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Higher education for sustainable development during the COVID-19 pandemic in Ukraine

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Abstract

The paper presents the analysis of the higher education modernisation for sustainable development in Ukraine regarding goals adopted on global and national levels, pre-pandemic trends and the challenges of 2020. The global experience integrating sustainable development goals into higher education is also a background analysis. Taking into account the Sustainable Development Goals (SDGs), adopted in 2015 and the national "Concept of environmental education in Ukraine", adopted in 2001, the article investigates the current trends on macro (the country's ESD policy), meso (HEIs), and micro (participants of educational process) levels. Particular attention is paid to embedding SDGs in university policy, curriculum, and pedagogy, primarily in training economists. Furthermore, the research focuses on the new challenges of 2020 – the COVID-19 pandemic and digitalization affecting higher education transformation. These drivers cause transformative sustainability teaching-learning practices and social and environmental impacts of digital technologies implementation in Ukraine's higher teacher and economic education. The research reveals similar trends in higher education modernisation for sustainable development in the world and Ukraine. This theoretical and empirical research is based on the literature review, statistical data and surveys conducted at a national university in 2023. Finally, the research results in suggestions given by Humanities students and faculty members to foster higher education significance in developing environmental knowledge, awareness and culture among professionals and society in the future.

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Introduction

Two decades have passed since the United Nations General Assembly declared the Decade of Education for Sustainable Development (2005-2014). According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), that action aimed to mobilise global educational resources to create a sustainable society for future generations – reasonable production and consumption, sustainable agriculture and forestry, finance, research and technology transfer (UNESCO, 2005). The strategies of the Decade included promoting quality education, reorienting educational programmes, building public understanding and awareness, and providing practical training and education through Information Communication Technology (ICT). New learning modes via ICT offered an opportunity for the widespread dissemination of education for sustainable development (ESD) due to their affordability, low cost, infrastructure, energy supply and use. The challenges in achieving the ESD's goals were likely to be "natural disasters, civil wars and unrest and the HIV/AIDS pandemic" (UNESCO, 2007, p. 55).

Summarising key findings and trends in ESD, Buckler and Creech (2014) found uneven progress in reorienting education policies and curricula towards sustainable development in Europe. Yet, there had been an increase in the understanding of the role of education in sustainable development and public awareness, and countries had gradually incorporated "education strategies, tools and targets into national sustainable development strategies" (p. 29). Furthermore, Buckler and Creech (2014) observed the following positive trends in global ESD: beneficial political leadership, effective multi-stakeholder partnerships, growing local commitments, interactive and learner-driven pedagogies facilitated by ESD, technical and vocational education and training that advanced sustainable development.

However, the situation with teaching education for sustainable development appears different. The implementation of environmental education with an environmental protection approach in higher education was the first trend, which was later changed to ESD (Acosta Castellanos & Queiruga-Dios, 2022). Gough (2016) reveals that many efforts to incorporate environmental education into teacher education resulted in a "struggle to be implemented in many places until ESD becomes an educational priority rather than a political one" (p.120).

In 2014, about 5% of Teacher Education institutions integrated ESD completely into their educational programmes, while about 25% of higher education institutions (HEIs) were in progress (McKeown & Hopkins, 2014, p. 5). For example, in Germany, for 5 years (2011–2016), the ESD goals have not been achieved, and considerable differences exist among the federal states (Singer-Brodowski et al., 2019). Rieckmann (2019) reports on some isolated courses and projects. For example, German universities do not consider ESD an interdisciplinary issue of teacher education and systematically integrate it into the subjects. "Structural changes are only beginning to emerge" (p. 46). In Finland, HEIs cannot guarantee that student teachers are sufficiently trained to teach about sustainability (Hofman-Bergholm, 2018). Akça (2019) evidences a lack of systematic education for sustainable development in Turkey, although "prospective teachers are quite aware of the concept of sustainability" (p.15). Durrani et al. (2019) reveal that in Pakistan, the majority of the courses for pre-service teachers are not aligned with ESD.

In the case of Ukraine, being a UN Member State, it has joined the global process of ensuring sustainable development. In 2016–2017, a large-scale adaptation of SDGs occurred, with the

process resulting in 86 tasks of national development. However, there is a lack of evidence of the efforts of national higher education in implementing ESD.

Consequently, in the COVID-19 pre-pandemic, higher education worldwide gradually but unevenly incorporated education into national sustainable development strategies. However, in the case of teaching education for sustainable development, this process has been delayed and continues to face challenges.

In this regard, there is an assumption that the COVID-19 pandemic is likely to negatively impact the transition of higher education to sustainable development. We review literature that considers whether the COVID-19 pandemic caused obstacles to ESD and SDGs' achievements in higher education.

Literature Review

The literature review reveals trends in the integration of ESD in higher education on the pandemic eve across macro, meso and micro levels and identifies the ways that the COVID-19 pandemic caused obstacles for ESD and SDGs achievements in higher education.

Trends in Integration of ESD in Higher Education During the Pre-Pandemic

In this research, the concept of 'sustainable development' refers to "the will to improve everyone's quality of life … by reconciling economic growth, social development and environmental protection" (UNESCO, 2005, p. 3). 'Macro-level' refers to a country, 'meso-level' refers to higher education institutions, and 'micro-level' is participants of education (academics and students).

Trends at the Macro Level

Franco et al. (2019) provide evidence that many HEIs in Europe, Asia, Africa, the Pacific, and the Americas tried to implement sustainable development goals in higher education policy, curriculum and practice through separate initiatives. However, they found that attempts were not supported or coordinated by the leadership to address the issue of social and environmental sustainability. These constraints widen the gap between ESD policy, curriculum and practice.

A multilevel analysis of sustainable development implementation in UK higher education undertaken by Vargas et al. (2019) showed that "policy issues such as collaboration, partnership, education, outreach, teaching and learning, staff development, curriculum review, research, campus operations" are not consistently integrated at all levels of vertical policy integration" (p. 734).

Others have found an imbalanced global distribution of implementation of sustainability curricula in higher education in the USA, Europe and Asia (Weiss & Barth, 2019). Universities in Italy and Spain are more interested in integrating ESD into their programmes, but their funds are lower than in the UK, the Netherlands, and Sweden (Lozano & Barreiro-Gen, 2019). Higher education in Spain provides a systematic approach to the implementation of five active learning strategies (service learning, problem-based learning, project-oriented learning, simulation games and case studies) for sustainability (Tejedor et al., 2019).

In the case of Malaysia, there are various initiatives and projects, though SDGs are not integrated successfully into the core activities of the HEIs (Symaco & Tee, 2019). In Croatia, education for sustainable development is not implemented in ways considered significant (Raditya-Ležaić et al., 2018).

However, Leal Filho et al. (2019) report equal opportunities and constraints in pursuing sustainability to higher education in industrialised (e.g., Canada, France, Italy, Latvia, Portugal, Serbia, the UK, and the USA) and developing countries (e.g., Brazil, Ghana, India, Malaysia, and Thailand). Moreover, Africa and Oceania presented the best sustainability indicators in their universities. The main barriers to sustainability in universities are found to be a lack of planning, no environmental committee, no continuity of actions, and resistance to changes (Veiga Ávila et al., 2019). In the case of Ireland, HEIs lack a systemic approach when the majority of initiatives focus on campus actions, with outreach neglected (Shawe et al., 2019).

Finally, low-quality institutional arrangements and overeducation cause unemployment among tertiary graduates and challenge sustainable growth in Romania (Pana & Fanea-Ivanovici, 2019).

Trends at the Meso Level

Scholars report the experience of efficient implementation of environmental education in certain HEIs (Richter & De Sousa, 2019) or course design (Kirchherr & Piscicelli, 2019). For example, the University of Bologna has introduced an additional tool for reporting on the extended performance of integration of the SDGs in strategic planning (Paletta & Bonoli, 2019). The University of Bern (Switzerland) recommends providing support at four levels: formulating competencies for sustainable development, shifting towards a learner-centred approach, designing their learning environments and becoming a community of practice (Trechsel et al., 2018).

In terms of courses, Lozano & Barreiro-Gen (2019) show that teaching in European courses includes various issues of sustainability but lacks focus on social sustainability. Besides, Bachelor's courses tend to contribute less to sustainable development. For example, in the case of the University of Technology Sydney, only 22.4% of Bachelor's courses include ESD (Trad, 2019).

Moreover, there is evidence of programme content and methodology transformation to meet SDGs in higher education. For example, universities share their positive experience of embedding environmental content in the curriculum (Hess & Maki, 2019), teaching SDGs (Zamora-Polo & Sánchez-Martín, 2019), and implementing circular economy thinking into the university's sustainability management systems (Mendoza et al., 2019) and practical realisation of sustainability innovation via computer re-use (Wang et al., 2019). Social sustainability initiatives include a mixed bottom-up and top-down approach for increasing the motivation of students (Trechsel et al., 2018) and in support of integrated and holistic implementation of sustainability (Ramísio et al., 2019). Project-based learning in Masters programmes is increasingly being adopted as an effective teaching method for sustainable development planning (Cazorla-Montero et al., 2019).

Furthermore, Jarillo et al. (2019) reveal that online universities can benefit the achievement of sustainable development goals and can potentially be more effective than on-site universities, primarily for students with reduced mobility. A variety of approaches with diverse interpretations of sustainability exist, which is a challenge for achieving ESD globally.

Trends at the Micro Level

Literature suggests that prior to the COVID-19 pandemic, sustainability tended to be understood through an environmental and cultural lens. Investigating teachers experienced in

interdisciplinary sustainable development in Finland, Rouhiainen & Vuorisalo (2019) show that “despite the teachers’ rich conceptions of cultural sustainability, their understanding of economic sustainability is rather limited and sketchy” (p. 1713).

Research investigating students' perceptions concludes that flipped teaching models support developing an understanding of sustainable development (Buil-Fabregá et al., 2019). Investigating the implementation of environmental education in vocational higher education, Wang et al. (2019) found that teaching methods (collaborative teaching, combination of a traditional class and an e-learning system), utilising an e-learning system with learning resources created by industry experts, interpersonal relationships, and workplace exploration enhance students' learning satisfaction. Multidisciplinary and interdisciplinary approaches are effective educational tools for teaching and learning sustainable development in higher education when delivered through real-world problems (Caetano & Felgueiras, 2019).

Higher Education for Sustainable Development During the COVID-19 Pandemic

The COVID-19 pandemic caused a digital transformation of higher education. For example, adopting blended and distance learning (Mahfoodh & AlAtawi, 2021); educational technology and virtual learning (Mafenya, 2022); online communication tools in teaching practices (Filho et al., 2021); and evaluation of the learning outcomes in lessons online (Parks, 2021) were investigated. Caeiro-Rodriguez et al. (2022) concluded that modern digital education provides valuable solutions for learners and teachers that ensure continuing high-quality learning.

Moreover, there is evidence of successful measures implemented in higher education contributing to achieving SDGs. For example, coping strategies for COVID-19 (medical services, logistic support, online education, and graduate employment promotion) in China (Liu, 2020); Low-cost strategy provision in private universities in Indonesia (Tairas & Soenanto, 2022); and e-learning crisis management in Iraq (Almayali & Almusawy, 2021), were just some initiatives introduced; methodological shifts and evidence of good practices has occurred e.g., providing reflective practice in teacher training (Fuertes-Camacho et al., 2021) and talent development strategies (training and career development) (Abiwu & Martins, 2022).

Other scholars focus on the risks and weaknesses of the emergency digital transformation of higher education for SDG achievement. For example, Gowan (2021) warns that the COVID-19 pandemic may jeopardise the implementation of SDGs and emphasises the importance of education for sustainable development. It would be remiss not to acknowledge that the emergency digital transformation of higher education faced various challenges. Alam and Asimiran (2021) believe that digital higher education has used COVID-19 as an excuse to extend the “diploma disease crisis” (p.1). Crawford and Cifuentes-Faura (2022) identified potential learning and teaching risks, including the deterioration of the emotional state of students and the reduction of motivation to study (Denisov et al., 2021). Teachers’ discomfort in adapting to new educational technologies were also observed (Fülöp et al., 2022). Many scholars report the need for improving digitalised teaching and education quality via innovation (Pu et al., 2022; Sá & Serpa, 2020). To do so, teachers require significant training in providing quality online education (Rajab et al., 2022).

Through the literature review, trends in pre-pandemic and pandemic implementation of ESD in global higher education are evident. However, a lack of evidence from Ukraine on this issue exists. This paper reports on research with the research objective is to reveal trends in ESD implementation in higher education in Ukraine.

Methodology

A mixed-method approach was used to understand ESD implementation in Ukraine (macro-level). A content analysis for programmes of national HEIs (Meso level) and a survey method was used for revealing the awareness of SDGs of students and academics in Humanities (micro-level). The survey was conducted in February 2023. The University's Ethics Committee approved the research before its commencement.

A case study of the research problem in Ukraine includes a review of national legislative documents adopted during 2015-2019 and the government initiatives on the issue. Using the State Electronic Database on Education in Ukraine, the content analysis makes it possible to 1) reveal the number of national HEIs providing educational programmes for training 'green' professionals; 2) quantify and analyse the concepts (key topics) of the educational programmes.

Based on a careful study of the resources (UNESCO, 2005; 2007), a quantitative questionnaire with four questions (3 – multiple-choice and 1 – open-ended questions) was designed in Google Forms. These question types were conducted to gather data from the respondents, namely their insights and own views of the issue. The questionnaire was administered via university e-mail to allow respondents to respond anonymously. As a result, from the total respondents (n = 114), there were students from the Philology Department (n = 40), postgraduate students in the Humanities and Social Studies (n = 43), and faculty members (n = 31) from Borys Grinchenko Kyiv University. Data analysis is based on descriptive statistics.

Applying a combination of approaches, i.e., a case study, a content analysis, and a survey method, allows us to explore contemporary trends in ESD implementation in higher education in Ukraine across diverse settings – at macro, meso and micro levels.

Results

Higher Education for Sustainable Development during the COVID-19 Pandemic in Ukraine

Macro Level

Ukraine supports the global goals of Sustainable Development 2030, announced by the United Nations General Assembly Resolution No. 70/1 of September 25, 2015, evidenced in national legislative documents, i.e., the Sustainable Development Goals (SDGs) (2015) and the Decree of the President of Ukraine "Sustainable Development Goals of Ukraine 2030" (2019).

In the National Paradigm of Sustainable Development of Ukraine, the sustainable development of society is understood as a continuous educational process, including knowledge transmission and skills development regarding a healthy lifestyle in harmony with nature. That requires a methodology shift (from information transfer to active learning methods and interdisciplinary analysis of real-life situations) and the integration of SDGs into educational programmes.

The sustainable development of HEIs is understood in Ukraine as a continuous process of harmonising the interaction of internal stakeholders regarding the coordination of education and research activities with the conceptual triad of sustainable development – social, ecological, and economic dimensions. The goal of higher education for sustainable development is redesigning the existing educational programs in social, economic, and

environmental fields, ‘green’ training and further development of education for sustainable development.

It is worth mentioning that European integration processes initiated a national economy transition to a circular economy. The adoption of the National Waste Management Plan 2030 (2019) contributed to amendments to the Law “On Waste” of Ukraine (2019). These initiatives at the government level have contributed to changes in the social, public and economic levels and higher education.

There is a lack of data on practical examples of national economic transformation. However, the COVID-19 pandemic launched waste sorting in Ukraine. Thus, since the spring of 2020, waste bins for sorting plastic, paper and glass have become an everyday practice in national towns, cities and public places. Hygiene measures were introduced in public places and universities as well.

Moreover, the government initiatives necessitated the training of professionals in the circular economy and launched the implementation of new educational programs and course development by universities. Although the national “Concept of environmental education in Ukraine” was adopted in 2001, the period from 2019-2021 became the most active phase of implementation of educational programmes for training professionals in the green economy by national HEIs. Currently, there is a lack of research on training in sustainable development or the circular economy by national scholars.

Meso Level

According to the analysis of the State Electronic Database on Education in Ukraine, 23 HEIs offer educational programmes in sustainable development, which provide students with knowledge and ‘green skills’ development in economics and other fields (see Table 1).

‘Green skills’ refer to “technical knowledge and skills that enable professionals to effectively use green technologies and processes (i.e., resource-efficient technologies or processes that reduce waste and minimise the environmental impact of human action); and transversal skills, as well as knowledge, values and attitudes that help them take pro-environmental decisions in their work and lives” (ETF, 2022, p. 5).

The leaders in providing programmes in sustainable development are Kyiv National Economic University, named after Vadym Hetman, Taras Shevchenko National University of Kyiv and the National Technical University of Ukraine, “Igor Sikorsky Kyiv Polytechnic Institute”.

The national universities currently provide 31 (100%) programmes – 13 (42%) for Bachelor’s degrees, 15 (48%) – for Master’s degrees and 3 (10%) – for PhD. There is a tendency to teach subjects in English (10%). In addition, the majority of programmes are designed for full-time students (80%).

Table 1

Programmes in Sustainable Development Provided by National HEIs

HEI	Field	Number of programmes		
		Bachelor	Master	PhD
Lesya Ukrainka Volyn National University	Social sciences			1
Donbas State Pedagogical University	Education		1	
Oles Honchar Dnipro National University	International affairs	1		
Zaporizhzhia National University	Social sciences	1	1	
West Ukrainian National University	International affairs			1
Ivano-Frankivsk National Tech. Uni. of Oil & Gas	Transport		1	
Kyiv National Economic University	Social sciences	2		1
Taras Shevchenko National University of Kyiv	Management	1		
	Nature	2		
National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”	Electrical engineering	1		
	Humanities		2	
Borys Grinchenko Kyiv University	Social sciences	1		
The University of Lviv	Interdisciplinary	1		
	Nature		1	
International Academy of Personnel Management	Nature		1	
National Aviation University	Nature		1	
Dnipro University of Technology	Management		1	
National University of Kyiv-Mohyla Academy	Nature		1	
Lviv Polytechnic National University	Management		1	
Odesa Polytechnic National University	Interdisciplinary	1		
National University of Water & Enviro. Engin.	Interdisciplinary		1	
Poltava State Agrarian Academy	Nature		1	
Prydniprovska Academy of Construction and Architecture	Management	1		
Sumy State University	Social sciences		1	
Ukrainian State University of Railway Transport	Electrical engineering		1	
Kherson State University	International affairs	1		
Total – 31 Programmes		**13**	**15**	**3**

Table 2 shows that national educational programmes are aimed at familiarising students with the basics of sustainable development and the circular economy. The programmes are designed primarily for training students in the following fields: “Social and behavioural sciences” (25.8%), “Natural sciences” (22.6%), “Ecology” (22.6%), and “Economy” (19.3%). The second place is occupied by the programmes in “Business and administration” (12.9%) and “International affairs” (9.68%). The third group includes “Electrical engineering” (6.45%) and “Humanities” (6.45%), in particular, the qualification “Philology” (6.45%). In addition, these courses can be a programme component for training students in other fields, in particular, “Education/Pedagogy” (3.23%) and “Transport” (3.23%). There is a trend in training students in new fields, including the qualification of “Economics of the city and urbanism”, “Green economy”, “Economics of nature use”, and “Environmental entrepreneurship”.

Table 2

Subject Field of Programmes

Field	Total	%	Qualification	Total	%
Social Sciences	8	25.8	Ecology	7	22.6
Nature	7	22.6	Economy	6	19.3
			Economy of the city. Urbanism	2	6.45
Business & Administration	4	12.9	Entrepreneurship, trade & exchange activity	2	6.45
			Management of organisations	2	6.45
International affairs	3	9.68	International economic affairs	3	9.68
Electrical engineering	2	6.45	Electric power engineering, Electronics & Electromechanics	1	3.23
			Thermal power engineering	1	3.23
Humanities	2	6.45	Philology	2	6.45
Education/Pedagogy	1	3.23	Secondary education (Biology & human health)	1	3.23
Transport	1	3.23	Automobile transport	1	3.23
Interdisciplinary	3	9.68	–	3	9.68
Programmes	**31**			**31**	

Based on the content analysis of the 23 educational programmes, 19 key topics have been identified, which are frequently studied in sustainable development courses. However, the frequency and priority of these topics vary depending on the educational level (see Table 3).

Table 3

Topics in National Programmes in Sustainable Development

Topics	Bachelor's		Master's		PhD	
	Total	%	Total	%	Total	%
International economic policy	7	36.8	5	26.3	3	15.7
European experience	2	10.5	3	15.7	2	10.5
Regulatory and legal support	2	10.5	4	21.05	1	5.2
Ukraine's transition to a circular economy	9	47.3	3	15.7	1	5.2
Circular economy	5	26.3	3	15.7	3	15.7
Green economy	4	21.05	5	26.3	-	-
Economics of sustainable development	5	26.3	4	21.05	1	5.2
Bioenergetics	3	15.7	1	5.2	-	-
Bioeconomy	4	21.05	1	5.2	-	-
Management of SD & Bioeconomy	10	52.6	4	21.05	2	10.5
SD of cities, villages and urban ecology	3	15.7	2	10.5	-	-
Resource conservation and provision	7	36.8	7	36.8	1	5.2
Waste management	9	47.3	3	15.7	2	10.5
Greening of enterprises	7	36.8	3	15.7		
Business in circular economy	5	26.3	3	15.7	2	10.5
Global decoupling	3	15.7	-	-	1	5.2
Greening of production	4	21.05	3	15.7	1	5.2
Greening of economic activity	8	42.1	4	21.05	1	5.2
Green economy in education	1	5.2	3	15.7	-	-

The analysis shows that national programmes in sustainable development are focused more on training students in Economics and Business Management. However, some programmes tend to focus on the role of education, in particular higher education, in sustainable development and the transition to the circular economy. For example, the Bachelors programme "Trends in green economy" offers the "Trends in green economy in school geography" module. In addition, some national universities offer Master's programmes aimed at integrating economics and education. For example, "Strategy of sustainable development and engineering education" is provided by Ivano-Frankivsk National Technical University of Oil and Gas. "Sustainable development and eco-educational activity", designed by Lviv Polytechnic National University, provides the "Education for sustainable development. Theory and methods of eco-educational activity" module, focused on the role of education for

sustainable development, international and Ukrainian experience, humanistic pedagogy, eco-educational activities in HEIs, implementation of SDGs in non-formal and lifelong education.

Furthermore, the content analysis of the 23 programmes shows that according to the objective to study world experience, programmes are divided into those focused on comparing international and national experiences (56.5%) or exclusively on national experience (26.08%) and international experience (17.3%).

The education in national universities includes lectures, seminars, sessions and laboratory workshops. The format of lectures (100%) and seminars (56.6%) prevails. However, the format of lectures (100%) and sessions (39.1%) is less typical, while laboratory workshop (4.3%) is designed only for the Masters course “Basis of Green Economy” by the National University of Water and Environmental Engineering.

In the pre-pandemic, there is a tendency in providing blended learning. In the case of Ukraine, it is a combination of face-to-face education with elements of e-learning. The implementation of digital educational technologies is observed, in particular, the development of e-courses on Moodle and MS Teams platforms, as well as the use of the “Electronic Campus” information system and the “Sikorsky” distance learning platform at the National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”. However, the COVID-19 pandemic has accelerated the digitalisation of national higher education and its transition to distance learning (Mospan et al., 2022).

The methods vary in terms of educational levels. Thus, the methods of active learning (educational discussion, brainstorming, case method), comparison, and project-based learning are typical for training Bachelor students. Masters education is provided through teamwork, group discussions, student-centred, competence-based, problem-solving, and research-based learning. Classes for doctors of philosophy are based on discussions and research-based learning (collection, analysis and interpretation of data), scientific essays and presentations of research results at scientific conferences.

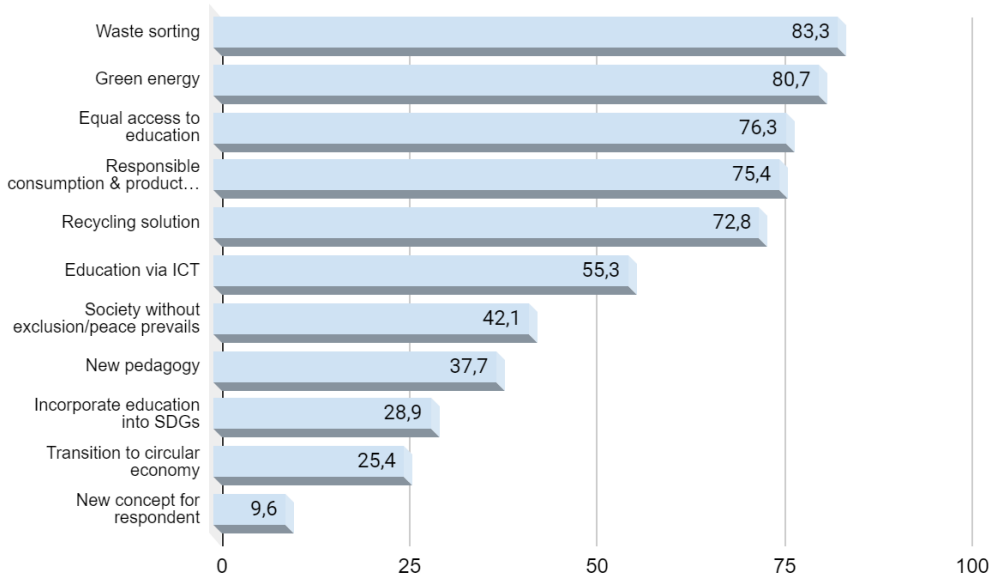
Micro Level

Public awareness of SDGs is important for building a better life. It is obvious that the students of economics and business management may have a higher level of awareness of the goals for sustainable development as they do the courses in sustainable development and circular economy. However, this issue is less presented or even not included in programmes in the Humanities and Social Sciences.

The survey results of students and academic staff of a Humanitarian university show their significant awareness of certain SDGs. The majority of respondents are aware of waste sorting (83.3%), green energy (80.7%), equal access to education (76.3%), responsible consumption and production (75.4%), recycling solution (72.8%), and education via ICT (55.3%). However, the less familiar issues are a society without exclusion where peace prevails (42.1%), new pedagogy (37.7%), incorporation of education strategy into national SDGs (28.9%), and transition to a circular economy (25.4%). A minority of respondents (9.6%) are not familiar with sustainable development issues (see Figure 1).

Figure 1

Students and Academics Awareness of SDGs (%)



The next question of the survey considered the impact of the COVID-19 pandemic on respondents' attitudes to SDGs (see Table 4).

Table 4

The COVID-19 Pandemic Impact on Students' and Academics' Attitudes to SDGs (%)

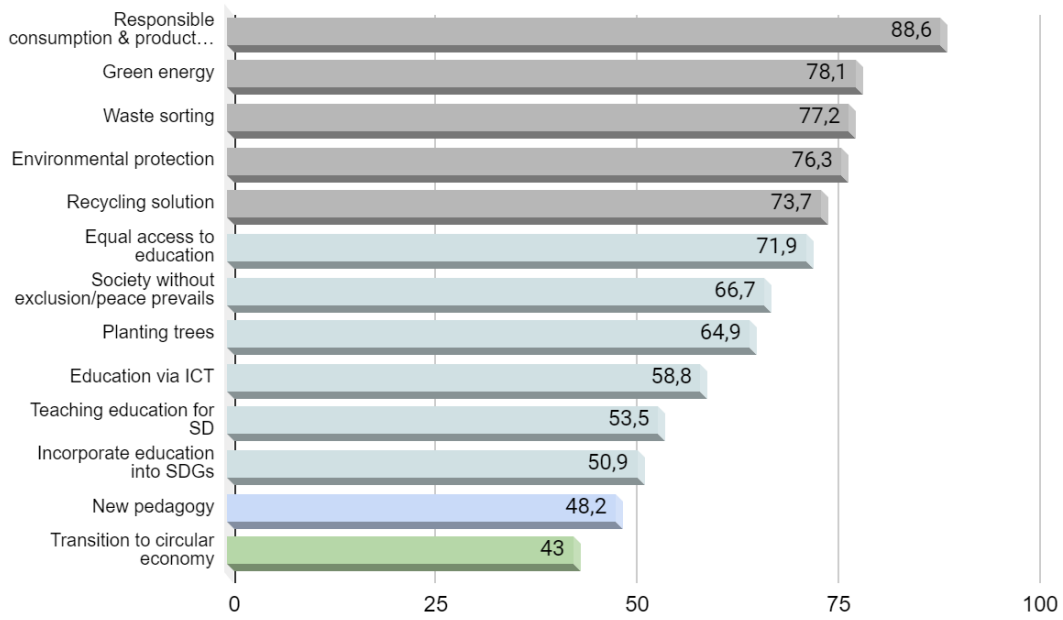
SDGs	Has no changed	Became serious	Became worse
Transition to circular economy	83.33	14.91	1.75
Green energy	60.53	38.59	0.87
Incorporate education into SDGs	60.52	35.96	3.5
Recycling solution	58.77	40.35	0.87
Waste sorting	51.75	46.49	1.75
New pedagogy	51.75	42.10	4.38
Responsible consumption and production	49.12	46.49	2.63
Environmental protection	48.24	49.12	2.63
Equal access to education	47.36	48.24	4.38
Society without exclusion/peace prevails	46.49	48.24	5.26
Education via ICT	43.85	51.75	4.38

The COVID-19 pandemic has impacted respondents' attitudes to the SDGs differently. Their perception of certain SDGs has not changed in terms of transition to a circular economy (83.33%), green energy (60.53%), education incorporation into SDGs (60.52%), recycling solution (58.77%), waste sorting and a new pedagogy (51.75%), and responsible consumption & production (49.12%). However, results show that students and academics viewed the issues of education via ICT (51.75%), environmental protection (49.12%), equal access to education (48.24%), and society without exclusion, where peace prevails (48.24%) more seriously post-COVID. A total of 5% of respondents evidenced a deterioration towards the last issue.

The next step of the survey was to reveal students' and academics' views of effective strategies for achieving SDGs (see Fig. 2).

Figure 2

Students and Academics Vision of Effective Strategies for Achieving SDGs (%)



According to the responses shown in Figure 2, students and academics consider environmental problem-solving measures as the most efficient strategy for achieving SDGs, i.e., responsible consumption and production (88.6%). The other effective measures are green energy (78.1%), waste sorting (77.2%), environmental protection (76.3%), and recycling solutions (73.7%). Social and educational measures share the second positions, i.e., equal access to education (71.9%), society without exclusion, where peace prevails (66.7%), planting trees (64.9%), education via ICT (58.8%), teaching education for sustainable development (53.5%), education incorporation into national SDGs (50.9%), and new pedagogy (48.2%). However, students and academics in the Humanities pay less attention to the effectiveness of the transition to a circular economy (43%).

In the last question of the survey, the respondents share and clarify their personal suggestions for achieving SDGs. The results show that students and academics, first, highlight their indifference and awareness in achieving SDGs. Second, among the problem-solving suggestions, there are noteworthy ones. For example:

R 1. We should raise awareness of SDGs, introduce such innovative technologies into education and business, and develop policies and regulations to achieve sustainable development.

R 2. Planting trees, abandoning polythene, and waste sorting.

R 3. Making people aware of the necessity to contribute themselves to achieve sustainable development in society.

R 4. I believe that development will occur when this topic is explained among schoolchildren, even small children. When we grow up a generation with a sustainable outlook on life and their future, we get development. They will implement changes and will take responsibility for their activities.

R 5. Promoting a peaceful and open society for sustainable development, ensuring access to justice for all and building effective, accountable and participatory institutions at all levels.

R 6. Implementation of new educational technologies and survival strategies in the postwar world.

R 7. It is extremely important to harmonise three key elements: economic growth, social inclusion and environmental protection. These elements are interrelated, and all are critical to the well-being of individuals and society.

Discussion

Investigating trends in the integration of ESD in higher education on the pandemic eve, this research reveals differences on macro, meso and micro levels. On the macro level (a country), the integration of ESD in higher education is imbalanced and not completed in countries with developed and developing economies. On the meso level (HEIs), certain universities report their positive experience of integration of ESD in higher education through a content change of the programmes, course design, methodology and format change – transition to distance learning. In terms of the micro level (students and teachers), teachers have a limited and sketchy understanding of economic sustainability. However, they are changing teaching approaches in new educational environments, which leads to the satisfaction of students with the methodology shift for successful sustainability implementation.

The evidence of sustainable development implementation in higher education during the COVID-19 pandemic varies. On the one hand, scholars assume the risk of achieving SDGs due to the negative pandemic impact on society and the economy (Gowan, 2021). On the other hand, the majority of publications focus on higher education digital transformation during the COVID-19 pandemic and report a positive experience. This measure, on the contrary, is likely to facilitate SDG achievement (Mafenya, 2022; Tairas & Soenanto, 2022).

Concerning Ukraine, the situation with the integration of ESD in higher education is similar to the global state of play. The government develops strategies for SDG achievement and adopts laws. However, it is too early to comment on ESD integration in higher education due to, on the one hand, a lack of data or research interest in this issue from national scholars (this paper being an exception). On the other hand, the integration of ESD in higher education occurs primarily at the university level (micro-level). The period from 2019-2021 became the most active phase of the implementation of programmes in sustainable development. However, this research highlights that programmes are provided primarily in Economics and Business Management, while Teacher Education only tends to design programmes in teacher training

for sustainable development. In terms of teacher training for sustainable development, national trends match international shifts (Akça, 2019; Hofman-Bergholm, 2018). It is likely to mean that the integration of the SDGs in teacher training lags behind economists' and business managers' training for sustainable development globally.

However, the survey results show that students and academics of a Humanitarian university are sufficiently aware of sustainable development issues and consider environmental problem-solving measures as the most efficient strategy for achieving SDGs. Besides, the COVID-19 pandemic has facilitated their attitude to education via ICT, environmental protection, equal access to education, and society without exclusion, where peace prevails. The students and academics in the field of Humanities suggest valuable measures for achieving SDGs.

The findings indicate the need for creating new courses in humanitarian universities focused on sustainability promoting interdisciplinary approaches and digital tools effectively to assist with student-led sustainability projects and teacher training on such initiatives.

Limitations

The survey was conducted with 114 respondents from a Humanitarian university. While, at first sight, this sample size might not be representative of the entire population of HEIs in Ukraine, it does provide insights into one university reflective of global trends. The conclusions drawn from this limited sample may be generalisable to other universities.

Conclusion

The research results show that the integration of ESD in higher education globally was imbalanced and not completed in pre-pandemic times. Only single universities managed to provide SDGs effectively in their programmes and course content. Teacher education faced challenges to train teachers for sustainable development. Higher education for sustainable development during the COVID-19 pandemic was digitally transformed and transited to a distance learning format. In the case of Ukraine, similar trends are observed. The peculiar feature is that 2019-2021 was an intensive phase of educational programme implementation in sustainable development by national HEIs, particularly in Economics and Business Management. In addition, the collected data show that the COVID-19 pandemic has contributed to a more serious attitude of students in the Humanities and faculty members to SDGs, i.e., to education via ICT, environmental protection, and society without exclusion, where peace prevails. Further research on Ukraine's ESD implementation, given previous and present political upheaval, is required.

Conflict of Interest

The authors disclose that they have no actual or perceived conflicts of interest. The authors disclose that they have not received any funding for this manuscript beyond resourcing for academic time at their respective university. The authors have produced this manuscript without artificial intelligence support.

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