

Dominik Zimon¹
Kateryna Lysenko-
Ryba
Beata Zatwarnicka-
Madura

Article info:

Received 08.02.2023.

Accepted 08.08.2023.

UDC – 502.131.1

DOI – 10.24874/IJQR17.04-22



POLISH STUDENTS' ATTITUDE TO THE IMPORTANCE AND ASSESSMENT OF IMPLEMENTATION OF 17 SDGS - PILOT STUDY

Abstract: *The aim of the article was to examine how Polish students of faculties related to the topic of sustainable development perceive the importance of individual goals of the 17 SDGs and assess the degree of their implementation. In order to achieve the adopted objectives, the Customer Satisfaction Index (CSI) method was used. The research process was carried out in March 2023 on a group of 100 respondents from Poland. Respondents expressed their opinions anonymously, using a survey form developed in an electronic version. The research showed that, respondents are characterized by a high level of awareness and knowledge about the 17 SDGs. Respondents are able to prioritize individual goals. Their answers show that goals that directly contribute to the standard and quality of live are most important for them. Polish students are no strangers to issues related to gender inequality, climate change, urban development or poverty reduction.*

Keywords: *17SDGs, Sustainability, CSI, students*

1. Introduction

In 2015, all 193 member states of the United Nations (UN) agreed on the 2030 Agenda for Sustainable Development. An ambitious, all-encompassing, global agreement addressing a multitude of major challenges of our time including poverty and equity, health, environmental degradation, biodiversity loss, urbanization, and sustainable economies. The agreement comprises 17 Sustainable Development Goals (SDGs), specified by 169 individual targets (Pedersen et al., 2023; Zimon et al., 2020). The assumptions contained in the 17 SDGs were to reflect the modern and sustainable approach of governments around the world to the issues of broadly understood sustainable development. This agenda is a promise made

by world leaders to all people around the world. It is a universal and integrated vision of a better world. However, in order for it to be implemented, not only governments and enterprises, but also ordinary people must join the process of its implementation. Therefore, it is believed that education for sustainable development should aim at empowering young people and motivating them to be sustainable and active citizens, able to think in common sense and participate in shaping a sustainable future. Furthermore, education for sustainable development should aim to enable young people to develop critical thinking that challenges how they see and think about the world in order to understand it better (Feltretero et al., 2023). Today's youth have a key role in the implementation of the SDGs, not only as beneficiaries of the actions and

¹ Corresponding author: Dominik Zimon
Email: dzimon@wsiz.edu.pl

policies of the 2030 Agenda, but also as active participants. Unfortunately, as research shows, the involvement of young people in the implementation of the 17 SDGs is small and superficial. Kioupi and Voulvoulis, (2020), based on their research, found that students are not sufficiently involved in the implementation of 17 SDGs and there is a lack of "real" interest in these issues. Cheng et al., (2023) recognize that most consumers are unaware of the guidelines contained in the 17 SDGs and suggest that enterprises should emphasize the role of the 17 SDGs more strongly in their marketing campaigns, which should translate into more environmentally friendly behavior of their customers. In turn, Feltrero et al. (2023) found, that students recognize the concept of SDGs associated with environmental issues, while their knowledge and preference for more social goals is lower. Seva-Larrosa et al., (2023) claim that universities and students have a special role in promoting the 17 SDGs, as they should be aware that the implementation of the Sustainable Development Goals positively affects both business, society and the planet. However, the results of research conducted by the same author indicate that students notice only a few relationships between the implementation of the 17 SDGs and business development. The necessity of greater involvement of students in the implementation of the 17 SDGs and the strengthening of the pressure on the part of universities to raise awareness of young people regarding all 17 SDGs is indicated by a number of authors who emphasize that students' knowledge of the 17 SDGs is selective (Beagon et al., 2023; Ho et al., 2023, Killian, et al., 2019). Therefore, one has to agree with Ho et al. (2023), who recognize that students need a more holistic understanding of the 17 SDGs. In view of the above considerations, the aim of the article was to examine how Polish students of faculties related to sustainable development perceive the importance of

individual goals of the 17 SDGs and assess the degree of their implementation.

2. Literature review

In 2015, the United Nations introduced 17 Sustainable Development Goals (SDGs), whose task is to solve economic, social and environmental problems, and to promote the concept of sustainable development. These goals are an action plan for the rebuilding and transformation of the world, in which the needs of the current generation can be met in a sustainable way, with respect for the environment and taking into account the needs of future generations (Barbier & Burgess, 2017). The Sustainable Development Goals mark a historic shift for the United Nations towards a single sustainable development agenda after a long history of trying to integrate economic and social development with environmental sustainability. They are also an example of a new type of global governance in which goal setting is a key management strategy (Bierman et al., 2017). Sustainable development goals are presented as follows:

- Goal 1. End poverty in all its forms everywhere
- Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture
- Goal 3. Ensure healthy lives and promote well-being for all at all ages
- Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
- Goal 5. Achieve gender equality and empower all women and girls
- Goal 6. Ensure availability and sustainable management of water and sanitation for all
- Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all

- Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
- Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
- Goal 10. Reduce inequality within and among countries
- Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable
- Goal 12. Ensure sustainable consumption and production patterns
- Goal 13. Take urgent action to combat climate change and its impacts
- Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development
- Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
- Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
- Goal 17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

The 17 Sustainable Development Goals are related to 169 actions that are to be achieved by all parties - governments, international organizations, non-governmental organizations, the science and business sector, as well as citizens. They focus on 5 areas: people, planet, prosperity, peace,

partnership. Indicators measuring the progress of their implementation have been assigned to each of the action – 231 indicators in total. These goals have a global dimension, but the implementation of their actions depends on the level of priority given to them by different countries and on how sustainable development issues compete with the main problems of a given country (Salvia et al., 2019).

It recognized that ending poverty and other deprivations must go hand in hand with policies that improve health and education, reduce inequalities and boost economic growth – all while tackling climate change and protecting oceans and forests (Halkos and Gkampoura, 2021).

Several studies have already been done on the 17 SDGs and students' perceptions of these goals (Shulla et al., 2020; Aleixo et al., 2021; Leiva-Brondo et al., 2022, Bharti, 2022). Biermann, et al., (2022) analyzed over 3,000 scientific studies on the Sustainable Development Goals published between 2016 and April 2021. Their findings suggest that the 17 SDGs have had some impact on institutions and policies, from local to global governance. This influence, however, was largely discursive. A deeper normative and institutional impact has been identified as rare, taking into account legislative actions to a change in the allocation of resources.

Each of the 17 Sustainable Development Goals (Kleespies and Dierkes, 2022) was assessed in a study of students directly involved in the environmental sector from 41 countries. It has been shown that in countries with higher human development indicators, the sustainable development goals are assessed as less important compared to countries with lower indicators. In this study, the authors provide important guidance to stakeholders on how to promote the SDGs in their countries. Achieving the sustainable development goals is possible by raising awareness, changing attitudes and, above all, changing some behaviors, which is related to

the use of social marketing (Galan-Ladero, et al., 2023; Delvaux and Van den Broeck, 2023). The subject matter of the SDGs is also an area of interest for Polish scientists. Among other things, the involvement of public universities in Poland in promoting the Sustainable Development Goals (Pietrzak, 2022) and the awareness of young people about sustainable development and their opinions on the implementation of the Sustainable Development Goals in curricula (Zwolińska et al., 2022) were examined.

3. Methodology of research

Striving to achieve the adopted goals, the Customer Satisfaction Index (CSI) method was used. CSI is a method that enables the identification of needs, the assessment of the level of respondents' satisfaction and the determination of the level of significance of the subject of research elements. The method, by recognizing the opinions of a selected group of respondents, allows for the acquisition of material, its analysis, evaluation and, consequently, leads to the selection of particularly important areas that require modernization. Within the CSI method, two phases can be distinguished: exploratory and diagnostic one (Woźniak and Zimon, 2016):

a) exploration phase: identification of a group of customers of a selected organization, determination of quality parameters (customer satisfaction assessment criteria), development of a survey form;

b) diagnostic phase: conducting surveys among respondents, analyzing the obtained data and determining the CSI index, developing a quality map, identifying areas requiring changes and proposing improvement solutions.

The survey developed in accordance with the guidelines of this method allows for verification of the level of satisfaction and

the importance of individual aspects. In the next step, the relative weight and customer satisfaction index (CSI) are determined. The collected data is analyzed. The final phase of the research process is the development of a quality map showing the strengths and weaknesses of the researched issue. The best results are guaranteed by regular research, which allows to monitor changes in quality over time and actively implement improvement actions. According to the procedure, the research tool was a questionnaire taking into account 17 SDGs. When completing the questionnaire, the respondents expressed their positions and opinions in two dimensions: the first was related to satisfaction, while the second concerned the importance and significance of a given aspect for the respondent. Each factor was assessed using a five-point Likert scale, where 1 was the lowest score and 5 was the highest score. The research process was carried out in March 2023 on a group of 100 respondents. Respondents expressed their opinions anonymously, using a survey form developed in an electronic version. Each of the respondents had the opportunity to complete the questionnaire only once. The choice of respondents was purposeful. The respondents were students of several Polish universities, faculties related to the subject of sustainable development.

4. Presentation and analysis of test results

4.1. Calculation of the CSI indicator

After the research, the results were analyzed. Table 1 presents the distribution of respondents' answers, it also includes the average level of customer satisfaction and the average weight for each aspect examined.

Table 1. Average satisfaction and importance of individual factors

AVERAGE CRITERION ASSESSMENT o_i (satisfaction)	RESULTS										AVERAGE WEIGHT w_i (importance)	
	SATISFACTION					Dimension	IMPORTANCE					
	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied		Very big	Big	Average	Small		Very small
	5	4	3	2	1		5	4	3	2		1
2,76	3	21	34	33	9	1SDG	16	23	35	17	9	3,2
3,68	14	47	34	3	2	2SDG	52	7	23	14	4	3,89
2,51	2	13	35	34	16	3SDG	50	32	7	7	4	4,17
2,78	5	27	29	19	20	4SDG	12	33	32	16	7	3,27
2,79	12	15	37	12	24	5SDG	32	18	30	17	3	3,59
3,71	25	34	29	11	1	6SDG	52	23	21	3	1	4,22
2,56	3	12	48	12	25	7SDG	6	11	55	23	5	2,9
2,51	2	15	32	34	17	8SDG	41	27	25	7	0	4,02
3,17	11	11	67	6	5	9SDG	14	12	45	23	6	3,05
3,14	15	23	34	17	11	10SDG	8	23	34	32	3	3,01
2,37	2	12	24	45	17	11SDG	27	27	33	2	1	3,47
2,75	6	12	45	25	12	12SDG	11	23	45	12	9	3,15
2,47	2	14	34	29	21	13SDG	7	32	54	4	3	3,36
3,02	6	21	50	15	8	14SDG	1	11	58	21	9	2,74
3,01	8	18	47	21	6	15SDG	4	7	57	23	9	2,74
2,07	1	3	25	44	27	16SDG	39	17	34	10	0	3,85
2,51	4	5	49	22	20	17SDG	2	13	67	14	4	2,95

The CSI index was calculated on the basis of the data presented in Table 1. First, the relative weights (w_{iw}) were determined using the following formula:

$$w_{iw} = \frac{w_i}{\sum_{i=1}^N w_i}$$

(1)

where,

i – quality parameter included in the questionnaire ($i = 1, 2, \dots, 17$),

N – number of respondents ($N = 50$),

w_i - average factor weight,

w_{iw} – relative factor weight.

The obtained results were used to calculate the target CSI value. The following formula was used to calculate the indicator:

$$CSI = \sum_{i=1}^N w_{iw} \times o_i$$

(2)

where,

i – quality parameter included in the questionnaire ($i = 1, 2, \dots, 16$),

N – number of respondents ($N = 50$),

w_{iw} – relative factor weight,

o_i - average factor rating.

The next step in the calculation process was to determine the maximum achievable customer satisfaction index (CSI_{max}), supporting further analysis of the results (Table 2).

The determined value of the CSI index was at the level of 56%. According to the criteria applicable in the CIS method, respondents are not satisfied with the degree of implementation of the 17SDs. Therefore, it is necessary to develop a Quality Map that will help to propose improvement actions in an optimal way.

Table 2. Calculation of the CSI index

Lp.	Dimension	Factor rating o_i	Factor weight w_i	Relative factor weight w_{iw}	CSI index	CSI max
1	1SDG	2,76	3,2	0,055575	0,153387	0,27787426
2	2SDG	3,68	3,89	0,067558	0,248614	0,3377909
3	3SDG	2,51	4,17	0,072421	0,181777	0,3621049
4	4SDG	2,78	3,27	0,056791	0,157878	0,28395276
5	5SDG	2,79	3,59	0,062348	0,173951	0,31174019
6	6SDG	3,71	4,22	0,073289	0,271903	0,36644668
7	7SDG	2,56	2,9	0,050365	0,128934	0,25182355
8	8SDG	2,51	4,02	0,069816	0,175238	0,34907954
9	9SDG	3,17	3,05	0,05297	0,167914	0,26484891
10	10SDG	3,14	3,01	0,052275	0,164144	0,26137548
11	11SDG	2,37	3,47	0,060264	0,142826	0,3013199
12	12SDG	2,75	3,15	0,054706	0,150443	0,27353248
13	13SDG	2,47	3,36	0,058354	0,144133	0,29176797
14	14SDG	3,02	2,74	0,047586	0,14371	0,23792984
15	15SDG	3,01	2,74	0,047586	0,143234	0,23792984
16	16SDG	2,07	3,85	0,066863	0,138407	0,33431747
17	17SDG	2,51	2,95	0,051233	0,128595	0,25616534
	Σ		57,58	CSI	2,815	5
						CSI_o=56%

4.2. Developing a Quality Map

After calculating the individual aspects, as well as calculating the percentage of the CSI, the division points of the quality map were determined. The division points for the quality map were calculated using the formula (3). The results are presented in table 3.

$$w_{av.} = \frac{\sum_{i=1}^N w_i}{N} - (3)$$

By determining the average of the weights ($W_{av.} = 3,4$), the division point of the importance axis was obtained, while the second axis contained the average satisfaction ($C_{av.} = 2,8$). In the next step, having obtained the results, the quality map was divided into four parts (Fig. 1).

Table 3. Determination of division points for the quality map

Lp.	Dimension	Factor weight w_i (meaning)	o_i : factor rating (satisfaction)
1	1SDG	3,2	2,76
2	2SDG	3,89	3,68
3	3SDG	4,17	2,51
4	4SDG	3,27	2,78
5	5SDG	3,59	2,79
6	6SDG	4,22	3,71
7	7SDG	2,9	2,56
8	8SDG	4,02	2,51
9	9SDG	3,05	3,17
10	10SDG	3,01	3,14
11	11SDG	3,47	2,37
12	12SDG	3,15	2,75
13	13SDG	3,36	2,47
14	14SDG	2,74	3,02
15	15SDG	2,74	3,01
16	16SDG	3,85	2,07
17	17SDG	2,95	2,51
		$W_{av.} = 3,4$	$C_{av.} = 2,8$

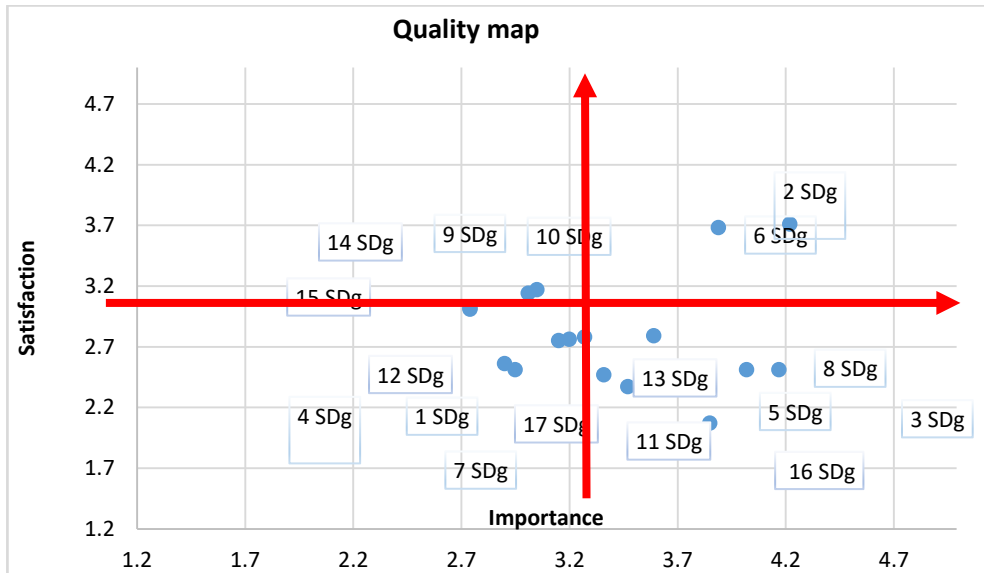


Figure 1. Quality Map

The analysis of the quality map allows the following conclusions to be drawn:

- 2 and 6 SDGs are among the particularly important goals and relatively highly rated by the respondents, therefore their implementation should be maintained at the current level,
- 3,5,8,11,13,16 SDGs belong to the group of factors that, according to respondents, should be improved first,
- among the goals requiring improvement, the respondents included goals 1, 4, 7, 12 and 17,
- the least important goals, according to respondents, are goals 9, 10, 14 and 15.

5. Discussion

Analyzing the results of the research, SDG2 (Zero hunger) and SDG6 (Clean water and sanitation) of the SDGs are highly rated by the respondents, because young people in Poland, living at a relatively high standard, notice the waste of food and water that

prevails in the country. In Poland, according to statistics, 4.8 million tons of food are thrown away. Looking at the world scale the number of people affected by hunger globally rose to as many as 828 million in 2021, an increase of about 46 million since 2020 and 150 million since the outbreak of the COVID-19 pandemic according to a United Nations report. Nearly 1 billion people in cities around the world face problems with availability of clean and safe drinking water today and the number is likely to reach between 1.7 billion and 2.4 billion within the next three decades. Water demand is predicted to increase by 80% by 2050 according to the UN World Water Development Report. Without the realization of these two goals, people will not be able to survive and live long.

Goals - 3 (Good health and well-being), 5 (Gender equality), 8 (Decent work and economic growth), 11 (Sustainable cities and communities), 13 (Climate action), 16 (Peace, justice and strong institutions) belong to the group of factors which, according to the respondents, should be improved first. Poland is struggling with the

growing mortality due to the so-called civilization diseases. Subjective opinions of Polish residents show that the state of health of the society has improved since the beginning of the decade, but Poles still assess their health slightly worse than EU residents in general.

SDG5 (Gender equality) - gender discrimination, although slightly less than a dozen or so years ago, remains a widespread phenomenon. Its scale and form varies depending on e.g. on cultural conditions and the degree of development of individual regions of the world. In Poland, as in other EU countries, inequalities between the situation of people of different sexes are visible e.g. in the labor market, despite women's better education.

Talking about SDG8 (Decent work and economic growth), the difficult economic situation after the pandemic, crisis, high inflation, instability related to Russia's invasion of Ukraine are some of the factors that influence the choice of a given goal. Young Poles live in difficult times and want to enter a stable labor market after graduation.

The development of cities takes place at the expense of the natural environment and contributes, among others, to atmospheric pollution. Air pollution is also one of the biggest problems faced by cities in Poland. According to the WHO, 36 Polish cities are among the 100 most polluted cities in the EU. Talking about global warming, one of the causes of this phenomenon is the emission of greenhouse gases, including carbon dioxide (CO₂). In Poland, their emission remains at a relatively constant level. Every year, over 400 million tons of greenhouse gases produced by the domestic economy enter the atmosphere, which accounts for 9.8% of total EU emissions (compared to 8.6% in 2010) (<https://raportsdg.stat.gov.pl/2020/cel13.html>). Analyzing these terrifying statistics, it can be said that SDG11 and SDG13 are very close to each other, and the consequences of

their failure are very visible and noticeable for young Poles.

SDG16 - Peace and stability are essential for a sense of security, a basic human need. Unfortunately, they are difficult to achieve in many regions of the world. Young Poles living very close to Ukraine, which was invaded by Russia in 2022, want this goal to be improved as soon as possible.

Next group goals 1,4,7,12 and 17 – they are among the goals requiring improvement. Talking about SDG1 (No Poverty), in Poland, as in all of Europe, extreme poverty is a relatively rare phenomenon. On the other hand, many households do not have the income that would allow them to function peacefully. SDG4 (Quality education) - The intensive development of information and communication technologies and increasing mobility are conducive to obtaining the best possible education. In Poland, demographic and socio-economic changes mean that the number of students at Polish universities is gradually decreasing, but still many young inhabitants of the country decide to take up higher education. SDG4 implementation is very important for the prosperity of individual states and civilizations in general. SDG7 (Affordable and clean energy) - Poland is the only EU country that uses mainly solid fossil fuels (hard coal and lignite) to produce electricity, at the same time, the use of energy from renewable sources has increased. Compared to other renewable energy sources, the share of solar energy in electricity generation in Poland is still negligible (0.2%), while in the EU photovoltaic cells are currently responsible for the production of nearly 4% of electricity in the region (<https://raportsdg.stat.gov.pl/2020/cel7.html>). When analyzing SDG12 (Responsible consumption and production) it can be said, that material resources are used by the Polish economy slightly more productively than at the beginning of the decade, but still less efficiently than the EU average. SDG17 (Partnerships for the goals) - global partnership is an integral part of Polish foreign policy. The main objective of

activities undertaken by Poland is to support developing countries, in particular partner countries, based on the principles of international solidarity. The tangible effect of the implemented programs is the help of Poland to Ukraine, which suffered from the invasion of Russia.

The least important goals, according to respondents, are goals 9, 10, 14 and 15. SDG9 (Infrastructure and Industrialization) is in this group because over the last decade, there has been a dynamic development of information and communication technologies. On the one hand, young Poles are already fully digitized and know the Internet world very well, so from their perspective this goal has already been achieved. On the other hand, young people may already be over-saturated with gadgets, innovative technologies, being constantly online, because it can prevent them from enjoying everyday life. SDG10 (Reduced inequalities) - disparities in wealth in the EU are visible both between countries and within them. Poland is one of the countries that is separated by a considerable distance from the richest economies in the region. SDG10 is important in general, but could be included in this group because its implementation is related to other goals that have already been scored high, e.g. SDG1 (No poverty), SDG4 (Quality education), SDG8 (Decent work and economic growth), SDG14 (Life below water) and SDG15 (Life on land) – from the respondents' perspective these goals may be less important because they are related to the implementation of such goals as SDG11 and SDG13, which were highly rated by them.

6. Conclusions

Summing up, young Poles are characterized by a high level of awareness and knowledge about the 17 SDGs. Respondents are able to prioritize individual goals. Their answers show that goals that directly contribute to the standard and quality of live are most important for them. Polish students are no strangers to issues related to gender inequality, climate change, urban development or poverty reduction. Born in a country with a relatively high standard of living, access to information and access to medicine, young Poles are able to notice problems that affect the whole world, especially the poorest countries. In Polish schools and universities, more and more emphasis is placed on openness to knowledge (critical thinking), good communication and rational dialogue (relationships and cooperation) and wise management of oneself, one's feelings and emotions (leadership and self-regulation). These qualities will certainly help young people contribute to help achieve the goals of the SDGs.

As with other this type studies, the findings and implications are limited because of the research design and methods employed. The topic is dynamic and multidisciplinary, and it requires different points of view. Although some future directions of research can be related to comparison of answers on 17SDGs priorities among young people from different countries, e.g. from the Czech Republic, Slovakia and Hungary. It will be valuable to carry out international research in 4 countries with a similar economic situation and a similar legal system, resulting largely from the regulations imposed by the EU, but at the same time differing in many aspects. It will be also important to increase the research sample to 150 in each surveyed country.

References:

- Aleixo, A. M., Leal, S., & Azeiteiro, U. M. (2021). Higher education students' perceptions of sustainable development in Portugal. *Journal of Cleaner Production*, 327, 129429.
- Barbier, E. B., & Burgess, J. C. (2017). The Sustainable Development Goals and the systems approach to sustainability. *Economics*, 11(1), 20170028.
- Beagon, U., Kövesi, K., Tabas, B., Nørgaard, B., Lehtinen, R., Bowe, B., ... & Spliid, C. M. (2023). Preparing engineering students for the challenges of the SDGs: what competences are required?. *European Journal of Engineering Education*, 48(1), 1-23.
- Bharti, S.S. (2022). The EU Development Policy as A Model: An Implication for South Asian Countries. *Humanities and Social Sciences*, 29(2), 19-28.
- Biermann, F., Hickmann, T., Sénit, C. A., Beisheim, M., Bernstein, S., Chasek, P., ... & Wicke, B. (2022). Scientific evidence on the political impact of the Sustainable Development Goals. *Nature Sustainability*, 5(9), 795-800.
- Biermann, F., Kanie, N., & Kim, R. E. (2017). Global governance by goal-setting: the novel approach of the UN Sustainable Development Goals. *Current Opinion in Environmental Sustainability*, 26, 26-31.
- Cheng, H. H., Takata, S., Kawanaka, T., & Ohno, T. (2023). Does SDGs Advertising Promote Ethical Consumer Behavior?: An Integrative Model of Ethical Consumption with Elements of Communication Strategy and Rational Purchase. *Sustainability*, 15(8), 6954.
- Delvaux, I., & Van den Broeck, W. (2023). Social marketing and the sustainable development goals: Scoping review (2013–2021). *International Review on Public and Nonprofit Marketing*, 20, 573–603. <https://doi.org/10.1007/s12208-023-00372-8>
- Feltrero, R., Junguitu-Angulo, L., & Osuna-Acedo, S. (2023). Deploying SDG Knowledge to Foster Young People's Critical Values: A Study on Social Trends about SDGs in an Educational Online Activity. *Sustainability*, 15(8), 6681.
- Galan-Ladero, M. M., Sarmiento, M., & Marques, S. (2023). Social Marketing to achieve the Sustainable Development Goals (SDGs) in 2030 Agenda by the United Nations. *International Review on Public and Nonprofit Marketing*, 20, 521–527.
- Halkos, G., & Gkampoura, E. C. (2021). Where do we stand on the 17 Sustainable Development Goals? An overview on progress. *Economic Analysis and Policy*, 70, 94-122.
- Ho, S. S. H., Lin, H. C., Hsieh, C. C., & Chen, R. J. C. (2022). Importance and performance of SDGs perception among college students in Taiwan. *Asia Pacific Education Review*, 23(4), 683-693.
- Killian, S., Lannon, J., Murray, L., Avram, G., Giralt, M., & O'Riordan, S. (2019). Social media for social good: student engagement for the SDGs. *The International Journal of Management Education*, 17(3), 100307.
- Kioui, V., & Voulvoulis, N. (2020). Sustainable development goals (SDGs): Assessing the contribution of higher education programmes. *Sustainability*, 12(17), 6701.
- Kleespies, M. W., & Dierkes, P. W. (2022). The importance of the Sustainable Development Goals to students of environmental and sustainability studies—A global survey in 41 countries. *Humanities and Social Sciences Communications*, 9(1), 218.
- Leiva-Brondo, M., Lajara-Camilleri, N., Vidal-Meló, A., Atarés, A., & Lull, C. (2022). Spanish university students' awareness and perception of sustainable development goals and sustainability literacy. *Sustainability*, 14(8), 4552.

- Pedersen, A. B., Hickmann, T., Renn, O., Eckert, N., Jax, K., Lepenies, R., ... & Rusch, G. (2023). SDGs at the halfway point: How the 17 global goals address risks and wicked problems. *Ambio*, 52(4), 679-682.
- Pietrzak, P. (2022). The involvement of public Higher Education Institutions (HEIs) in Poland in the promotion of the Sustainable Development Goals (SDGs) in the age of social media. *Information*, 13(10), 473.
- Salvia, A. L., Leal Filho, W., Brandli, L. L., & Griebeler, J. S. (2019). Assessing research trends related to Sustainable Development Goals: Local and global issues. *Journal of Cleaner Production*, 208, 841–849
- Seva-Larrosa, P., Marco-Lajara, B., Úbeda-García, M., Zaragoza-Sáez, P., Rienda-García, L., García-Lillo, F., ... & Martínez-Falcó, J. (2023). Students' perception of sustainable development goals (SDGs) and the benefits for companies derived from their implementation. *Economic Research-Ekonomska Istraživanja*, 36(1), 2167100.
- Shulla, K., Filho, W. L., Lardjane, S., Sommer, J. H., & Borgemeister, C. (2020). Sustainable development education in the context of the 2030 Agenda for sustainable development. *International Journal of Sustainable Development & World Ecology*, 27(5), 458-468.
- Woźniak, J., & Zimon, D. (2016). Zastosowanie metody CSI do badania satysfakcji konsumentów na przykładzie wybranej sieci handlowej. *Modern Management Review*, 23(3), 219-228.
- Zimon, D., Tyan, J., & Sroufe, R. (2020). Drivers of sustainable supply chain management: Practices to alignment with un sustainable development goals. *International Journal for Quality Research*, 14(1), 219-236.
- Zwolińska, K., Lorenc, S., & Pomykała, R. (2022). Sustainable development in education from students' perspective—Implementation of sustainable development in curricula. *Sustainability*, 14(6), 3398.

Dominik Zimon
Rzeszow University of
Technology,
Rzeszow,
Poland
zdomin@prz.edu.pl
ORCID 0000-0002-3097-5445

Kateryna Lysenko-Ryba
University of Information
Technology and
Management in Rzeszow,
Rzeszow,
Poland
klysenko@wsiz.edu.pl
ORCID 0000-0003-1560-1063

**Beata Zatwarnicka-
Madura**
Rzeszow University of
Technology,
Rzeszow,
Poland
bezat@prz.edu.pl
ORCID 0000-0002-7579-8630
