knowledge and best practices in SD (see Figure 1).

**Figure 1.** Challenges revealed during the interview, in percentages.

A critical lesson from the second part of the interview is that sustainable development education involves more than simply incorporating sustainability into the curriculum. It requires a complete overhaul of the educational system to align with sustainable practices, including online teaching. This includes implementing sustainability principles in every aspect, such as the infrastructure of schools and the teaching methods used. This approach would educate students about sustainability and showcase its practical application, cultivating a culture of sustainability that can drive Kazakhstan towards its developmental objectives beyond the lockdowns.

The following section describes the significant challenges and opportunities revealed in sustainability education in Kazakhstan.

4.1. Key Challenges Revealed in Kazakh Education for Sustainable Development

As the previous sections show, Kazakhstan has strongly emphasized education to promote and advance ESD until the middle of the last decade. This initiative has since been supported by educational institutions, scholars, and educators who have sought to find effective ways to raise awareness and act on environmental protection and sustainability issues such as climate change, biodiversity, water, poverty alleviation, and sustainable consumption and production. However, as the literature review and interview results showed, although these initiatives have been in place for some time, they have yet to deliver the necessary changes to the education sector and beyond, as they have not received support from governmental entities in a timely and complete manner. The research revealed that governmental support is the only mechanism to transform the produced results effectively and safely into nationwide learning environments, building capacities of educators, empowering and mobilizing youth, and accelerating local-level actions, which unfortunately is neither completed in full nor timely.

The contribution of ESD to the SDGs is explained by developing a long-term regulatory framework that systematically introduces practical, effective measures to empower active citizens, promote sustainable lifestyles, increase capacity in SD, and strengthen partnerships and cooperation. In this regard, education in sustainable development in KZ faces several serious problems that prevent it from flourishing and being inclusive. To justify the interview and our research outcomes, we can address the international and national entities' reports on ESD [11,12,22,23]. For instance, UNICEF KZ and UNICEF Innovation have revealed several challenges in Kazakhstan's efforts to promote inclusive and sustainable education through innovation ecosystems [11,12,22]. They noted, firstly, that limited funding opportunities are available locally to assess in-country digital public goods (DPGs) in the early stages of development. Secondly, product developers and policymakers need to gain awareness about DPG standards and the work of the Digital Public Goods Alliance (DPGA). Thirdly, startups need help with maintaining human resources sustainably. Finally, there needs to be a higher level of awareness about the benefits and utilization of DPG products (<https://www.unicef.org/innovation/dpg-pathfinding-countries/kazakhstan>, accessed on 17 June 2023) [12]. Additionally, the German Society for International Cooperation (GIZ) work, incorporated with Kazakhstan, revealed that Kazakhstan needs strategic adaptation planning to improve the adoption and implementation of the SDG model [11].

From the national perspective, for example, Altynsarin National Academy of Education, under the Ministry of Education and Science of the Republic of Kazakhstan analytical report on integrating the ESD component in the content of the Kazakh State Standard of General Education, Standard Secondary School Curricula (grades 1–11), states that the analysis of the content of standard curricula in school subjects showed that the educational material on most school subjects contains a small number of topics/learning goals that have direct integration with the Sustainable Development Goals [23].

So, the literature review and interview results revealed that contextual challenges specific to the Kazakh education system must be addressed to convey sustainability principles effectively. The biggest challenge in gaining support in advancing sustainability education practices in the Kazakh educational scene, particularly in language teaching, is a *lack of awareness and understanding of sustainable development* initiatives. Research revealed a need for comprehensive knowledge about sustainable development and its importance among the general public, including parents and community members, especially in rural areas. One of the significant factors contributing to this issue is that the ESD concepts and practices need to be thoroughly integrated into the national curriculum, which is predominantly theoretical, with little emphasis on skills essential for sustainable development, such as critical thinking, problem-solving, and innovation. This limited exposure to sustainability concepts restricts the ability of students to appreciate the interconnectedness of social, economic, and environmental issues. It limits the capacity of students to devise sustainable solutions to real-world problems. Thus, more awareness campaigns, public dialogues, and community engagement initiatives are required to promote the understanding and value of sustainable

development education, which is actively held in urban areas. Furthermore, there needs to be more specific guidelines or policies on incorporating sustainability principles across different subjects and grade levels.

In addition, a substantial portion of educators, especially in rural and remote areas, need to receive requisite training, professional development opportunities, and resources to effectively impart knowledge on sustainability because of limited access to resources and financial constraints. Rural and remote areas often need more infrastructure, including training facilities, to enable teachers to access training and professional development opportunities. The distance to training centers, limited transportation options, and inadequate internet connectivity can restrict teachers' ability to participate in workshops, seminars, or online courses. Moreover, organizing and funding training programs is costly, especially when considering inviting qualified experts, travel expenses, accommodation, and resource materials. As a result, educators need to gain awareness of the critical concepts, pedagogical approaches, practical strategies, resources, and teaching materials designed explicitly for ESD to integrate sustainability into their teaching practices. Teachers struggle to find relevant textbooks, teaching aids, and supplementary materials that align with sustainability principles and provide practical examples and activities, exacerbating the urban–rural disparity in the quality of education.

The lack of awareness and understanding of ESD by Kazakhs, especially in rural and remote regions, and inadequate integration of ESD in curriculum and teaching methods hinder the creation of a more sustainable future by equipping its citizens with the knowledge, skills, and values necessary for responsible and environmentally conscious decision making.

Another significant challenge that caused the disparities between urban and rural areas significantly exacerbates the *unequal access to quality* education, which persists across various regions. Specifically, rural and remote areas are affected initially by these geographical disparities. Kazakhstan's vast territory (it is the ninth-largest country in the world) and geographical diversity present challenges in ensuring equal access to quality education. Remote and rural areas often need more infrastructure, including schools, libraries, and educational resources, making it difficult for students in these regions to receive quality education. Urban areas, typically wealthier, have better-developed educational infrastructure, including well-equipped schools, qualified teachers, and access to educational materials and technology, resulting in higher-quality education. Unfortunately, this inequality perpetuates socioeconomic disparities, ultimately hindering development and opportunities for students in these regions. Low-income families struggle to afford educational expenses, including school fees, uniforms, textbooks, and transportation costs. This results in limited educational opportunities for children from economically disadvantaged backgrounds. In Kazakhstan, ensuring the inclusion of marginalized and underprivileged groups in the educational system is a significant issue. These groups include low-income families, ethnic minority groups, and children in remote areas. Similarly, children with special educational needs face stigmatization, inadequate support, and a lack of inclusive educational settings catering to their needs. Unfortunately, these groups often encounter various obstacles that limit their access to quality education and learning opportunities, leading to a disparity in educational opportunities and a lower quality of education.

Inadequate infrastructure, lack of specialized services, and limited teacher training in inclusive education contribute to unequal access and educational outcomes for these students. This is further amplified in rural regions, exacerbating the urban–rural disparity in the quality of education.

Although Kazakhstan has expressed commitment to sustainable development and ESD, there are challenges in effectively *integrating ESD into policies, strategies, and programs* and coordinating efforts *across various ministries, government agencies, and educational institutions*. Ensuring coherence and alignment between policies, procedures, and programs is essential for fostering sustainability-oriented mindsets among students. Different ministries and government agencies may have a sectoral organizational structure and separate

policies and priorities, making it challenging to implement ESD agendas in an integrated, comprehensive, transversal, and collaborative manner across education, environment, and social development [5] (p. 14). In addition, engaging stakeholders from different sectors, including government agencies, educational institutions, NGOs, and community organizations, is essential for the successful integration of ESD. However, ensuring active participation and collaboration of diverse stakeholders and aligning their interests and priorities becomes challenging. Creating platforms for dialogue, fostering partnerships, and promoting inclusive decision-making processes are the recent actions taken by the KZ government.

Translating ESD policies and strategies into practical implementation is also a complex task. Implementation mechanisms, guidelines, and monitoring frameworks must be in place to guide stakeholders in incorporating ESD into their activities. More clarity and guidance on the practical steps for implementation help the successful integration of ESD into policies and programs.

Poor *curriculum adjustment* is another challenge in mainstreaming ESD. ESD requires an interdisciplinary approach, connecting various subjects and addressing sustainability issues across the curriculum. However, the existing subject-based structure of traditional curricula in Kazakhstan poses challenges in implementing an integrated approach as there is resistance from some educators unfamiliar with sustainable development principles, concepts, and practices. Careful planning and coordination must be improved in identifying cross-curricular connections, developing integrated frameworks, and ensuring consistent implementation across subjects. The emphasis on rote memorization and a lack of focus on critical thinking, problem-solving, and practical application of knowledge impede the development of crucial skills necessary for the modern workforce. This results from a need for more comprehensive and ongoing professional development programs for teachers focusing on ESD concepts, teaching methodologies, and practical implementation strategies.

In addition, adjusting the curriculum for ESD requires developing or identifying new resources, materials, and teaching aids that align with sustainability concepts, which is a severe flaw in KZ education. Ensuring the availability and accessibility of high-quality and contextually relevant resources across all regions of Kazakhstan remains challenging, particularly in remote and rural areas with limited resources and infrastructure. Consequently, aligning assessment and evaluation practices with ESD is another continuing challenge. Traditional assessment methods focusing on memorization and recall may not capture sustainability education's holistic and critical thinking aspects. Developing appropriate assessment tools, techniques, and criteria to evaluate students' understanding, skills, and attitudes related to sustainable development also poses a challenge.

Rapid *technological advancements* can make it difficult for educators to *keep up with them* and incorporate them into ESD programs. The availability and accessibility of digital infrastructure, internet connectivity, and digital devices vary across different regions, with rural and remote areas experiencing more significant disparities. This divide hurts students' ability to leverage online learning resources, digital tools, and educational technologies. Moreover, limited digital literacy skills among teachers and students exacerbate the issue. The digital divide must be addressed by providing adequate technical support and training to educators and students to ensure inclusive and practical education in Kazakhstan [10] (p. 174).

Funding challenges pose significant obstacles to meeting Kazakhstan's ESD needs. Despite the government's efforts, there is a pressing need for ongoing increased funding in education, specifically for resources and infrastructures that foster sustainable development. Primarily, more budget allocation for ESD initiatives is needed to ensure the implementation of necessary programs and activities. Education budgets may prioritize other areas. For instance, healthcare, infrastructure development, and economic initiatives, most projects for funding, need to address issues on adapting SDGs to the national context and promoting and implementing the SDG agenda in Kazakhstan. Furthermore, the effective use of online teaching tools relies not only on the methods and procedures implemented by university

educators but also on the unique features of technological teaching platforms, which have become increasingly vital during distance learning. As a result, ESD implementation needs to receive adequate funding to support curriculum adjustment, teacher training, resource development, and infrastructure improvements to meet emergencies.

A reliance on external funding sources, like grants, donations, or international aid, has introduced additional uncertainty and challenges in sustaining ESD initiatives over the long term. Official bodies know that external funding may need more consistent and predictable, but they still rely on it. This makes planning and implementing sustainable ESD programs challenging without sufficient financial stability. Effective implementation of ESD often requires investments in infrastructure improvements, such as developing eco-friendly school buildings, setting up laboratories, or incorporating technology for interactive learning. Additionally, procuring or developing appropriate teaching materials, textbooks, and educational resources aligned with ESD principles and values can entail additional costs.

4.2. Opportunities for Addressing the ESD Challenges Revealed

Kazakhstan, a country abundant in natural resources, has been making considerable economic progress. However, the nation's education system still needs to grapple with issues that might hinder its pursuit of sustainable development. Education is a pivotal tool that can influence a nation's sustainability trajectory, primarily by promoting awareness, encouraging innovation, and imparting the skills necessary to address environmental, economic, and social challenges. Addressing the challenges mentioned above in advancing the implementation of ESD in Kazakhstan requires a multi-faceted approach. The following strategies are proposed to surmount these challenges and harness the potential of education for promoting sustainable development (see Figure 2).

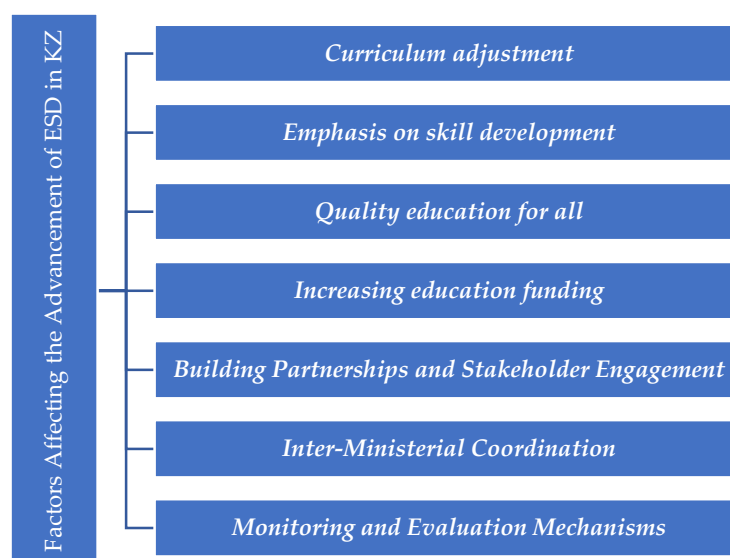


Figure 2. Factors affecting the advancement of ESD in Kazakhstan.

First is *curriculum adjustment* since it serves as the heart of education. It is crucial to incorporate the principles and values of ESD as a fundamental component of national education strategies and plans into the national curriculum. This integration should encompass all levels of education, from early childhood to higher education, as well as non-formal and informal education. A shift from a theory-focused curriculum to one that balances theory with practical skills is crucial. A revised inclusive curriculum would raise awareness; foster a holistic understanding of the complex interplay between societal, economic, and environmental dimensions; and foster critical thinking, problem-solving, and life skills. Sustainability education should be interdisciplinary, blending science, economics, and social studies to provide a comprehensive view of sustainable development in cross-cutting

themes, such as adopting green infrastructure, reducing energy consumption, promoting waste management, and incorporating sustainable procurement practices. Aligning the curriculum with the job market's needs and students' aspirations ensures that education prepares them for future challenges.

Next is an *emphasis on teachers' skill development*. Focus on teacher training and continuous professional development programs is essential for building a competent, well-trained, and motivated teaching workforce for delivering quality education to students. Designing and implementing training programs with crucial sustainability competencies, such as subject knowledge, pedagogical skills and tools, attitudes, values, motivation, and commitment, effectively integrate ESD into their teaching practices. However, in addition to general sustainability competencies, they also need specific ESD competencies that refer to their ability to assist individuals in developing sustainability competencies through various innovative teaching and learning methods such as case-based, inquiry-based, problem-based, project-based, and collaborative learning. These programs should emphasize active and participatory teaching methodologies that foster student involvement, creativity, critical thinking, problem-solving, and self-expression abilities. This could be achieved through project-based learning, internships, or community service activities that promote sustainable practices and pedagogical approaches.

Third, ensuring *access to quality education* in Kazakhstan requires a comprehensive and multi-faceted approach to improve education outcomes. This includes improving education infrastructure, inclusive education, enhancing teacher quality, developing relevant and inclusive curricula, allocating adequate resources, bridging the urban–rural divide, and other issues. For instance, to properly promote inclusive education practices that accommodate students with disabilities and special educational needs, the government should ensure that schools are equipped with appropriate infrastructure and resources and provide specialized training for teachers to cater to the diverse learning needs of all students effectively. Also, implementing targeted policies to bridge the educational gap between urban and rural areas may include offering incentives to teachers to work in rural schools, providing additional resources to rural institutions, and leveraging technology for remote learning opportunities. Investing in early childhood education programs provides a strong foundation for children's learning and development, as high-quality early childhood education can significantly impact children's future academic success and overall well-being. Implementing this strategy allows Kazakhstan to work towards ensuring access to quality education for all, fostering a knowledgeable and skilled workforce, and promoting sustainable development and societal progress. Education is pivotal in shaping the nation's future, making it a vital investment for a prosperous and inclusive society.

Fourth is *increasing education funding* since financial constraints hinder the implementation of sustainable education initiatives. To drive meaningful changes, national budgets should prioritize education to guarantee that schools have the necessary funds to provide quality education and maintain a conducive learning environment, including adequate funding for infrastructure development, teacher training, and curriculum enhancement.

It also is worth noting the importance of investing in research and fostering collaboration between academia and practitioners. Encouraging research and innovation in ESD can drive the development of evidence-based practices and context-specific solutions to sustainability challenges. Thus, encouraging educational institutions and research centers to conduct studies on sustainability issues, best practices, and the impact of ESD initiatives is crucial for delivering quality education to students. This might entail exploring diverse potential funding mechanisms, including public–private partnerships, international grants, or community contributions to secure the necessary resources for sustainable education projects.

Fifth, *building partnerships and stakeholder engagement*, including government agencies, educational institutions, international institutions, NGOs, the private sector, and community-based organizations, provides valuable resources and insights for implementing sustainability education. These partnerships can offer technical expertise, funding,

and innovative strategies that can contribute significantly to the sustainability agenda. In addition, encouraging joint initiatives and projects that promote ESD fosters a sense of shared responsibility for sustainable development.

Sixth, *developing inter-ministerial coordination mechanisms* allows the integration of ESD effectively into policies, strategies, and programs, and coordinating efforts across various ministries, government agencies, and educational institutions requires a collaborative and systematic approach for a holistic approach to ESD. While creating a comprehensive and well-defined national ESD framework that outlines the objectives, principles, and action plans for integrating sustainability into education policies and programs, it is critical to involve input from multiple stakeholders, including inter-ministerial committees or experts' groups specifically focused on ESD, and civil society organizations to ensure coordination, collaboration, and alignment of efforts across various sectors. Formulating inter-ministerial working groups that comprise representatives from different ministries and agencies involved in education, environment, and sustainable development ensures coordination, collaboration, and alignment of efforts across various sectors.

Implementing policies and initiatives ensuring that all children have access to education, especially those in remote and underserved areas, involves inter-ministerial coordination in providing transportation facilities, constructing schools in remote regions, and offering boarding facilities for students who live far from educational institutions.

The last strategy is designing proper *monitoring and evaluation mechanisms* of existing education policies and curricula to assess ESD integration efforts' effectiveness so the impact of ESD initiatives can be adequately evaluated. A robust monitoring and evaluation framework should regularly assess the quality of school education, review progress, identify gaps and opportunities, and celebrate successes to maintain momentum and commitment.

Engaging with international organizations and other countries in global initiatives and networks allows us to stay updated on the latest developments in sustainability education and share experiences, best practices, and lessons learned in implementing ESD. International cooperation is essential in measuring the effectiveness of sustainability efforts in the Kazakh education system, identifying areas for improvement, and informing evidence-based decision-making.

By following these strategies and fostering a culture of collaboration and commitment to sustainable development, it is possible to effectively integrate ESD into policies, procedures, and programs and coordinate efforts across various sectors and institutions. This will lay the foundation for Kazakhstan's more sustainable and resilient future.

To address the abovementioned challenges, Kazakhstan needs to increase awareness and understanding of ESD principles among educators and the wider community. This can be achieved through professional development opportunities for teachers and the development of outreach programs for the wider community. Kazakhstan should also prioritize the allocation of resources and funding to support ESD initiatives, such as the development of educational materials and the implementation of ESD programs. Additionally, the government should foster greater collaboration and coordination among relevant stakeholders, including government agencies, non-governmental organizations, and academic institutions.

5. Conclusions

The study revealed that the current challenges in Kazakh Education for Sustainable Development are significant but manageable. However, they could hinder the nation's progress towards sustainable development. Therefore, concerted efforts are required to address these issues, primarily through curriculum enhancement, teacher training, skill development, increased funding, and strategic partnerships.

By implementing the proposed strategies and recommendations, Kazakhstan can progress significantly towards a more sustainable and inclusive education system. Emphasizing the role of education in fostering a sustainable society will pave the way for a brighter and greener future for the nation and its citizens. Using the transformative power

of education, Kazakhstan can nurture a generation equipped with the knowledge, skills, and values necessary to advance the country towards a sustainable future.

A key takeaway is that Education for Sustainable Development is not just about embedding sustainability into the curriculum; it is about transforming the educational system to mirror sustainable practices. Every aspect should reflect sustainability principles, from the school infrastructure to the pedagogical methods employed. This would teach students about sustainability and demonstrate its practical applicability, fostering a sustainability culture that can propel Kazakhstan towards its developmental goals.

Overall, the systematic implementation of the SDGs and its fourth goal, in particular, will undoubtedly have a positive multiplier effect for Kazakhstan in the following ways:

- Facilitating the process of becoming one of the 30 most competitive countries in the world by achieving the indicators of the Organization for Economic Cooperation and Development;
- Promoting international collaborations in global sustainability initiatives to expose Kazakh students to diverse perspectives on sustainability issues;
- Leveraging technology to enhance ESD delivery, making use of online platforms, educational apps, and virtual reality for immersive learning experiences;
- Giving an additional impetus to such processes as increasing human potential, attracting foreign technologies and experience, and improving skills in processing Big Data;
- Supporting innovation and entrepreneurship in sustainability-related fields on national and international scales, particularly those relevant to Kazakhstan's unique context;
- Attracting large international corporations' investment, for which the model of socially responsible business and its compliance with the SDGs is an essential component of their image.

By embracing these strategies and maintaining a commitment to sustainability education, Kazakhstan can not only become a pioneer in driving sustainable development but also serve as an inspiration for other nations seeking a more equitable and prosperous future for their citizens. Through education, Kazakhstan can empower its citizens to contribute to a sustainable, prosperous, and inclusive society.

Author Contributions: Conceptualization, P.Y., G.B. and E.T.; methodology, P.Y. and G.B.; software, E.T. and G.B.; validation, P.Y. and E.T.; formal analysis, P.Y., G.B. and E.T.; investigation, P.Y., E.T. and G.B.; resources, P.Y. and E.T.; data curation, P.Y. and E.T.; writing—original draft preparation, P.Y.; writing—review and editing, P.Y. and E.T.; visualization, E.T. and G.B.; supervision, P.Y.; project administration, P.Y. All authors have read and agreed to the published version of the manuscript.

Funding: This study was funded by the Science Committee of the Ministry of Science and Higher Education of the Republic of Kazakhstan (Grant No AP19680048).

Institutional Review Board Statement: Ethical review and approval were waived for this study as it does not involve intervention and is low risk.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in the article are based on the following reports: (1) "Using Macroeconomic Modelling to Inform National Climate Adaptation Planning. Lessons Learned from Georgia, Kazakhstan, And Vietnam", published by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, in Germany, 2023. Available at https://www.international-climate-initiative.com/fileadmin/iki/Dokumente/Publikationen/Projekte/18_II_141/giz-2023-en-using-macroeconomic-modelling-to-inform-national-climate-adaptation-planning.pdf (accessed on 11 June 2023). (2) UNESCO's Education for Sustainable Development newsletters published by UNESCO. Available at <https://www.unesco.org/en/education-sustainable-development> (accessed on 17 June 2023). (3) "Our Work on the Sustainable Development Goals in Kazakhstan" published by the UN Kazakhstan office. Available at <https://kazakhstan.un.org/en> (accessed on 17 June 2023). (4) 14. Bureau of National Statistics. Agency for Strategic Planning and Reforms of Kazakhstan Socio-Economic Development of Kazakhstan (January–June 2023) (accessed on 17 June 2023). <https://stat.gov.kz/en/publication/collections/> (accessed on 17 June 2023).

Acknowledgments: We greatly appreciate all the participants' collaboration.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. United Nations. *Transforming Our World: The 2030 Agenda for Sustainable Development* A/RES/70/1; United Nations: New York, NY, USA, 2015. Available online: https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_RES_70_1_E.pdf (accessed on 17 July 2023).
2. United Nations. *The Sustainable Development Goals Report 2017*; United Nations: New York, NY, USA, 2017. Available online: <https://www.undp.org/publications/un-sustainable-development-goals-report-2017> (accessed on 17 June 2023).
3. United Nations. *Issues and Trends in Education for Sustainable Development*; Leicht, A., Heiss, J., Byun, W.J., Eds.; UNESCO: Paris, France, 2018. Available online: https://en.unesco.org/sites/default/files/issues_0.pdf (accessed on 17 June 2023).
4. United Nations. *Education for Sustainable Development Goals: Learning Objectives*; Rieckmann, M.E., Ed.; UNESCO: Paris, France, 2017. Available online: https://www.unesco.de/sites/default/files/2018-08/unesco_education_for_sustainable_development_goals.pdf (accessed on 17 June 2023).
5. Valencia, S.C.; Simon, D.; Croese, G.; Nordqvist, J.; Oloko, M.; Sharma, T.; Taylor-Buck, N.; Versace, I. Adapting the Sustainable Development Goals and the New Urban Agenda to the City level: Initial reflections from a comparative research project. *Int. J. Urban Sustain. Dev.* **2019**, *11*, 4–23. [CrossRef]
6. Jacobs, G.M.; Chau, M.H. Pandemic possibilities for applied linguists' actions. *Ecolinguística: Revista Brasileira De Ecologia E Linguagem (ECO-REBEL)* **2020**, *6*, 62–72. Available online: https://www.researchgate.net/publication/347533969_Pandemic_Possibilities_for_Applied_Linguists_T1_textquoteright_Actions (accessed on 11 June 2023).
7. Shi, Y.; Guo, F. Exploring Useful Teacher Roles for Sustainable Online Teaching in Higher Education Based on Machine Learning. *Sustainability* **2022**, *14*, 14006. [CrossRef]
8. Bogner, F.X. Environmental values (2-MEV) and appreciation of nature. *Sustainability* **2018**, *10*, 350. [CrossRef]
9. Kukeyeva, F.T.; Delovarova, L.F.; Ormysheva, T.A.; Shakirov, K.N. Sustainable development and water management issues: Transboundary rivers management gaps between Kazakhstan and China (case of Ili and Irtysh). *Oxid. Commun.* **2015**, *38*, 1480–1490. Available online: https://www.researchgate.net/publication/288632722_Sustainable_development_and_water_manage-ment_issues_Transboundary_rivers_management_gaps_between_kazakhstan_and_china_case_of_ili_and_irtysh (accessed on 1 May 2023).
10. Khajieva, G.; Aida, O. Problems of socio-economic development of Kazakhstan's regions in the context of adaptation to sustainable development. *Econ. Strategy Pract.* **2020**, *2*, 167–178. [CrossRef]
11. Terton, A.; Dekens, T.J.; Hoffmann, G.D. *Using Macroeconomic Modeling to Inform National Climate Adaptation Planning: Lessons Learned from Georgia, Kazakhstan, and Vietnam*; Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH: Bonn, Germany, 2023. Available online: <https://www.giz.de/en/downloads/giz-2023-en-using-macroeconomic-modelling-to-inform-national-climate-adaptation-planning.pdf> (accessed on 1 May 2023).
12. UNESCO MGIEP. *Rethinking Schooling for the 21st Century. The State of Education for Peace, Sustainable Development and Global Citizenship in Asia*; Mochizuki, Y., Kumar, K., Vickers, E., Jain, N., Kamal, J., Eds.; UNESCO: New Delhi, India, 2017; Available online: https://biom.s3.eu-central-1.amazonaws.com/lib/report/refinking_schooling_ca.pdf (accessed on 17 June 2023).
13. Nurlanova, N.K.; Satybaldin, A.A.; Bekturganova, M.A.; Kireyeva, A.A. Spatial Distribution of Economic Growth and Inequality: Kazakhstan's Experience. *J. Asian Financ. Econ. Bus.* **2018**, *5*, 183–192. Available online: https://www.researchgate.net/publication/328552910_Spatial_Distribution_of_Economic_Growth_and_Inequality_Kazakhstan_T1_textquoterights_Experience (accessed on 4 May 2023). [CrossRef]
14. Bureau of National Statistics. Agency for Strategic Planning and Reforms of Kazakhstan Socio-Economic Development of Kazakhstan (January–June 2023). Astana. 2023. Available online: <https://stat.gov.kz/en/publication/collections/> (accessed on 7 July 2023).
15. Available online: <https://astanatimes.com/2023/09/briefing-in-astana-assesses-kazakhstans-progress-on-2030-sdg-agenda/> (accessed on 15 September 2023).
16. Maley, A.; Peachey, N. Integrating Global Issues in the Creative English Language Classroom: With Reference to the United Nations Sustainable Development Goals. British Council. 2017. Available online: https://www.teachingenglish.org.uk/sites/teacheng/files/PUB_29200_Creativity_UN_SDG_v4S_WEB.pdf (accessed on 1 July 2023).
17. Goulah, J. Climate change and TESOL: Language, literacies, and the creation of eco-ethical consciousness. *TESOL Q.* **2017**, *51*, 90–114. Available online: https://www.researchgate.net/publication/284244065_Climate_Change_and_TESOL_Language_Literacies_and_the_Creation_of_Eco-Ethical_Consciousness (accessed on 21 May 2023). [CrossRef]
18. Jacobs, G.M.; Dillon, D. Promoting critical literacy: The case of promotional materials for burgers. *Ecolinguística Rev. Bras. Ecol. Ling. (ECO-REBEL)* **2019**, *5*, 16–27. Available online: https://www.researchgate.net/publication/331165102_PROMOTING_CRITICAL_LITERACY_THE_CASE_OF_PROMOTIONAL_MATERIALS_FOR_BURGERS (accessed on 15 May 2023).

19. Chau, M.H.; Shunmugam, K. Every Teacher a Changemaker: Reflections on Teacher Agency and Empowerment. Every teacher a changemaker: Reflections on teacher agency and empowerment. *Engl. Teach.* **2021**, *50*, 85–101. Available online: https://www.researchgate.net/publication/354178681_Every_Teacher_a_Changemaker_Reflections_on_Teacher_Agency_and_Empowerment/citations (accessed on 16 May 2023). [CrossRef]
20. Gates, B. *How to Avoid a Climate Disaster: The Solutions and the Breakthroughs We Need*; Allen Lane: London, UK, 2021. Available online: https://www.researchgate.net/publication/361795512_Bill_Gates_How_To_Avoid_A_Climate_Disaster_The_Solutions_We_Have_And_The_Breakthroughs_We_Need_2021_Allen_Lane_an_imprint_of_Penguin_Books_257_pages (accessed on 21 June 2023).
21. Maley, A. Language teachers as eco-activists: From talking the talk to walking the walk. *J. World Lang.* **2022**, *8*, 346–370. Available online: <https://www.degruyter.com/document/doi/10.1515/jwl-2022-0005/html> (accessed on 21 May 2023). [CrossRef]
22. Institute of Economic Research of the Ministry of National Economy of Kazakhstan. Voluntary National Review on the Implementation of the Agenda 2023 in Sustainable Development. Nursultan. 2022. Available online: https://economy.kz/documents/OECD/END_Report_DNO_06-2022_small.pdf (accessed on 17 June 2023).
23. Altynsarin National Academy of Education under the Ministry of Education and Science of the Republic of Kazakhstan. *Analytical Report on Integrating the ESD Component in the Content of the Kazakh State Standard of General Education, Standard Secondary School Curricula (Grades 1–11) States*; Mukhamedzhanova, A., Duprey, B., Bondarenko, O., Eds.; Altynsarin National Academy of Education under the Ministry of Education and Science of the Republic of Kazakhstan: Nursultan, Kazakhstan, 2022. Available online: http://unesco.kz/_files/622_Analytic_Guidelines.pdf (accessed on 21 June 2023).
24. United Nations. UN Sustainable Development Cooperation Framework. Country Kazakhstan. The Year 2021–2025. Nursultan. 2020. Available online: <https://www.undp.org/sites/g/files/zskgke326/files/2022-08/UN%20Sustainable%20Development%20Cooperation%20Framework%202021-2025.pdf> (accessed on 7 July 2023).
25. Yin, R.K. *Case Study Research Design and Methods*, 5th ed.; Sage: Thousand Oaks, CA, USA, 2014.
26. Seidman, I. *Interviewing as Qualitative Research A Guide for Researchers in Education and the Social Sciences*, 3rd ed.; Teachers College, Columbia University: New York, NY, USA, 2006.

Disclaimer/Publisher’s Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.