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The Idea of Sustainable Development and the Possibilities of Its Interpretation and Implementation

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Abstract: In the publication, the authors put forward a thesis about the low social understanding of the essence of the idea of sustainable development (SD), its assumptions, and difficulties with its implementation. This thesis became the starting point for research on contemporary problems related to the understanding and implementation of the idea of SD in Poland and an inspiration to look at Education for Sustainable Development (ESD). The aim of the study was to get to know the opinions of experts on the statutory definition of SD and social awareness of this idea, and then to relate these opinions to the state of knowledge of students, as well as their opinions and attitudes towards SD. Primary data obtained in the course of surveys among 105 Polish experts (employees of universities, research institutes, government and local government units) and 844 students from several Polish university centres were used. The obtained results indicated gaps in Education for Sustainable Development (ESD) and the related very diverse and often misinterpreted concept of SD, which seems to be one of the key barriers to the implementation of SD in local life.

Keywords: sustainable development; experts' opinions; education of youth; students' attitudes; surveys

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1. Introduction

The beginning of the second decade of the 20th century was a period when two challenges to modern civilisation, i.e., the pandemic and the changing climate and accompanying phenomena, left their mark in a special way. According to the Google report 'A year in the search engine', the interest in 'how to take care of the environment' broke the popularity records of searches all over the world. In addition, when apocalyptic visions of blackouts appeared in the media in early 2021, the number of searches for the term 'power outage' increased by 5000%. When in March 2021 there was an incident involving the container ship Ever Given and the blockade of one of the most important sea routes occurred, the slogan 'Suez Canal' saw a sharp increase in popularity. The global community's concerns about the growing number of weather extremes in the wake of climate change, the sustainability of socio-economic systems, energy security and the stability of supply chains have also emerged. The search terms 'the impact of climate change' were searched for clearly more often than ever before, and in a way to confirm concerns about the environment. In the summer of 2021, the terms 'fire' and 'flood' and then 'volcano', gained in popularity.

The world, tired of the pandemic, also wanted to obtain information on 'volunteering', 'health' and 'vaccinations' more frequently. The high popularity of the slogan 'does not work today' could be considered a peculiar sign of the times. However, they expected a return to normalcy, searching the Internet for answers to questions about: 'opening a restaurant', 'vacation in the country' or 'where can I go?'. The global network also

searched for information on 'affirmation', 'how to find a soul mate?', 'How to start your own business?' and 'how to move with your plants?'. Referring to the above facts, it is hardly surprising that the slogan 'sustainable development' also recorded a record increase in interest in the world. It is worth noting that the Google search engine now finds 33.8 million messages in response to the query for this term.

The modern world seems to yearn more and more for sustainable development, which it is clearly distancing itself from, especially on a global scale: for a clean and friendly environment; for the stability of living and management conditions; for health, energy and food security; and for prosperity and a predictable tomorrow. An expression of this need is to raise sustainable development in social sciences to the rank of a new model, model of conduct and world view of modern civilisation [1–5]. A few decades ago, the UN World Commission for Environment and Development commonly adopted the interpretation that SD is development which is to ensure the satisfaction of the present needs of society without compromising the ability to meet the needs of future generations. A similar, but even more extensive definition, sanctioned in the Polish environmental protection law, says that SD is 'socio-economic development in which the process of integrating political, economic and social activities takes place while maintaining natural balance and the durability of basic natural processes in order to guarantee the possibility of satisfying the basic needs of individual communities or citizens of both the modern and future generations' [6].

Sustainable development has found its reference in many acts regarding the management of individual environmental resources in Poland, including waters, forests, minerals and the earth's surface. The principle of sustainable development was even raised to the constitutional level, shaping spatial planning, nature protection, as well as sewage, energy and waste management. Nevertheless, in Poland (as well as in the world), the concept was perceived and characterised in hundreds of different ways among experts and opinion makers [7]. As a result, sustainable development has become a kind of slogan or a catchphrase. Although it is common in laws, strategies and plans, it still raises some doubts at the very definition level, both in economic sciences and at the interface between economics and other sciences: technical, social, agricultural, forestry and natural [8,9]. According to research conducted in Poland, the social understanding of this concept also remains rather weak (questionable). It is difficult for the average person to interpret this idea properly. Its implementation in everyday life meets with surprisingly difficult to overcome resistance and inertia [10–12]. Questions may arise: Are we, as SD producers, able to refer to the essence of this idea? Do we have an effective education system for SD? In relation to the above, the authors examined the opinions of Polish experts on the validity of the definition of sustainable development and social understanding of this idea. These opinions were then compared to the results of research conducted in a similar manner among students at Polish public universities. The background for the presented results of empirical research were studies of current literature dealing with contemporary dilemmas of the definition of the concept of SD and education systems for SD.

2. Theoretical Background

2.1. Dilemmas Concerning the Essence of the Concept of Sustainable Development

Documented postulates of the SD date back to the 18th century. At that time, this term referred to the management of forest resources. The SD principle was the basis for the rational use of wood raw material in practice, i.e., cutting only as many trees as can grow in the expected period, so that the forest would not be liquidated, but could regenerate naturally. It was a simple idea of farming, which was intended to ensure its durability. Recognised by forestry schools, it was adopted over time by the more and more developing ecological movement. With the publication of the World Nature Conservation Strategy in 1980, the SD trend has entered the concept of managing the environment and its resources for good.

The definition of SD was clarified in 1987 in a report issued by the United Nations World Commission for Environment and Development. In this document, SD was inter-

preted as development ensuring meeting the current needs of society without compromising the ability to meet the needs of future generations.

While in forestry the concept of SD was specific and determinable (measurable), in the definition proposed by the Brundtland Commission it was not so unambiguous. According to critics, the definition of SD was 'creatively ambiguous', and the very idea of sustainability was 'extremely plastic' [13]. This was evidenced by the fact that at the end of the 1980s, several dozen definitions of SD were identified [14]. In 1995, Jacobs [15] recorded 385 and in 2002, Carrol [16] over 500.

There are many reasons for the ambiguity of the concept of SD. According to Mensah [17], the problem appears in the very structure of the phrase, which consists of two words: development and sustainable. Each of these words can be understood from different perspectives and thus the whole concept can be perceived differently. It should also be noted that the idea of SD has been shaped for many years and is also ambiguously understood by this today [18]. Latoszek [19] argued that SD is a very broad concept of development that includes many spheres of human activity. Its very extensive nature implies numerous and different definitions of the same concept. According to Jeżowski [20], new definitions are still being created, which differ due to contrasting perceptions: 'starting from concepts focused on socio-economic development and reducing environmental problems, to definitions focusing on environmental problems and ignoring aspects of social development. and economic'. Some researchers [21,22] even stated that the breadth of the concept of 'sustainable development' and the diversity of its interpretations led to the fact that definitions arising in various contexts could be mutually exclusive. The probability of such contradictions grew especially at the meeting point of various sciences [8].

The ambiguity of the essence of the concept of SD may also result from the differentiated emphasis on goals in its three basic dimensions: social, economic and ecological. The most common interpretation in the SD discourse is the concept of balancing them. Many theoreticians of the SD idea approve of the model of simultaneous, harmonious and equal consideration of the three mentioned dimensions [23]. According to this model, each area separately reflects important interests that should be pursued with the help of corresponding criteria. In this context, we can talk about SD only if the action will consistently strive to achieve large-scale goals that affect each of the three dimensions [24]. However, is it really possible to achieve SD only if all its three dimensions are taken into account in an equal value?

The idea of the longevity of SD in specific scientific disciplines may already differentiate between social, economic and environmental aspects and goals. Different combinations of these dimensions can easily lead to different understandings of the same concept. The German physicist and natural philosopher Klaus Michael Meyer-Abich is in favour of the so-called priority model. He believes that nature is the whole, society is part of this whole, and the economy is an even smaller part of society. Therefore, the priority of such an understanding of SD should be the ecological subsystem and the implementation of ecological goals [25]. Such perception of SD makes the socio-economic aspects subordinate to ecological aspects. This is particularly noticeable in the policy of the most industrialised countries, with a relatively good condition of the social system and highly developed economy. Therefore, it is not surprising that SD in the Western world can be understood as development favouring ecological factors [25–28].

In the study on the problem of the ambiguity of the concept SD, Marczak [24] describes yet another concept—a network model by the Munich social ethicist Markus Vogt. It combines both the logic of the three pillars model and the sense of the priority model. The Vogt network concept is about balancing goals in three areas due to the existing problems. A comprehensive network concept of SD should correspond to the complexity and interdependence of the problems. SD is not the sum of development factors of an ecological, social and economic nature, but focuses on the interaction of various factors emerging from the three presented areas. The SD network system understood in this way,

in contrast to ecocentric interpretations, is based on the anthropocentric theory, in which the natural environment is protected because it is the basis of human life.

As we can see, the general assumptions of the SD concept assume the interdependence (and often the equivalence) of three realities: the environment (nature), society and the economy. Rokicka and Woźniak [13] quote Stibbe [29] that the term SD is charmingly simple, but at the same time has the ability to adopt many meanings. Some scientists [30,31] add that the concept of SD is not static, but rather dynamic, which means that it can be understood in many ways (depending on different perspectives). Its dynamic nature can be explained by the lack of a specific definition [32]. Therefore, everyone who takes up this problem should indicate their understanding of this concept [32,33].

The process of organising terminology in the field of SD seems to be still going on, although the literature on the subject also notes positions that indicate the impossibility of definitively defining the essence of SD [34]. Perhaps Carnau [35] is right, who argued that it is less about developing a strict definition, but more about determining what should happen in order to connect the temporal and spatial planes that have been taken into account by SD policy. There is no doubt that the basis of a sustainable system is its independent existence and long-term existence. However, one cannot forget, as emphasised by Marczak [24], that in the centre of SD there should always be a man in his social, economic and ecological environment, which is a network of mutually influencing factors.

2.2. Initiatives in the Field of Education for Sustainable Development

In the regulations adopted and implemented by the global community regarding the implementation of the SD concept, special attention was rightly paid to education [36]. It is the institutions established for education that should become SD centres, shaping the ability of future generations to ensure harmonious interactions between man, nature and economy [37]. In this aspect, the role of university education is particularly emphasized due to the fact that it shapes professionals who then play an important role in shaping attitudes in society [38–40]. Therefore, for several decades, Education for Sustainable Development (ESD) has been recognised as a priority issue [41]. As part of its implementation and realisation, the governments of the European Union (EU) Member States have committed to introduce the subject of SD into their curricula [42]. Undoubtedly, apart from the systematic increase in expenditure on environmental protection, an equally important task is to undertake the so-called soft measures, i.e., shaping environmental awareness and preparing the next generations for life in accordance with the concept of sustainable development [43].

However, ESD must be treated in a holistic way, taking into account all aspects of human functioning in the social and natural reality. An important component of this education is an axiological attitude and shaping universal values, such as responsibility, solidarity, good and justice. This type of education emphasises the temporal aspect, related to responsibility and intergenerational justice, as well as the spatial aspect, assuming impact on many levels: local, regional, national and global [44].

Internationally, a significant event for ESD was the 1977 UN conference in Stockholm. Its result was the development of an international programme of school and extracurricular environmental education of an interdisciplinary nature [45,46]. Subsequently, the International Environmental Teaching Charter was adopted at a conference in Belgrade; it formulates the goals of environmental education and provisions indicating the need to include it in all education systems [47]. The tasks of environmental education were defined more comprehensively at the Tbilisi conference in 1977. At that time, the authorities of UNESCO member states were obliged to include formal and informal environmental education programmes in the educational policy, and to provide the funds necessary for their implementation [48,49]. In 1992, during the UN Conference 'Environment and Development' in Rio de Janeiro—in order to shape social behaviour that should be in line with the postulate of intergenerational justice—it was agreed that ESD should be implemented in the curricula of all faculties, at all levels of the education system [11]. It also identifies

a set of suggestions and measures that both industrialized and developing countries can consider to translate the principles of sustainable development into a reality [50]. Leaders from over 100 countries participating in the conference unanimously emphasised that high quality of education is a key factor of change and a guarantee of the implementation of SD in practice [12].

Another very important event was the establishment of the Decade of Education for Sustainable Development. This idea was born during the Earth Summit in Johannesburg. A few months later, in December 2002, during the UN General Assembly, a resolution was adopted establishing the 2005–2014 Decade of Education for Sustainable Development. The institution responsible for this project has been appointed the United Nations agency for education, science and culture (UNESCO). The adopted declaration emphasised that it is education that is to become a key element determining the desired changes related to human development.

It should be noted that ESD means not only the subject of education, but also educational activity, which is to shape appropriate social attitudes towards emerging environmental challenges, as well as indicate practical possibilities of solving them. According to the assumptions, ESD is to shape a variety of skills, in particular, creative thinking, skilful communication and the creation of strategies to solve various problems. The basic feature of shaping people educated in this way was to be respect for the planet—the Earth and life in all its forms of diversity [44].

Despite numerous initiatives undertaken on the global forum, ESD still seems to leave a lot to be desired. In Poland (as in many other countries), social knowledge about this idea remains rather limited [51–56]. There are also studies [30] which prove that education ignores (teachers do not take it into account) an important element of a holistic view of the problem of sustainable development. This may lead to incorrect interpretation of the concept of SD by students and thus problems with its implementation in everyday life. It is also quite common to narrow down the concept of SD to the need to protect the environment [11]. Even today, many members of the academic community do not quite correctly interpret the term sustainable development [57]. Raising SD to the rank of a paradigm clashes with reality: the instability of systems, their increasing imbalance, and the growing number and scale of problems and conflicts.

Universities have played a very significant role in shaping the awareness of society. This is where decision-makers, leaders, entrepreneurs and academics are educated, who should contribute to the dissemination of the public good and sustainable development of societies. Wass et al. [58] stated that: 'The urgent societal need and broad call for sustainable development allow universities to assume a fundamental and moral responsibility in contributing to sustainable development and to guide society on its path towards a sustainable future'. Many authors share this opinion and draw attention to the special role of universities in promoting sustainable development, pointing not only to education, but also to research on its development as well as reporting and evaluation of the effects of its implementation [59–61].

Wright and Wilton [40] and Wright and Horst [62] conducted research among administrators/managers of Universities in Canada. While most interviewees said that universities play a vital role in spreading and implementing sustainable development and should act sustainably themselves, not all of them had a clear understanding of the concept of sustainable development. Many of them admitted that they did not have the opportunity to reflect deeper or discuss SD at the university.

Portuguese researchers also note the lack of commitment on the part of government institutions, especially at the level of education at the university level [63]. The results of the research showed that public universities in Portugal did not have any general policy and strategy in the field of SD, and the government and the ministry of education or the Council of Rectors of Universities did not play an active role and did not develop any document integrating the implementation of sustainable development into the university's policy and strategy. According to Lozano et al. [64] it is European universities, as those on

the oldest continent and the longest pedigree, that should be a measure of SD integration in education.

However, in at least two countries adjacent to Poland, ESD seems to be running smoothly. In Germany, a graduate of the local system of formal education is equipped with knowledge about the condition of the entire ecosystem, about the global effects of decisions made at the local level, and more or less aware about the damage caused to communities at a given time, and in the perspective of entire generations. In the course of education, students learn about the relationship between nature, society and the economy; they also learn that these elements of life can be controlled to achieve optimal relationships. They also acquire competences to make decisions in the future and participate in the process of controlling sustainable development [65,66]. Sweden is also widely regarded as the precursor of environmental policy and one of the most ecologically modernised countries in the world. Sweden has officially adopted an eco-modern understanding of a society where economic growth, social welfare, and environmental values and interests support each other, with economic growth being seen as a key driver. In Sweden, the objectives of teacher education programmes—from the initial stage of teaching—require students to develop ESD knowledge and skills, in line with national policy documents [67,68].

Likewise in Belgium, Finland and Great Britain, environmental education is used to solve problems occurring in everyday life, but also to look through the prism of their interaction, which is of great importance for the effective prevention of the problem of human pressure. In all these countries, a system of sustainable, segregated waste management has been implemented with great success. In Finland, moreover, the applied technological solutions have led to an increase in the efficiency of the use of raw materials and energy. The success of these activities would not be possible without the high awareness of societies in environmental issues. Shaping appropriate attitudes in the field of environmental protection, including respect for resources, is an element of education at the basic level there [69–71].

The idea of SD already has several decades of history, but also an unusual number of definitions and interpretations—both in Poland and around the world. This can lead to a specific social confusion and a situation in which SD for the average person becomes a slogan associated with the need to protect the environment noticed on the wall of an IKEA store or Tchibo catalogue. What is this idea supposed to come down to, how to define its essence, how to objectively assess the level of its implementation? Who should be its implementer? Who is responsible for it? Touching upon such details, we will most likely notice that the vast majority of people have a rather vague idea of SD. It can be different on the basis of different sciences and in the face of different realities and needs of countries with different levels of economic development and different geopolitical situation. Nevertheless, there is a need to promote such a qualitatively new form of conscious, responsible individual and social life. As rightly noted by Sinakou et al. [30] 'SD is the idea of development that can last a long time, because it is development together with the environment—social and natural—taking into account ecological constraints and social expectations'.

Even with the ongoing interpretation disputes [72,73], one of the key conditions for implementing SD into force is adequate education that shapes citizens' attitudes from an early age [74]. Hence, the creation of the education system should take into account the assumptions of the concept of sustainable development, through their gradual introduction to the subjects of education at all levels of education—from kindergartens to universities and academies [75].

Despite the development in the field of Higher Education for Sustainable Development (HESD) in recent years, according to Leal Filho et al. [76] there are still many challenges that need to be overcome. These are mainly: the need to increase the holistic integration of sustainable development in the curriculum and research. The idea of sustainable development in the Polish education system.

In Poland, under the Environmental Protection Law [6], it is obligatory to include the issues of environmental protection and SD in the core curricula of general education for all types of schools. This obligation also covers the organisers of courses leading to obtaining professional qualifications. In addition, administrative bodies, institutions coordinating and managing scientific and research activities, as well as universities, scientific and research institutions—covering scientific fields or scientific disciplines related to environmental protection—have been obliged to include in curricula and in its activities, research on environmental issues and SD. In line with the above, it would seem that the SD issue is obligatorily included and functions in the core curricula of education both in all types of schools and at all levels of education. This is especially since the assumptions adopted in this way were formalised in a specially developed ESD Strategy, which was given the rank of the National Education Strategy in Poland [77]. This document emphasises that in the Polish education system, education relates to all SD challenges and serves the implementation of its ideas. It was also emphasised that the development of a sustainable society should be seen as a continuous process of learning, revealing the issues and problems of sustainability, and the goals of education in this area should include knowledge, skills, understanding, as well as taking into account the appropriate attitudes and values.

Therefore, it seems that nowadays also in Poland the belief that education is a key tool for the promotion and implementation of SD is being consolidated. Its goal is not only to transfer knowledge, but also to shape human skills to meet their own aspirations in a way that enables the fulfilment of the same needs for future generations [78]. On the website of the Ministry of Education and Science, one can read that the Ministry has been closely monitoring the growing role and importance of shaping the right attitudes of children and young people towards the changing climate reality for many years. For this reason, the issues of climate protection, air quality and appropriate civic attitudes are part of the education about SD present in Polish schools. Tasks promoting education about SD are conducted both in the formal and non-formal education systems (through the activities of non-governmental organisations, local governments and local institutions). Polish students should develop pro-ecological behaviour at all educational stages, starting from preschool education. The scope and degree of difficulty are adjusted to the age, abilities and educational needs of students. As part of early childhood education, attention is paid, inter alia, for the student to discover him or herself as an integral subject of the natural environment. General education in primary school assumes the following: educating children and adolescents in the spirit of acceptance and respect for other people; shaping the attitude of respect for the natural environment, including disseminating knowledge about the principles of SD; motivating to act for environmental protection; and developing interest in ecology. Similarly, in the core curriculum of the general secondary school and the five-year technical secondary school, it was pointed out that the school is to shape the attitude of young people's respect for the natural environment and mobilise them to act for its protection. Teaching students appropriate behaviour towards the natural environment and learning about the ways of its protection should be implemented mainly by teaching biology, chemistry, geography, ethics and knowledge about society [78].

However, the above assumptions do not seem to be effectively confirmed in the implementation of Polish youth education programmes. The results of the Expertise on Education for Sustainable Development in Poland from 2012 indicated the lack of a single, coherent understanding and low knowledge of the very concept of SD, as well as of education for SD, not only among students, but even among their teachers. Among young people studying in upper secondary schools, as many as 60% of students have never encountered the concept of SD, and only 9% of the respondents knew this concept very well [53]. Similar trends were confirmed by the results of the 2017 research obtained by a team of researchers from the University of Agriculture in Kraków. Over 91% of 846 students in general and vocational schools admitted that in everyday life they practically did not encounter the idea of SD, or very rarely. Moreover, nearly 90% of students declared that they had not met SD or did not remember that such a topic was discussed at school [11].

Not only the students themselves, but also their teachers admitted that they did not know the SD issues raised. The lower the level of education, the greater was the percentage of educators who had never encountered the concept and postulates of SD. Importantly, nearly 70% of the surveyed teachers stated that they are not obliged to conduct education for sustainable development during their classes [53]. It can therefore be assumed that the need to include SD issues in the core curricula of education—especially at the primary and secondary level—may in practice be often neglected or completely ignored.

The authors of the Expertise on ESD in Poland also pointed out that while there is such education, the greatest emphasis is placed on environmental issues [53] In Poland, education in this area is mainly limited to environmental education, i.e., to issues related primarily to nature protection, the effects of negative human activity on the environment, or threats to human health. It lacks focus on developing competences to act in conflict situations in which contradictions between economic, social and natural interests are revealed [78]. A similar opinion is shared by Lorek [79] pointing to the erroneous tendency to separate the economic, social and environmental aspects of SD in the education programmes of children and adolescents. Kiełczewski together with Poskrobko [80] in turn, note that the implementation of an educational programme subordinated to the SD idea is a phenomenon that occurs very rarely in Polish schools, and the issues of the natural environment in teaching have been neglected and ignored for years, which has made it difficult to organise the relationship between the economy and the environment. In their opinion, there is also a clear lack of top-down structured cooperation between stakeholders in this area. Unfortunately, ESD is also omitted in the process of shaping the competences of future educators, most often due to the lack of qualified staff in this area, which is also one of the main barriers to the implementation of SD [74].

3. Materials and Methods

The data was obtained using proprietary questionnaires prepared separately for experts and students. The research on knowledge, opinions and attitudes of students was conducted in 2016–2017, while the opinion polls of experts—in 2018.

The expert questionnaire contained 23 questions about SD. They raised issues related to, inter alia, the interpretation of the concept of SD and the assessment of its legally binding definition in Poland, the assessment of a number of alternative definitions, opinions on the impact of SD on society, or the scope of necessary education for SD. The form also contained record questions characterising the respondent: age, academic title, represented institution and discipline of study.

The survey questionnaire addressed to students included 14 questions covering the issues of knowledge of the concept and essence of SD, observations on the legitimacy and need to live in accordance with the principles of SD, and taking up the issues of SD during education. The respondents were also asked if they had encountered SD issues in their education and, if so, then they were asked to indicate on which subjects. The form also contained record questions: gender, age, level and field of study, origin and place of residence.

Focusing on the research objective adopted in this article, the analysis covered the answers to the following questions contained in the expert questionnaire:

1. Are the considerations on changing the legally binding definition of SD justified?
2. What percentage of adult Poles would be able—when asked in the street—to provide an interpretation of the legally binding definition of SD?
3. Can the scope and forms of promoting the idea of SD in the media be considered sufficient for Polish society to be sensitised and well-informed in this matter?
4. What is the basic knowledge of Polish society about SD?
5. How is the implementation knowledge of Polish society about SD?

In response to closed questions 1 and 3, five options were provided, ordered in a descending scale: definitely yes, rather yes, neither yes or no, rather not, definitely not and one answer predicting ignorance or no opinion, i.e., I have no opinion. In response

to question 2, the expert made a choice between the options: less than one percent, a few percent, several percent, several dozen percent, or almost all of them. In the case of questions 4 and 5, the respondents could assess the knowledge of Polish society about sustainable development, assigning it a level: low, average or high.

As part of the questionnaire addressed to young people (students), responses to the following questions were used in the implementation of this study:

1. Do you know what SD is all about? What is the essence of SD?
2. Have you encountered the problems of SD in your education?
3. Do you try to live in accordance with the principles of SD?
4. If possible, indicate which of the following terms are most associated with SD for you.

As part of the answer to open-ended question No. 1, respondents were asked to enter a short comment. In response to the remaining closed-ended questions (Nos. 2–4), various options were provided, depending on the content of the instruction. In the case of question no. 2, the student could choose one of the three answers, i.e., yes, no or I don't remember. When answering question no. 3, the respondent could choose between four indications: yes, no, neither yes nor no, or I have no opinion. In the case of question no. 4, the respondents were presented with 20 different associations with the concept of SD and asked to indicate a maximum of the 5 most relevant. In this question it is possible to add (enter) in the option 'Other answer', an association not included in the list of possibilities of choice.

Before starting the research, both questionnaires were consulted among representatives of economic, natural, social and technical sciences from several academic centres and research institutions in Poland. Pilot studies (preliminary tests) were also conducted to check the readability, clarity and validity of the questions contained in both questionnaires.

The expert questionnaires were distributed in two versions, i.e., traditional (paper) and electronic. The selection of experts was made using the method of competent judges. This method allows for the objectification of the assessments of data collected in the course of qualitative research, thanks to a group of people—assumingly competent in a given field—assessing specific research aspects. In this case, the selection of the research sample was deliberate. A total of 105 experts participated in the study: research and teaching staff of universities and employees of research units and institutes professionally dealing with SD issues (i.e., with scientific achievements in the field of SD, recognised in the national scientific community as specialists in SD, with a degree/scientific title). In addition, this group also included employees of state and local government administration—members of foundations and associations associated with the idea of SD—who had experience in the practice of SD (Table 1).

The online expert questionnaire addressed to students was completed by 844 respondents. The research covered students of various faculties at all levels of education. Economic and social faculties (including humanities, psychology, philosophy and teaching); biological, natural and agricultural (conventionally called natural); engineering, architectural and geographic fields of study were represented in large numbers and defined collectively as technical (Table 2).

As part of the methods of processing and presenting the research results, charts and pivot tables developed in the Excel spreadsheet and the C&RT tree classification model developed in the Statistica package were used. Pivot tables and the tree model made it possible to take into account several related aspects at the same time. The following assumptions were made in developing the C&RT tree model:

- equal costs of misclassifications;
- goodness of fit assessed according to the Gini measure;
- trimming on misclassification error as stop rule;
- at least 20 observations in each node of the tree;
- quality control of results using 5-fold cross-validation for V = 10.

Table 1. The profile of expert respondents.

Variable	Category	Economic and Social Sciences	Natural Sciences	Technical Sciences	Total
Age	up to 35 years	7	7	3	17
	36–45 years	31	11	3	45
	46–55 years	15	3	3	21
	more than 55 years	13	8	1	22
	Final sum	66	29	10	105
Education	MSc	12	8	3	23
	PhD	30	12	5	47
	Associate prof.	13	7	0	20
	Professor	11	2	2	15
	Final sum	66	29	10	105
Unit represented	association	2	4	1	7
	foundation	4	2	0	6
	research institute	24	6	1	31
	university	34	21	0	55
	administration	6	3	9	18
	Final sum	70	36	10	117 *

* The final sum for the represented unit is higher because some experts declared their membership in more than one organization.

Table 2. The profile of student respondents.

Variable	Category	Economic and Social Sciences	Natural Sciences	Technical Sciences	Total
Age	up to 23 years	330	112	143	585
	23–25 years	51	57	108	216
	more than 25 years	25	11	7	43
	Final sum	406	180	258	844
Current university education level	First (Bachelor's degree or equivalent)	339	142	164	645
	Second (Master's degree or equivalent)	67	38	94	199
	Final sum	406	180	258	844
Semester	1	95	15	78	188
	2	84	6	40	130
	3	132	23	29	184
	4	13	17	41	71
	5	52	25	6	83
	6	22	89	46	157
	7	8	5	16	29
	8	0	0	2	2
	Final sum	406	180	258	844
Place of origin	A town/city	218	70	85	373
	A village	188	110	173	471
	Final sum	406	180	258	844
Current place of residence	A town/city	297	138	181	616
	A village	109	42	77	228
	Final sum	406	180	258	844

4. Results and Discussion

4.1. Expert Opinions

Among the experts asked about the legitimacy of considering the change of the legally binding definition of sustainable development in Poland, indecision (32% of respondents) prevailed, and approval or scepticism towards such projects was most often of a moderate nature (Figure 1). In general, there were slightly more supporters of seeking an alternative definition (37% of respondents in total) than opponents (31% of respondents in total). Interestingly, in the light of general information about the respondents, openness to the new definition was most often expressed by representatives of social and economic sciences, and conservative adherence to the existing definition by representatives of natural and technical sciences.

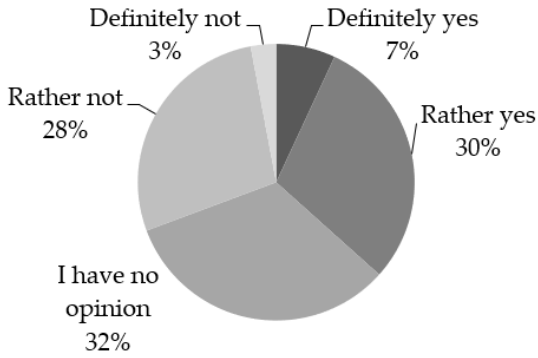

Figure 1. Experts' answers to the question about the legitimacy of the considerations on the change of the definition of SD.

Polish experts, however, were aware that the statutory definition of SD may be incomprehensible to citizens. It should be noted that the vast majority of respondents (82%) expressed the opinion that the correct interpretation of the essence of SD could be provided by a negligible percentage (not more than a few percent) of people asked about it in the street (Figure 2). The scepticism on this point was very clear. Only a few experts (3%) expressed an optimistic belief that the social awareness of the concept of SD is better. As the data from the record showed, such views were more often associated with naturalists. However, no one expressed the view that the correct interpretation of the statutory definition of SD could be provided by 'almost everyone'.

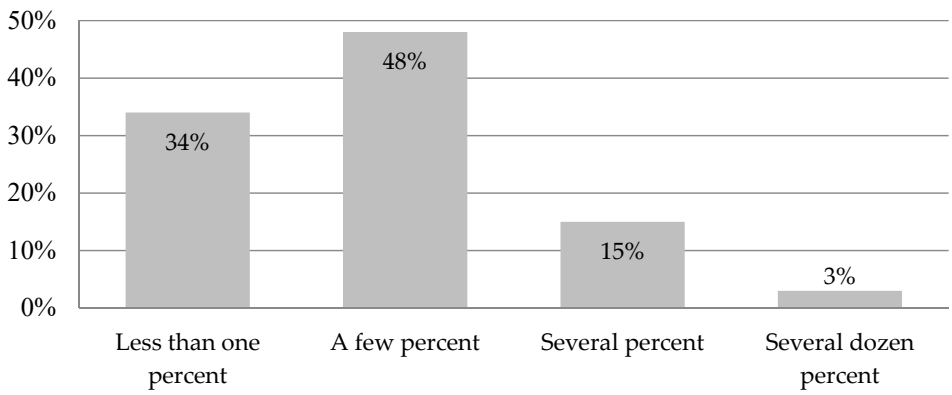

Figure 2. Experts' answers to the question: What percentage of adult Poles would be able—when asked in the street—to provide an interpretation of the statutory definition of SD?

The vast majority of experts expressed their scepticism towards the scope and forms of promoting the idea of SD in Poland. Only 8% of the respondents considered such initiatives as rather sufficient for the Polish society to be sensitised and well-informed in this regard. An equally small percentage of respondents declared no opinion on this issue. In contrast,

the scope and forms of propagating the SD idea were negatively assessed by as many as 85% of experts, including all representatives of social sciences and the vast majority of economists (Figure 3). In fact, in each of the represented sciences, the prevailing opinion was that there was too little content in the mass media that would sensitise and explain to the society the essence of the idea of SD.

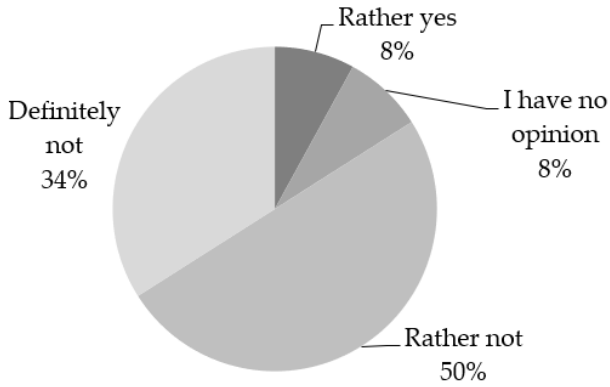

Figure 3. Experts' answers to the question: Can the scope and forms of promoting the SD idea in the mass media be considered sufficient for the Polish society to be sensitised and well-informed in this matter?

Not only the basic, but also the implementation knowledge of the Polish society about the idea of SD was assessed with scepticism in the opinion of experts. In the opinion of the vast majority of experts, Polish society on basic issues (what is it really all about, what is the essence of the SD idea?) remains average, and the implementation knowledge (what as an individual can I do for the SD idea?) is even worse—most experts expressed the view that it is low (Table 3).

Table 3. Experts' opinions on the knowledge of Polish society about SD (in%).

Experts' Opinions	Basic Knowledge	Implementation Knowledge
Low	38	58
Average	58	40
High	4	2
Final sum	100	100

4.2. Knowledge, Opinions and Attitudes of Students

Only less than half of the students (48%) declared that they had encountered the idea of SD in their education. As many as 28% of the respondents did not remember whether such classes were conducted, and 24% of students directly replied that in their education they had not had any contact with the issues of SD. Comparing to similar studies conducted in Portugal, it should be noted that there, students to a greater extent indicated that they received the basics of ESD in secondary school [81]. To check what characterised the respondents declaring participation in ESD, a simple model of the interactive C&RT classification tree with six shared nodes and seven terminal nodes was developed (Figure 4). The tree showed that ESD was encountered more often by students of the last three semesters of studies—in particular, those studying science. In contrast, in the case of technical, economic and social faculties, participation in ESD was clearly more often declared by women—perhaps due to the specificity of some fields of study and/or preferences in the selection of electives related to ESD. With regard to students of semesters 1–5 (right tree branch), ESD functioned clearly better in Master's studies—this time especially in technical faculties. It is also worth noting that such education was hardly ever encountered during the first two semesters of first-cycle studies (Figure 4).

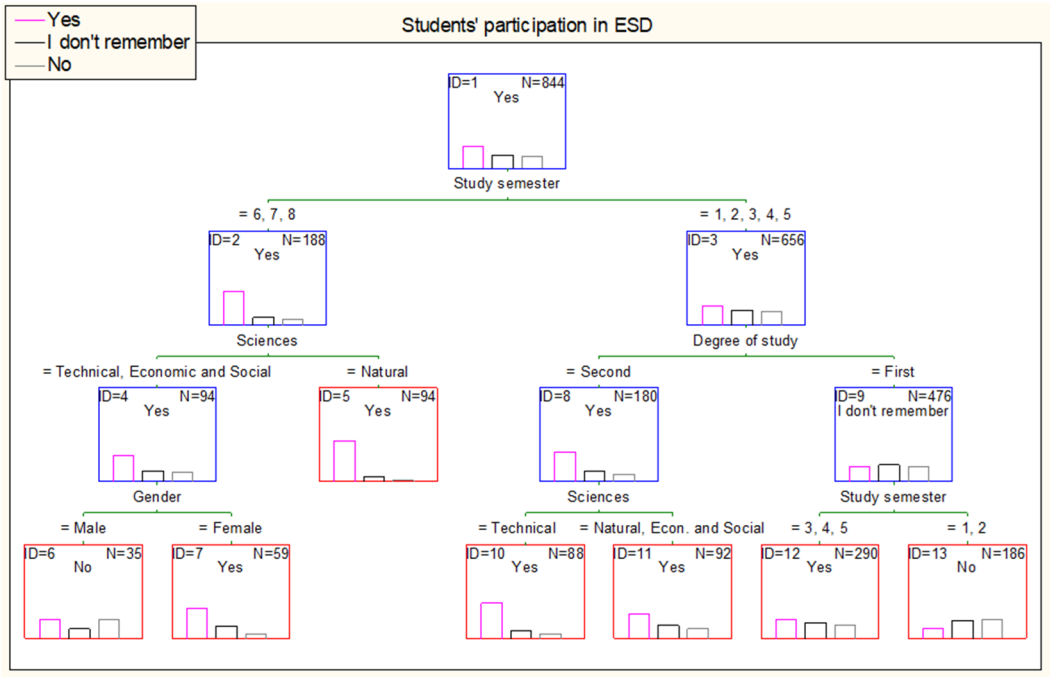

Figure 4. Determinants of students' answers to the question: Have you encountered the issues of sustainable development in your education? C&RT Classification Tree Results.

In the light of the tree, an obvious question arose: how did this relatively low level of participation of academic youth in ESD translate into knowledge about SD? The developed pivot table (Table 4) showed that the percentage of students who did not know the essence of the idea of SD was very high (74%). Moreover, even among students who encountered SD issues in their education, a significant percentage did not have knowledge about the essence of SD and were unable to correctly interpret the definition of this concept. However, it is worth noting that the group of respondents distinguished by a good level of understanding of the idea of SD was dominated by students who, however, encountered ESD during their studies. Also, the average level of knowledge about SD seemed to be determined by the participation of young people in ESD. It should also be noted that only 13% of students had good knowledge about SD. This group included students who, when interpreting the concept of SD, drew attention to the context of intergenerational justice and emphasised the existence of three basic dimensions of SD, i.e., the social, economic and ecological dimension, and the need to develop appropriate, harmonious relations between them. Only 5% of the respondents had average knowledge; these were people who referred to the basic dimensions of SD in their responses but did so imprecisely and/or omitted to emphasise the relationship between these dimensions. Of students, 8% had a low level of knowledge—it came down to slogans and generalities about SD. These were far from fully defined responses. As many as 74% of students were characterised by the lack of knowledge; such persons either did not answer the question about the essence of SD at all or gave an answer not related to the question, meaningless or untrue.

Table 4. Understanding the idea of SD by students in the context of their participation in ESD (in%).

Student Participation in ESD	Level of Understanding of the Idea of SD by Students				
	Lack	Low	Average	Good	Total
No	19	3	0	2	24
I don't remember	25	1	1	1	28
Yes	30	4	4	10	48
Final sum	74	8	5	13	100

Table 4 pointed to the gaps and shortcomings of the ESD. It was even surprising that less than half of the academic youth had contact with education so far. This translated into a small percentage (13%) of people well versed in the issues of SD. Unfortunately, the low efficiency of the ESD system also seemed to translate quite clearly into the attitudes of young people towards SD. Among the respondents, there was a small percentage of people considering the idea of SD as an important element of everyday life (Table 5).

Table 5. Students' attitudes towards SD in the context of their participation in ESD (in %).

Student Participation in ESD	Students' Attitudes towards SD (Are You Trying to Live in Accordance with the Principles of SD?)				
	No	Neither Yes or No	I Have No Opinion	Yes	Total
No	4	5	13	2	24
I don't remember	1	7	18	2	28
Yes	4	19	12	13	48
Final sum	9	31	43	17	100

To the question: 'Are you trying to live in accordance with the principles of sustainable development?' only 17% of the surveyed youth responded positively. As many as 74% of the respondents expressed an ambivalent attitude or lack of opinion on this matter, while 9% of the students directly declared that they do not follow the principles of SD in their lives. Participation in ESD was important, though not so obvious. The group of students who ignored the idea of SD in their lives was dominated by people who did not declare participation in ESD. In contrast, among people living in accordance with the idea of SD, conscious participants of ESD clearly dominated. At the same time, in the large group of people (31% of the total) declaring an ambivalent attitude to the idea of SD, the majority were students who encountered it in their education and—perhaps—were not convinced of it. Reflection was also prompted by the structure of respondents declaring no opinion (43% of the total). The majority of them were students who did not meet with ESD or did not remember it.

The students were also asked to associate five key terms with the idea of SD. The selection was made from a menu of twenty items (Figure 5). Of the five most frequently indicated answers, the most important was the ecocentric understanding of SD: as many as half of the students drew attention to environmental protection in their associations with the idea of SD. Moreover, SD was also associated with innovation by young people. The next three most popular associations were closely related. These were shared benefits, responsibility and fairness. It is worth noting that the next popular associations are the postulates of economising activities: economy and efficiency. Unfortunately, the holistic aspects of the SD idea, such as the systemic approach and good relations, were clearly marginalised. Note that in relation to the idea of SD, there were pejorative associations such as 'utopia', 'restriction of social freedom' or 'fashionable politics that mean nothing', and some students included the terms 'bureaucracy' and 'socialism' among the five closest associations with SD.

The ranking of associations made one reflect on how the need to protect the environment has been firmly established in the opinions of young people—even despite the shortcomings and deficiencies of ESD. However, students looked at the idea of SD in isolation from the holistic and systemic context of this concept: mainly through the prism of innovative solutions, ethics (responsibility, justice) and economy (economy, efficiency).

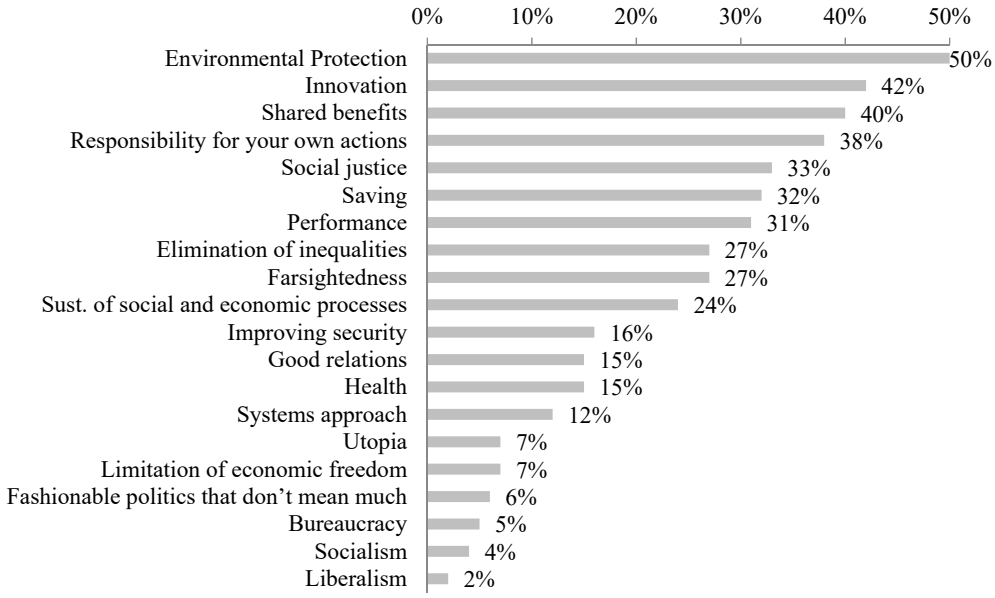

Figure 5. Percentage of students indicating a specific slogan in response to the question: Which of the following terms are most associated with sustainable development?

5. Conclusions

The term SD was introduced to world science many decades ago, and then it became an important element of law and economic practice. Paradoxically, however, SD—existing in the consciousness of various and diverse social groups—still remains an incomprehensible concept, raising doubts and requiring clarification.

This problem also occurs in the Polish realities. The vast majority of experts had no illusions and expressed the opinion that a correct interpretation of the definition in force in Polish legislation could only be provided by a negligible percentage of citizens. Its complexity and ambiguity may have contributed to this. However, as already emphasised in the literature review, it is a specificity of this concept and does not have to be an obstacle in the implementation of the fundamental postulates of SD. Moreover, the experts expressed their negative opinion on the scope and form of promoting the idea of SD and scepticism towards the basic and implementation knowledge about SD. To sum up, the thesis about the low social understanding of the essence of the idea of SD and its assumptions was confirmed in the light of the experts' opinion.

Research in a group of students even more clearly confirmed the belief that there is a lack of knowledge about the nature of SD. It seems reasonable to say that not a strict definition is the most important [35], but the definition and dissemination of what should occur in order to connect temporally and spatially the planes that were included in SD.

The research showed that very often the idea of SD is simplified to care for the protection of the environment. Such reasoning ignores or marginalises other aspects that from the beginning formed the triad of sustainable development, i.e., the economic dimension and the social context. Moreover, as indicated in the literature on the subject, only a holistic approach to these three vectors provides sufficient grounds for defining the changes taking place in terms of SD. Unfortunately, this approach did not find the right accent in the education of academic youth. The presented research indicated deficiencies both in the emphasis on the concept of SD and in explaining its essence in the programme content, as well as in the correctness of learning. Identified and occurring imperfections—or even errors in the understanding of sustainable development—are a clear reason for the need to increase the emphasis on the ESD sphere. It is worth noting that the benefits of solid SD education go beyond the realm of specific knowledge and its good grounding. They are manifested in social attitudes that are desired not only from an environmental, but also from an economic and social point of view. Expenditure on social education for

sustainable development returns in the macroeconomic account in the form of savings in modern production technologies and in minimising waste generation, which is important in every dimension of SD.

The need and potential of ESD have been noticed in the education systems of many countries—especially in Western and Northern Europe. Also in Poland, the content on SD issues is introduced to the core curricula at individual levels of education. However, an ecocentric understanding of the idea of SD dominates here, re-evaluating aspects related to environmental protection. With this way of defining the term SD, aspects related to the economic and social dimension are not sufficiently appreciated. Failure to properly take into account these dimensions may lead to the unauthorised treatment of the SD concept as limiting the opportunities for economic growth and improving the quality of life.

The demonstrated deficiencies in the understanding of the concept of SD among young people should be treated as an opportunity to improve ESD so that it is oriented towards a holistic understanding of the concept of SD. It is in this context that during the next stages of education, knowledge and attitudes towards SD should be strengthened.

Research on ESD seems to reveal the failure of the classic way of teaching Polish youth in the form of teaching theoretical content by the teacher; referring to the definition; and then enforcing this material through tests and commands such as: name, define, point, and give. ESD in the early stages of education should not focus on definitions, goals, rules, or indicators, as it turns out they do not stay in students' memory for long. Education at the basic level should be interesting and enjoyable, e.g., taking the form of study trips, discussions on local environmental, social and economic problems, and in particular inspiring meetings with people who have combined their economic goals with social benefits and the need to protect the environment in their lives and work. ESD should show young people various SD problems and popularize effective ways of solving them. The studies, on the other hand, should be an opportunity to look at reality in a systemic way—here, practical simulation models and decision-making games would be indicated, strengthening the holistic aspect of the SD idea.

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References

1. Domeradzki, P. Sustainable development as a new ethic of the future. *Kult. I Eduk.* **2010**, *4*, 7–20.
2. Poskrobko, B. The paradigm of sustainable development as the leading standard in the research on new spheres of economics. *Ekon. I Sr.* **2013**, *3*, 10–24.
3. Kuder, D. New models of economic growth and paradigm of sustainable development. *Nierówności Społeczne A Wzrost Gospod.* **2014**, *38*, 27–39.
4. Matysiak, A.; Struś, M. Paradigma of sustainable development. *Studia Ekon.* **2015**, *213*, 11–22.
5. Zadroga, A. Sustainable development as a paradigm of socio-economic development. In *Research Spaces of Young Scientists. Inspiration-Innovation-Implementation*, 1st ed.; Wyd. Katolickiego Uniwersytetu Lubelskiego: Lublin, Poland, 2016; pp. 11–24.
6. Ustawa z dn. 27.04.2001 r. Prawo Ochrony Środowiska (Act of April 27, 2001 Environmental Protection Law) (Dz. U. 2020 poz. 1219). Available online: https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20200001219 (accessed on 19 May 2022).

7. Dacko, M.; Płonka, A.; Satoła, Ł.; Dacko, A. Sustainable Development According to the Opinions of Polish Experts. *Energies* **2021**, *14*, 5325. [CrossRef]
8. Dacko, M. Koncepcja zrównoważonego rozwoju w naukach ekonomicznych–inspiracje, ewolucja, perspektywy. In *Natura 2000 Jako Czynnik Zrównoważonego Rozwoju Obszarów Wiejskich Regionu Zielonych Płuc Polski*, 1st ed.; Bołtromiuk, A., Kłodziński, M., Eds.; IRWiR PAN: Warszawa, Poland, 2011; pp. 19–42.
9. Sandner, J. *Zrównoważony Rozwój Szansą dla Ludzkości*; Wyd. Uniwersytetu Kardynała Stefana Wyszyńskiego: Warszawa, Poland, 2008.
10. Płonka, A.; Dacko, M. Determinants of academic youth's attitudes towards the idea of sustainable development. In *Economic Science for Rural Development: Proceedings of the International Scientific Conference*, 1st ed.; Auzina, A., Ed.; Latvia University of Agriculture: Jelgava, Latvia, 2019; pp. 208–214.
11. Płonka, A.; Dacko, M. Secondary school youth and the idea of sustainable development–opinions and attitudes. *Sci. Pap. Sil. Univ. Technol. Organ. Manag.* **2019**, *139*, 489–502.
12. Dacko, M.; Mickiewicz, P.; Płonka, A. The role of education in shaping attitudes of academic youth towards sustainable development. *Eur. Res. Stud. J.* **2021**, *XXIV*, 187–197. [CrossRef]
13. Rokicka, E.; Woźniak, W. *W kierunku Zrównoważonego Rozwoju. Koncepcje, Interpretacje, Konteksty*; Uniwersytet Łódzki: Łódź, Poland, 2016; pp. 10–11.
14. Stanny, M.; Czarnecki, A. *Zrównoważony Rozwój Obszarów Wiejskich Zielonych Płuc Polski: Próba Analizy Empirycznej*; Instytut Rozwoju Wsi i Rolnictwa Polskiej Akademii Nauk: Warsaw, Poland, 2011; pp. 13–16.
15. Jacobs, M. 1995: Sustainable Development–From Broad Rhetoric to Local Reality. In Proceedings of the Conference Proceedings from Agenda 21 in Cheshire, Chesire County Council, Cheshire, UK, 1 December 1994. Document No. 49.
16. Carroll, B. *Sustainable Development: An Eclectic View. CIWEM, International Directory*; Cameron Publishing: London, UK, 2003.
17. Mensah, J. Sustainable Development: Meaning, History, Principles, Pillars, and Implications for Human Action: Literature Review. *Cogent Soc. Sci.* **2019**, *5*, 1653531. [CrossRef]
18. Zabłocki, G. *Rozwój Zrównoważony–Idee, Efekty, Kontrowersje*; Wydawnictwo Naukowe Uniwersytetu Mikołaja Kopernika: Toruń, Poland, 2002; pp. 46–53.
19. Latoszek, E. Koncepcja zrównoważonego rozwoju w teorii i praktyce ONZ. In *Zrównoważony Rozwój a Globalne Dobra Publiczne w Teorii i Praktyce Organizacji Międzynarodowych*, 1st ed.; Latoszek, E., Proczek, M., Krukowska, M., Eds.; Wydawnictwo Szkoły Głównej Handlowej: Warszawa, Poland, 2016; pp. 25–65.
20. Jeżowski, P. Rozwój zrównoważony i jego nowe wyzwania. *Kwart. Kol. Ekon.-Społecznego Studia I Pract.* **2012**, *2*, 101–102. [CrossRef]
21. Redclift, M.R. Rozwój zrównoważony (1987–2005)–oksymoron czasu dorastania. *Probl. Ekorozw.* **2009**, *4*, 33–35.
22. Papuziński, A. Realizacja zrównoważonego rozwoju. *Probl. Ekorozw.* **2001**, *6*, 109.
23. Müller, M. Investitionsentscheidungen vor dem Hintergrund einer Nachhaltigen Entwicklung. *Control. Manag. Rev–Sonderh.* **2004**, *1*, 97–99.
24. Marczak, Ł. Problem wieloznaczności pojęcia "zrównoważony rozwój". *Studia Gdańskie* **2015**, *36*, 167–180.
25. Schmidt, B. *Soziale Nachhaltigkeit bei der Lieferantenauswahl: Eine Conjont-und kausalanalytische ökonomische Untersuchung*; Springer: Berlin/Heidelberg, Germany, 2013; pp. 8–9.
26. Baerlocher, B. *Natur und Soziales Handeln*; Campus Verlag GmbH: Frankfurt, Germany, 2013; pp. 11–14.
27. Florczak, W. Koncepcja zrównoważonego rozwoju w naukach społeczno-ekonomicznych. *Studia Prawno-Ekon.* **2007**, *75*, 119–139.
28. Moldaschl, M. Polychrome Nachhaltigkeit. *Okol. Wirtsch.* **2007**, *1*, 30–34. [CrossRef]
29. Stibbe, A. *The Handbook of Sustainability Literracy: Skills for Changing World*, 1st ed.; Green Books Ltd.: Dartington, UK, 2009; pp. 6–8.
30. Sinakou, E.; Boeve-de Pauw, J.; Goossens, M.; Van Petegem, P. Academics in the field of Education for Sustainable Development: Their conceptions of sustainable development. *J. Clean. Prod.* **2018**, *184*, 321–332. [CrossRef]
31. Makrakis, V. ICT-enabled reorienting teacher education to address sustainable development: A case study. In Proceedings of the Presented at Conference: 7th Pan-Hellenic Conference with International Participation: ICT in Education, Korinthos, Greece, 23–26 September 2010; Available online: http://korinthos.uop.gr/~{}hcicte10/proceedings/119.pdf (accessed on 26 May 2022).
32. Berglund, T.; Gericke, N.; Chang Rundgren, S.N. The implementation of education for sustainable development in Sweden: Investigating the sustainability consciousness among upper secondary students. *Res. Sci. Technol. Educ.* **2014**, *32*, 318–339. [CrossRef]
33. Bonnett, M. Education for sustainable development: A coherent philosophy for environmental education? *Camb. J. Educ.* **1999**, *29*, 313–324. [CrossRef]
34. Wulsdorf, H. *Nachhaltigkeit. ein Christlicher Grundauftrag in einer Globalisierten Welt*, 1st ed.; Bücher Pustet: Regensburg, Germany, 2005; p. 25.
35. Carnau, P. *Nachhaltigkeitsethik. Normativer Gestaltungsansatz für eine Global zukünftfähige Entwicklung in Theorie und Praxis*, 1st ed.; Edition Rainer Hampp: München, Germany, 2011; p. 14.
36. Nolet, V. Teacher education and ESD in the United States: The vision, challenges, and implementation. In *Schooling for Sustainable Development in Canada and the United States*, 1st ed.; McKeown, R., Nolet, V., Eds.; Springer: Berlin/Heidelberg, Germany, 2013; pp. 53–67.

37. Mueller, E.V. Concerning the implementation of the national strategy for education for sustainable development in Russia. *Pedagog. Sci.* **2013**, *6*, 3–4.
38. Cortese, A.D. The critical role of higher education in creating a sustainable future. *Plan. High. Educ.* **2003**, *31*, 15–22.
39. Filho, W.L. About the role of universities and their contribution to sustainable development. *High. Educ. Policy* **2011**, *24*, 427–438. [CrossRef]
40. Wright, T.S.; Wilton, H. Facilities management directors' conceptualizations of sustainability in higher education. *J. Clean. Prod.* **2012**, *31*, 118–125. [CrossRef]
41. Jutvik, G.; Liepina, I. *Education for Change: A Handbook for Teaching and Teaming Sustainable Development*; EU Comenius 2.1 Programme, Baltic University Programme Uppsala University: Uppsala, Sweden, 2008.
42. Batorczak, A. Indicators of education for sustainable development. In *Wybrane Zagadnienia z Ekologii i Ochrony Środowiska: Teoria i Praktyka Zrównoważonego Rozwoju: Wybór Wykładów z lat 2004–2007*, 1st ed.; Kalinowska, A., Lenart, E., Eds.; Uniwersyteckie Centrum Badań nad Środowiskiem Przyrodniczym: Warszawa, Poland, 2007.
43. Hłobił, A. Teoria i praktyka edukacji ekologicznej na rzecz zrównoważonego rozwoju. *Probl. Ekorozw. Studia Filoz.-Sozologiczne* **2010**, *5*, 87–94.
44. Kuzior, A. Dekada edukacji dla zrównoważonego rozwoju. *Organ. I Zarządzanie* **2014**, *72*, 87–100.
45. Kassas, M. Environmental education: Biodiversity. *Environmentalist* **2002**, *22*, 345–351. [CrossRef]
46. Kyburz-Graber, R. Socioecological approaches to environmental education and research: A Paradigmatic Response to Behavioral Change Orientations. In *International Handbook of Research on Environmental Education*, 1st ed.; Routledge: London, UK, 2013; pp. 23–32.
47. Scoullos, M.J. Education for sustainable development: The concept and its connection to tolerance and democracy. In *Education for Sustainable Development*, 1st ed.; Nikolopoulou, A., Abraham, T., Mirbagheri, F., Eds.; SAGE: New Delhi, India, 2010; pp. 47–63.
48. Wright, T.S. Definitions and frameworks for environmental sustainability in higher education. *High. Educ. Policy* **2002**, *15*, 105–120. [CrossRef]
49. Lotz-Sisitka, H. How many declarations do we need? Inside the drafting of the Bonn Declaration on education for sustainable development. *J. Educ. Sustain. Dev.* **2009**, *3*, 205–210. [CrossRef]
50. Leal, F.W.; Manolas, E.; Pace, P. The future we want: Key issues on sustainable development in higher education after Rio and the UN decade of education for sustainable development. *Int. J. Sustain. High. Educ.* **2015**, *16*, 112–129. [CrossRef]
51. Bołtromiuk, A.; Burger, T. *Polacy w Zwierciadle Ekologicznym*; Institute for Sustainable Development: Warszawa, Poland, 2008; pp. 1–29.
52. Żeber-Dzikowska, I. Wiedza dotycząca zrównoważonego rozwoju wśród młodzieży licealnej na podstawie badań pilotażowych. *Studia Ecol. Bioethicae* **2008**, *6*, 59–75. [CrossRef]
53. Ekspertyza Dotycząca Edukacji dla Zrównoważonego Rozwoju w Polsce. 2012. Available online: https://www.gov.pl/documents/1379842/1381036/Ekspertyza_dotyczaca_edukacji_dla_zrownowazonego_rozwoju_w_Polsce.pdf/fa6e6dc6-1db3-729f-d278-1e06e0439ba1 (accessed on 20 May 2022).
54. Dacko, M.; Płonka, A. Idea rozwoju zrównoważonego w opiniach i postawach rolników. *Rocz. Nauk. SERIA* **2017**, *XIX*, 38–43.
55. Opalinska, P.; Krokowska-Paluszak, M.; Lukowski, A.; Blasiak, A.; Wierzbicka, A.; Skorupski, M. Stan wiedzy o zrównoważonym rozwoju w Wielkopolsce–czy edukacja jest potrzebna? *Studia I Mater. Cent. Edukac. Przyr.-Leśnej* **2018**, *1*, 79–85.
56. Dacko, M.; Płonka, A.; Prus, P. Młodzież akademicka względem idei rozwoju zrównoważonego. *Rocz. Nauk. SERIA* **2018**, *XX*, 24–29.
57. Lozano, R. A tool for a Graphical Assessment of Sustainability in Universities (GASU). *J. Clean. Prod.* **2006**, *14*, 963–972. [CrossRef]
58. Waas, T.; Verbruggen, A.; Wright, T. University research for sustainable development: Definition and characteristics explored. *J. Clean. Prod.* **2010**, *18*, 629–636. [CrossRef]
59. Karatzoglou, B. An in-depth literature review of the evolving roles and contributions of universities to education for sustainable development. *J. Clean. Prod.* **2013**, *49*, 44–53. [CrossRef]
60. McCowan, T. Universities and the post-2015 development agenda: An analytical framework. *High. Educ.* **2016**, *72*, 505–523. [CrossRef]
61. Bizerril, M.; Rosa, M.J.; Carvalho, T.; Pedrosa, J. Sustainability in higher education: A review of contributions from Portuguese speaking countries. *J. Clean. Prod.* **2018**, *171*, 600–612. [CrossRef]
62. Wright, T.; Horst, N. Exploring the ambiguity; what faculty leaders really think of sustainability in higher education. *Int. J. Sustain. High. Educ.* **2013**, *14*, 209–227. [CrossRef]
63. Farinha, C.S.; Azeiteiro, U.; Caeiro, S.S. Education for sustainable development in Portuguese universities: The key actors' opinions. *Int. J. Sustain. High. Educ.* **2018**, *19*, 912–941. [CrossRef]
64. Lozano, R.; Ceulemans, K.; Alonso-Almeida, M.; Huisingh, D.; Lozano, F.; Waas, T.; Lambrechts, W.; Lukman, R.; Hugé, J. A review of commitment and implementation of sustainable development in higher education: Results from a worldwide survey. *J. Clean. Prod.* **2015**, *108*, 1–18. [CrossRef]
65. Grodzińska-Jurczak, M.; Gajuś-Lankamer, E.; Wójcik, A.; Pietrzyk, A. Potrzeby i warunki edukacji na rzecz zrównoważonego rozwoju w Polsce. *Probl. Ekorozw.* **2010**, *5*, 95–106.
66. Kozera-Kowalska, M.; Kalinowski, S. Wiedzochłonność obszarów wiejskich w warunkach zrównoważonego rozwoju. *Handel Wewnętrzny* **2016**, *4*, 88–100.

67. Lidskog, R.; Elander, I. Ecological modernization in practice? The case of sustainable development in Sweden. *J. Environ. Policy Plan.* **2012**, *14*, 411–427. [CrossRef]
68. Ärlemalm-Hagsér, E. Student teachers' workplace-based learning in Sweden on early childhood education for sustainability: Experiences in practice settings. *Int. J. Early Child.* **2017**, *49*, 411–427. [CrossRef]
69. Hukkinen, J. Corporatism as an impediment to ecological sustenance: The case of Finnish waste management. *Ecol. Econ.* **1995**, *15*, 59–75. [CrossRef]
70. Ríos, A.M.; Picazo-Tadeo, A.J. Measuring environmental performance in the treatment of municipal solid waste: The case of the European Union-28. *Ecol. Indic.* **2021**, *123*, 107328. [CrossRef]
71. Syahmani, S.; Hafizah, E.; Sauqina, S.; Adnan, M.B.; Ibrahim, M.H. STEAM approach to improve environmental education innovation and literacy in waste management: Bibliometric research. *Indones. J. Learn. Adv. Educ.* **2021**, *3*, 130–141. [CrossRef]
72. Huge, J.; Waas, T.; Eggermont, G.; Verbruggen, A. Impact assessment for a sustainable energy future—Reflections and practical experiences. *Energy Policy* **2011**, *39*, 6243–6253. [CrossRef]
73. Waas, T.; Hugé, J.; Block, T.; Wright, T.; Benitez-Capistros, F.; Verbruggen, A. Sustainability assessment and indicators: Tools in a decision-making strategy for sustainable development. *Sustainability* **2014**, *6*, 5512–5534. [CrossRef]
74. Kędzierska, A.; de Haan, G.; Kolleck, N.; Fischbach, F. Wybrane aspekty edukacji dla zrównoważonego rozwoju w Polsce na tle niemieckiego kontekstu: Niemiecki krajobraz edukacyjny w zapewnianiu jakości edukacji dla zrównoważonego rozwoju. *Debata Eduk.* **2013**, *6*, 27–61.
75. Guskova, N.D.; Vdovin, S.M.; Krakovskaya, I.N.; Slushkina, Y.Y. The Quality of Education as a Primary Concern of the Sustainable Development. *Eur. Res. Stud. J.* **2016**, *XIX*, 239–257. [CrossRef]
76. Leal Filho, W.; Brandli, L.L.; Becker, D.; Skanavis, C.; Kounani, A.; Sardi, C.; Papaioannidou, D.; Paco, A.; Azeiteiro, U.M.; Sousa, L.; et al. Sustainable development policies as indicators and pre-conditions dor sustainability efforts at universities: Fact or fiction? *Int. J. Sustain. High. Educ.* **2017**, *19*, 1–13.
77. Przez Edukację do Zrównoważonego Rozwoju. *Narodowa Strategia Edukacji Ekologicznej*; Ministerstwo Środowiska: Warszawa, Poland, 2001.
78. Batorczak, A.; Klimska, A. Edukacja na rzecz zrównoważonego rozwoju–refleksje przed ogłoszeniem nowej Dekady na rzecz Zrównoważonego Rozwoju (2020–2030). *Studia Ecol. Bioethicae* **2020**, *18*, 17–26. [CrossRef]
79. Lorek, A. Edukacja dla zrównoważonego rozwoju na przykładzie Uniwersytetu Ekonomicznego w Katowicach. *Studia Ekon.* **2013**, *131*, 23–31.
80. Kiełczewski, D.; Poskrobko, T. Dydaktyka ekonomii zrównoważonego rozwoju. *Probl. Ekol.* **2009**, *13*, 238–239.
81. Aleixo, A.M.; Leal, S.; Azeiteiro, U.M. Higer education students' perceptions of sustainable development in Portugal. *J. Clean. Prod.* **2021**, *327*, 129429. [CrossRef]