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PERCEPTION OF A SUSTAINABLE UNIVERSITY AMONG INTERNATIONAL STUDENTS – CRITICAL EVALUATION FACTORS AMONG EU AND NON-EU STUDENTS

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ABSTRACT: Sustainability has become a cornerstone of strategic priorities for higher education institutions, particularly in addressing global challenges. This study investigates the perception of sustainable university among international students, focusing on the critical determinants shaping their evaluations. Employing a questionnaire-based methodology, this study investigates the perspectives of students from both European Union (EU) and non-European Union (non-EU) countries, with a focus on identifying critical dimensions including environmental campus operations, education and awareness, research and innovation, as well as governance and performance measurement frameworks. Findings highlight significant cultural and geographical differences: EU students give higher ratings to the sustainable activities undertaken by their home universities in every area studied than their non-EU counterparts. The largest differences are found in the perception of activities related to campus policies, education and governance. A smaller difference is visible in the variables related to basic campus operations, where the p-value indicates less significant differences. The differences in ratings may be due to different cultural backgrounds, educational experiences, expectations and the level of integration with the European educational and social system.

KEYWORDS: sustainable university, international students, perception, ESG

Introduction

In recent years, the concept of a sustainable university has evolved to integrate environmental stewardship, social responsibility, and economic viability into institutional practices (Cai & Ahmad, 2023; Velazquez et al., 2006). These efforts address global challenges and align with the Sustainable Development Goals (SDGs), emphasising inclusivity and innovation in modern universities. Central to this endeavour is understanding the perceptions of key stakeholders, particularly international students, whose diverse backgrounds provide unique insights (Ribeiro et al., 2021; Nejati & Nejati, 2013). In the context of higher education, universities are progressively adopting sustainability as a fundamental value, acknowledging its critical importance in driving innovation, enhancing societal impact, and strengthening global competitiveness. Central to this paradigm shift is the perception of sustainability among diverse stakeholders, including international students who bring unique perspectives and expectations to their academic expériences (Manzoor et al., 2021). Universities, as pivotal institutions for knowledge creation and dissemination, hold a significant responsibility to exemplify and advance sustainable practices within their operations, research, and educational frameworks (Tilbury, 2011). In response, many institutions have integrated sustainability into their core missions, embedding it within educational frameworks, research agendas and operational policies (Kiryluk et al., 2024; Lozano et al., 2013). Despite these efforts, the perception of sustainability among students remains underexplored, particularly in the context of cultural and geographical diversity.

This study investigates the critical factors influencing sustainable university perception among international students. The empirical research was conducted in the fourth quarter of 2024 and involved 112 foreign students studying at the Bialystok University of Technology (Poland) on various study programs (e.g. Erasmus+) or regular studies in English. The scale used to measure a "sustainable university" consists of 30 items and was developed by the authors based on a comprehensive literature review (Kobylińska & Irimia-Dieguez, 2023). For this study, descriptive statistics (means and standard deviations) were used to analyse survey results. The Mann-Whitney U test was employed to statistically assess differences between groups of students.

By comparing EU and non-EU respondents**,** it aims to identify and analyse how geographical and cultural contexts shape these perceptions, contributing to strategic improvements in higher education sustainability initiatives. Understanding the critical factors shaping international students' perceptions of sustainability within university settings is paramount for advancing sustainable development agendas and enhancing the overall quality of higher education. This necessitates a comprehensive analysis encompassing multiple dimensions, including the efficacy of sustainability initiatives, the scope and impact of interdisciplinary collaboration, the advancement of cultural inclusivity, and the effectiveness of communication strategies implemented by universities. By synthesising findings from a comprehensive review of existing literature, empirical research data, and practical insights, this study seeks to provide higher education stakeholders with actionable knowledge to advance sustainability initiatives, enhance student engagement, and strengthen the vibrancy of campus communities.

Theoretical Background

Sustainable University concept

The concept of a sustainable university has emerged as a critical paradigm in the intersection of higher education and sustainable development. Rooted in the broader framework of sustainability, this concept reflects the integration of environmental, social, and economic dimensions into the core functions of universities, including teaching, research, operations, and community engagement (Sinden, 2021). A sustainable university not only pursues ecological efficiency in its operations but also fosters a culture of sustainability through education and knowledge dissemination (Barth & Rieckmann, 2012). The theoretical foundations of the sustainable university are closely aligned with the principles of the United Nations Sustainable Development Goals (SDGs), which emphasise the role of education in achieving global sustainability (Suryani & Hamdu, 2021). Universities are uniquely positioned to address complex global challenges by producing knowledge, nurturing critical thinking and training future leaders who are equipped to implement sustainable solutions (Tilbury, 2011).

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Key dimensions of a sustainable university include environmental operations, social responsibility, and economic viability. Environmental operations involve reducing the ecological footprint of university operations, promoting green infrastructure, and embedding environmental education in curricula (Lozano et al., 2013). Social responsibility encompasses equity, inclusivity, and community engagement, recognising the university as an agent of social change (Leal Filho et al., 2019). Economic viability ensures that sustainability initiatives are financially sustainable and contribute to the long-term resilience of the institution (Adams et al., 2018). Moreover, interdisciplinary collaboration is fundamental to the concept of a sustainable university. Integrating sustainability across disciplines enables the development of holistic solutions to global challenges, breaking down traditional academic silos (Wiek et al., 2011). Universities also play a pivotal role in creating partnerships with governments, industries, and communities to advance sustainability goals, reinforcing the interconnected nature of sustainable development (Leal Filho et al., 2021).

Despite growing interest in the concept, the implementation of sustainable practices within universities is often uneven, reflecting diverse regional, cultural, and institutional contexts (Bauer et al., 2020). Challenges include limited financial resources, resistance to change, and the need for effective communication strategies to engage stakeholders (Lozano, 2006). As higher education institutions continue to expand their global reach, understanding the perceptions and priorities of diverse student populations becomes essential for tailoring sustainability initiatives that are both impactful and inclusive.

At the core of understanding sustainable university perception lies the concept of sustainability itself, which encompasses environmental, social and economic considerations. By tracing the evolution of sustainability in higher education on a global scale, we can discern the gradual integration of sustainable practices into academic institutions (Velazquez et al., 2006). From the implementation of environmentally friendly campus policies to the incorporation of sustainability-focused curricula and research programs, universities have increasingly recognised their role as stewards of sustainable development (Lozano et al., 2023).

Furthermore, the intersection between sustainability and internationalisation in higher education offers valuable insights into the significance of attracting and retaining international students within the context of an innovative university. Statistical trends in international student enrollment and preferences reveal patterns that reflect the growing importance of sustainability considerations in shaping university perceptions among this demographic (Nejati & Nejati, 2013). Factors such as a university's commitment to environmental sustainability, social responsibility, and ethical governance significantly influence international students' decisions when choosing a study destination (Korzeb et al., 2024). Moreover, a critical analysis of the theoretical underpinnings of innovation in higher education provides additional context for understanding the role of universities as drivers of societal change and progress. Historical data on groundbreaking initiatives and transformative strategies implemented by innovative universities highlight critical factors contributing to their success in fostering sustainable perceptions among international students (Lozano et al., 2013). This includes investments in cutting-edge research facilities, interdisciplinary collaboration platforms, experiential learning opportunities, and inclusive campus policies prioritising diversity and equity (Lozano et al., 2023). Synthesising these theoretical frameworks enables a comprehensive understanding of the critical factors influencing sustainable university perception among international students. By elucidating the intricate interplay between sustainability, internationalisation, and innovation in higher education, strategic decision-making processes can be informed to enhance universities' capacity to attract and retain diverse student cohorts while advancing their commitment to sustainable development goals. This holistic approach underscores the importance of integrating sustainability principles into all facets of university operations and highlights the transformative potential of higher education in fostering global sustainability (Korzeb et al., 2024).

Differences in Sustainable University Perception: EU vs. Non-EU Perspectives

Innovation plays a critical role in shaping the perception of sustainability in universities across both EU and non-EU contexts. In EU universities, interdisciplinary research hubs, experiential learning programs, and state-of-the-art green infrastructure serve as tangible examples of innovation-driven sustainability practices. These initiatives not only enhance the academic experience but also position EU universities as global leaders in sustainability education (Lozano et al., 2023). In addi-

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tion, recent initiatives by European universities also have to provide viable solutions to several social challenges, such as those identified by the SDGs (Arnaldo Valdés & Gómez Comendador, 2022). Additional, the main goal of the European Green Deal strategy, which aligns closely with the concept of a sustainable university in the EU, is to place sustainability and human well-being at the centre of economic policy and as a fundamental dimension of all policy decisions and the resulting actions, reflecting the shared commitment to integrating ecological, social, and economic sustainability into every aspect of institutional and community practices (Szpilko & Ejdys, 2022). In non-EU settings, universities often adopt a more grassroots approach to innovation, focusing on low-cost, high-impact solutions that address immediate environmental and social challenges. Examples include the establishment of student-led sustainability projects, the integration of indigenous knowledge systems into academic programs, and partnerships with non-governmental organisations to drive community-oriented sustainability efforts (van Niekerk et al., 2020).

Within the context of the European Union (EU), sustainable university initiatives often benefit from well-established regional frameworks and policies that emphasise environmental conservation, social equity, and economic resilience. Universities in EU countries frequently adopt comprehensive sustainability strategies aligned with the European Green Deal and other regional sustainability directives (Lozano et al., 2023). These frameworks provide a structured approach to integrating sustainability into all facets of university operations, from curriculum design to campus management. Conversely, universities outside the EU, particularly in developing regions, may encounter challenges in embedding sustainability into their core practices. Limited access to funding, infrastructural constraints, and varying levels of policy support can hinder the adoption of robust sustainability measures (Velazquez et al., 2006). Despite these challenges, non-EU universities often showcase innovation and resilience by leveraging local resources and cultural strengths to create unique sustainability initiatives. For example, collaborations with local communities and tailored programs that address region-specific environmental and social challenges can enhance perceptions of sustainability among international students (Dushkova & Ivlieva, 2024).

The concept of a sustainable university has gained global traction as institutions strive to integrate sustainability into education, operations, and community engagement. However, perceptions of and approaches to this concept often vary between people from the European Union (EU) and those from outside the Union due to cultural, political, and socio-economic differences. In the EU, the perception of sustainable universities is heavily influenced by overarching policy frameworks such as the European Green Deal and the United Nations Sustainable Development Goals (SDGs). Universities within the EU often align their sustainability strategies with these policies, fostering a systemic, top-down approach. This is reflected in formalised sustainability offices, extensive reporting mechanisms, and adherence to EU-wide regulations on carbon neutrality and waste reduction (Leal Filho et al., 2020). EU universities often incorporate equity and inclusion into their sustainability agendas, addressing issues such as gender equality and accessibility in line with EU social policies (Vila et al., 2021). This holistic view reflects the EU's emphasis on combining environmental sustainability with social justice. Outside the EU, particularly in developing countries, sustainability perceptions often prioritise immediate environmental and resource management challenges, such as water conservation or renewable energy adoption. Social equity considerations, while present, may not receive the same level of emphasis due to pressing economic or infrastructural constraints (Sachs et al., 2019). EU universities benefit from substantial funding for sustainability initiatives, supported by programs like Horizon Europe. This financial support enables universities to conduct cutting-edge research, develop green infrastructure, and implement ambitious sustainability plans (European Commission, 2021).

In contrast, universities outside the EU may face limited funding opportunities. For instance, institutions in developing regions often depend on international aid or partnerships with NGOs and private companies to implement sustainability projects (Altbach, 2011). The high level of environmental awareness among EU populations influences the perception of sustainable universities as key players in the transition to a green economy. Students and staff frequently demand comprehensive sustainability policies, creating a culture of accountability (Vaughter et al., 2013). Outside the EU, awareness levels vary significantly. In some regions, sustainability in universities is perceived as a secondary priority compared to economic development or job creation (Grau et al., 2017). EU universities often emphasise global collaboration, participating in cross-border research and exchange pro-

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grams to address global sustainability challenges (Kozirog et al., 2022). This reflects the EU's integrated approach to education and sustainability. Outside the EU, while some universities are active in global networks, many focus on regional or national sustainability issues, driven by the immediacy of local challenges (Žalėnienė & Pereira, 2021). For instance, a university in Sub-Saharan Africa may focus on combating desertification, while an institution in Southeast Asia may prioritise disaster resilience.

Methodology

The scale used to measure a perception of "sustainable university" consists of 30 items and was developed by the authors based on a comprehensive literature review. It draws from areas of sustainable university practices highlighted in prior research while introducing new criteria. The authors propose that existing models in the literature can be further refined to better address the contemporary challenges faced by sustainable universities. The foundation for this scale includes the work of Lozano et al. (2013) and Gómez et al. (2023), alongside theoretical models developed by Nagy and Veresne Somosi (2020) and Nejati & Nejati (2013). The framework incorporates three key ESG (Environmental, Social, and Governance) dimensions. The model identifies five latent variables, each representing a critical area of sustainable university efforts, which are widely discussed in the literature:

- **Education and Awareness (EA):** Empowering students and citizens to contribute to sustainable development.
- **Research and Innovation (RI):** Addressing significant social, environmental, and ethical challenges.
- **Campus Operations (CO):** Achieving sustainability through campus operations with minimal environmental impact.
- **Community Outreach and Collaboration (COC):** Engaging students, staff, and society in sustainability initiatives.
- **Governance and Measurement (GM):** Ensuring sustainability is a core priority for the university.

For each of the 30 statements, the respondents marked one of five answers: from "definitely not" to "definitely yes" (a five-point Likert scale was used). High-reliability rates were obtained for the tool developed by the authors. For this study, descriptive statistics (means and standard deviations) were used to analyse survey results. The Mann-Whitney U test was employed to statistically assess differences between groups of students.

Result

The study was conducted in the fourth quarter of 2024 and involved 112 foreign students studying at the Bialystok University of Technology on various study programs (Erasmus+) or regular studies in English. 63 students came from the EU (Poland, Portugal, Spain, Italy, France, Hungary) and 49 from outside the EU (Armenia, Morocco, Nigeria, Ukraine). 46.4% were men, 53.6% – women. Among the respondents, 42% studied technical sciences, 38% social sciences and 20% other fields of study.

The Mann-Whitney U test was used for statistical analysis of differences between groups of students. Detailed analyses are included in the table 1.

The analysis of the relationship between the country of origin of the respondent (UE or non-EU member) and issues related to the sustainable development of the University shows that EU students feel more strongly about the activities of a sustainable university in their home countries. Statistically significant differences appear in the case of 20 statements: 4 refer to the areas of (EA) and (RI), 2 to (COC) and 5 to (GM) and (CO).

Respondents from both the EU and non-EU countries rated the perception of the (EA) category in their home universities as the highest. Average of 3.8 for EU respondents and 3.3 for non-EU respondents. The lowest rated area was also found to be the same for both groups: (RI) – 3.6 for EU respondents and 3.06 for non-EU.

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Table 1. Sustainable university student' perception (EU and non-EU students)

Item No.*	N=112		UE (N=63)		Non – UE (N=49)		U Man-Whitney test		
	Mean	St dev.	Mean	St dev.	Mean	St dev.	Z	p	Category**
1	3.500	1.058	3.44	0.96	3.22	1.25	1.841	0.065	EA
2	3.298	1.064	4.11	1.04	3.42	1.23	2.146	0.031	EA
3	3.500	1.058	3.97	1.15	3.32	1.20	2.385	0.017	EA
4	3.473	1.115	3.81	1.07	3.24	1.24	1.407	0.159	EA
5	3.350	1.089	3.70	0.99	3.16	1.09	1.842	0.065	EA
6	3.535	1.122	3.45	1.14	3.16	1.25	3.267	0.001	EA
7	3.421	1.112	3.88	1.15	3.44	1.30	2.151	0.031	EA
8	3.280	1.060	3.73	1.00	3.22	1.13	2.700	0.006	RI
9	3.307	1.006	3.69	0.87	3.04	1.24	1.535	0.124	RI
10	3.578	0.958	3.66	1.00	2.94	1.27	2.620	0.008	RI
11	3.298	1.120	3.39	1.02	2.92	1.19	2.321	0.020	RI
12	3.473	1.099	3.48	1.01	3.18	1.02	3.815	0.000	RI
13	3.807	1.174	3.59	0.94	3.08	1.34	3.186	0.001	CO
14	3.561	1.175	3.73	0.95	3.30	1.22	2.559	0.010	CO
15	3.464	1.066	3.88	0.86	3.10	1.27	2.400	0.016	CO
16	3.324	1.194	3.63	1.05	3.16	1.15	1.170	0.241	CO
17	3.342	1.096	3.52	0.87	3.02	1.22	0.698	0.484	CO
18	3.684	1.229	3.67	0.93	3.28	1.18	1.865	0.062	CO
19	3508	1.083	3.73	0.96	3.20	1.11	2.501	0.012	CO
20	3.684	1.214	3.63	1.00	3.28	1.23	3.056	0.002	CO
21	3.184	1.118	3.53	1.01	3.12	1.15	1.858	0.063	COC
22	3.350	1021	3.38	0.90	2.98	1.12	1.882	0.059	COC
23	3.403	1.095	3.91	0.90	3.08	1.21	2.788	0.005	COC
24	3.543	1.090	3.64	0.84	3.06	1.00	1.848	0.064	COC
25	3.342	1.174	3.56	0.87	3.10	1.15	2.916	0.003	COC
26	3.386	0.955	3.83	0.90	3.02	1.17	3.355	0.000	GM
27	3.202	1.015	3.52	0.93	2.98	1.15	2.030	0.042	GM
28	3.360	1.023	3.81	0.81	3.28	1.05	2.070	0.038	GM
29	3.544	1.122	3.44	0.96	3.14	1.05	3.861	0.000	GM
30	3.263	1.073	3.52	0.99	3.02	1.22	3.059	0.002	GM

* a detailed list of the questionnaire statements (1-30) is attached (Appendix).
** EA: Education and Awareness, RI: Research and Innovation; CO: Campus Operations, COC: Community Outreach and Collaboration, GM: Governance and Measurement.
Source: authors' work (Z – Man-Whitney U test ; p – level of statistical significance).

In light of the obtained research results, it should be stated that EU students evaluate the University's sustainable activities the highest in the area of perception of the sustainability strategy of the university (4.11), perception of the university programs related to sustainability (3.97) and perception of engagement in community outreach programs that benefit the local environment (3.91). In the case of non-EU students, the highest scores were given to the perception of variables such as: organisation by university educational events to inform students and the academic community about the

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importance of sustainable development (3.44), perception of the sustainability strategy of the university (3.41) and perception of the university programs related to sustainability (3.32).

In the **Education and Awareness (EA)** category, students from EU countries rated higher such variables as: *the sense of having developed a sustainable development strategy by their home universities, offering courses and events related to sustainable development by universities*, and the *sense of having an inclusion and diversity policy.* This may indicate that the perception of awareness of the sustainable development strategy, the number of educational programs and events, and equality policies differ between students from the EU and from outside the EU. Students from EU countries rated the above indicators higher, which may be due to several factors. First of all, the cultural and educational context may be important here. EU students usually grow up in an environment where sustainable development, equality policies, and education in these areas are widely promoted and present in educational programs. In EU countries, there are common standards and regulations in the field of environmental protection and human rights, which influence social awareness. In addition, the EU as an international organisation, places great emphasis on promoting sustainable development and equality, which is reflected in numerous programs, events, and initiatives available to students. EU students may also expect universities and institutions to promote sustainability and equality strategies, as this is consistent with their previous experiences and standards in their countries. In contrast, non-EU students may have different priorities or expectations from education, e.g. focused on acquiring practical or professional skills, and sustainability and equality issues may be less important to them. Another explanation may be that EU students may perceive initiatives in their countries and universities in the context of well-developed European standards, which may positively influence their assessment.

In the area of **Research and Innovations (RI)**, 4 statistically significant differences were observed. Students from EU countries have a better perception of their home universities in terms of *financial support and promotion of research for sustainable development, involvement of students in pro-ecological initiatives, use of the latest research from the area of sustainable development in teaching.* Students from EU are often more familiar with policies and initiatives supporting sustainable development, which are a priority in higher education in Europe. Many universities in the EU conduct active research in this area and integrate it into their curricula. Students from outside the EU may come from countries where universities do not put as much emphasis on research on sustainable development or its integration into teaching. Therefore, they may have difficulty recognising and appreciating such activities at universities in the EU.

In the category of research: **Campus Operations (CO),** 5 variables were found to be statistically significant. The differences concern *the perception of policies on renewable energy, waste reduction, building efficiency and infrastructure for people with disabilities*. EU students come from countries where sustainable development policies, including renewable energy, waste management and accessibility of infrastructure, are strongly developed and widely implemented. EU countries are obliged to comply with strict EU regulations in these areas, which affects the higher standard and better visibility of such policies. Non-EU students may come from countries where these issues are not a priority or where the level of implementation of such policies is lower. Their point of reference may differ from European standards, which leads to a different perception of policies implemented in the EU. The next area assessed was **Community Outreach and Collaboration (COC).** Only two variables from this area were statistically significant (the least of all the categories assessed). EU students rated *activities related to university partnerships in the field of sustainable development and incentives for pro-ecological activities higher*. EU students often grow up in a culture where sustainability and environmental protection are widely promoted by governments, schools, media and civil society organisations. They have a higher awareness of the importance of such protection and may be more aware of and appreciate university partnerships in this area. Non-EU students may come from countries where sustainability and environmental protection are less visible, which may result in lower sensitivity to university protection in this area.

The last area assessed, **Governance & Measurement (GM)** was rated higher by EU students for all variables. This suggests that EU and non-EU students differ in *their perception of the implementation of environmental policies and reporting.* In non-EU countries, environmental regulations may be less stringent or less implemented in practice, which affects their perception of these activities in the EU. They may not be familiar with the concept of environmental reporting or do not see its impor-

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tance. Furthermore, the EU promotes transparency in environmental protection activities and environmental reporting is seen as an important element of public accountability. EU students are more used to expecting such activities from institutions, including universities.

Conclusions, limitations and future research

Summarising the results observed among the surveyed EU and non-EU students, the largest differences are found in the perception of activities related to campus policies, education and governance. A smaller difference is visible in the variables related to basic campus operations, where the p-value indicates less significant differences. The differences in ratings may be due to different cultural backgrounds, educational experiences, expectations and the level of integration with the European educational and social system. EU students, familiar with European standards, may rate the university policies in these areas, while non-EU students may have difficulty in perceiving or understanding their importance.

In the **Education and Awareness (EA)** domain, EU students rated their universities higher in terms of developing sustainability strategies, offering sustainability-related courses and events, and implementing inclusion and diversity policies. This indicates that cultural and educational contexts, alongside the prominence of sustainability and equality policies in EU countries, contribute to these differences. EU students, accustomed to widespread promotion of sustainability in educational and societal settings, have higher expectations and recognition of such initiatives compared to their non-EU counterparts, who may prioritise other aspects such as practical skills or professional training. In the **Research and Innovations (RI)** category, EU students expressed greater appreciation for their universities' financial support for sustainability research, student engagement in pro-environmental initiatives, and integration of cutting-edge sustainability research into curricula. This reflects the prioritisation of sustainability research and its integration into higher education in EU countries, supported by robust policies and funding. Non-EU students, often from countries where such initiatives are less emphasised, may have limited exposure to or understanding of these practices, influencing their evaluations. Within **Campus Operations (CO)**, EU students rated policies on renewable energy, waste management, building efficiency, and disability-inclusive infrastructure significantly higher. This disparity can be attributed to the strong regulatory framework in the EU, mandating high standards in these areas, which contrasts with the varying levels of implementation and priority in non-EU countries. For **Community Outreach and Collaboration (COC)**, the differences were less pronounced, with EU students more appreciative of university partnerships and incentives for pro-environmental actions. This outcome highlights the cultural emphasis on sustainability in EU countries, where collaborative and proactive measures are widely encouraged. Lastly, in the **Governance and Measurement (GM)** domain, all variables were rated higher also by EU students. This underscores the contrast between the rigorous environmental reporting and transparency standards in the EU and the less developed frameworks outside the region.

These findings align with theoretical models of sustainable universities, which emphasise the critical role of institutional governance, comprehensive sustainability strategies, and cultural inclusivity (Lozano et al., 2013; Tilbury, 2011). The higher ratings observed among EU students reflect the systematic integration of sustainability across university operations, education, and governance, consistent with the principles outlined in the United Nations Sustainable Development Goals (SDGs) and related academic frameworks. Among EU students, higher ratings of sustainability efforts align with the structured and institutionalised approach to sustainability promoted by the European Green Deal and Horizon Europe frameworks (European Commission, 2021; Arnaldo Valdés & Gómez Comendador, 2022). This reflects the model of sustainability integration described by Tilbury (2011), where universities in the EU systematically embed sustainability principles into curricula, governance, campus operations, and community outreach. Furthermore, the results corroborate the assertion by Sinden (2021) and Barth and Rieckmann (2012) that embedding sustainability into curricula, operational management, and research agendas is essential for cultivating stakeholder engagement and promoting systemic institutional transformation.

In contrast, non-EU students' perceptions appear to mirror more localised, fragmented approaches to sustainability, often shaped by resource limitations and differing socio-economic priorities (Sachs

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et al., 2019; Dushkova & Ivlieva, 2024). These differences correspond to what Lozano (2006) described as "heterogeneous adoption" of sustainability practices, where institutions in developing regions prioritise immediate environmental or social challenges without embedding comprehensive governance or reporting mechanisms.

Furthermore, the findings echo the observations of Vaughter et al. (2013) and Bauer et al. (2020), highlighting that while EU institutions operate under stronger regulatory frameworks emphasising transparency, equality, and environmental stewardship, universities outside the EU often rely more on grassroots initiatives and community engagement to advance sustainability goals.

These theoretical insights underline that sustainable university perception is not merely a reflection of individual experience but is deeply rooted in systemic, cultural, and policy-driven contexts. The study thus contributes to the discourse advocating for differentiated strategies in promoting sustainability education that are sensitive to regional and cultural dynamics, as proposed by Leal Filho et al. (2021).

The study has certain limitations. First, the findings are based on self-reported data, which may be influenced by subjective perceptions and biases. The study's focus on students' evaluations may not fully capture the actual implementation or impact of university sustainability initiatives. Additionally, cultural, economic, and institutional differences across regions were not directly assessed, which could further explain the observed disparities.

The sample's geographic distribution may also affect generalizability. Students from certain non-EU countries might come from regions with relatively low emphasis on sustainability, skewing comparisons. Furthermore, the cross-sectional nature of the study prevents the establishment of causal relationships between the observed differences and underlying factors.

Future research could investigate changes in student perceptions over time to assess the impact of evolving university initiatives and policies.

1. Broader Geographic Scope: Expanding the sample to include a more diverse range of countries, particularly from regions outside Europe, to better understand global differences.
2. Institutional Comparisons: Examining specific policies, practices, and outcomes at universities across regions to identify best practices and areas for improvement.
3. Cultural and Societal Influences: Investigating how cultural values, government policies, and economic conditions shape students' awareness and perceptions of sustainability efforts.
4. Qualitative Research: Conducting in-depth interviews or focus groups to gain richer insights into students' experiences and expectations regarding sustainability.

By addressing these areas, future studies can provide a more comprehensive understanding of how universities can effectively promote sustainability and equity across diverse student populations.

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The contribution of the authors

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Appendix. Sustainable University Scale

Rate the following statements describing the categories of the sustainable university concept at your home university on a scale of 1-5.

Construct of sustainable university

Pre-established latent variable	Items, rated on scale:1-5 (strongly disagree, disagree, neither agree nor disagree, agree, strongly agree)
Education and Awareness (EA)	EA1: I perceive that the subjects at my University promote critical thinking about sustainability. EA2: I perceive that students are aware of the sustainability strategy of the university. EA3: I perceive that, the university offers a lot of study programmes related to sustainability. EA4: I perceive that, the university offers a lot of subjects/courses related to sustainability. EA5: I perceive that, there is also a lot of information about sustainability in normal courses. EA6: I perceive that my university introduced policy for equality and diversity. EA7: I perceive that my university organizes educational events to inform students and the academic community about the importance of sustainable development.
Research and Innovations (RI)	RI1: I perceive that my University supports research on sustainability with a budget, funds, scholarships and incentives. RI2: I perceive that the research projects in sustainability of my University have favoured and have been applied in environmental, commercial and social projects. RI3: I perceive that sustainability research at my University involves students. RI4: I perceive, that my University is using sustainable development research in the teaching. RI5: I perceive that my University promotes sustainability research.
Campus Operations (CO)	CO1: I perceive that my University has enough outdoor spaces, favourable areas for vegetation, trees and biodiversity. CO2: I perceive that my University has policies and actions for the use of renewable energies. CO3: I perceive that my University has programs to reduce paper and plastic on campus. CO4: I perceive that my University promotes sustainable mobility, policies to limit the use of motor vehicles and encourage the use of bicycles and pedestrian paths. CO5: I perceive that my University applies the water conservation program. CO6: I perceive that separate waste collection is possible on campus, and my University encourages everyone to do so. CO7: I perceive that the university buildings are designed / converted in an energy efficient and sustainable way (e.g. windows, doors, insulation). CO8: I perceive that my University has facilities for disable people.
Community Outreach and Collaboration (COC)	COC1: I perceive that there is collaborative work with other universities to contribute to the construction of a sustainable campus. COC2: I perceive, that my university has created partnerships with government, non-governmental organizations, and industry working toward sustainability. COC3: I perceive that my University engages in community outreach programs that benefit the local environment. COC4: I perceive that my University has active environmental student organization(s). COC5: I perceive, that my university provide incentives for students and employee to participate in environmentally friendly activities.
Governance & Measurement (GM)	GM1: I perceive that my University has implemented sustainability in the Institutional Policies. GM2: I perceive that my University has a written commitment (agreement) to support sustainability and is known to the students. GM3: I perceive that my University has sustainable work policies to generate greater benefits for its employee. GM4: I perceive that my University has employment policies that are respectful of diversity, disability and ethnic minority issues. GM5: I perceive, that my University presents environmental reports.

Likert scale 1:5; 1 – " strongly disagree"; 5 – "strongly agree"

Source: authors' work based on Gómez et al. (2023) Nagy et al. (2022), Lozano et al. (2015), Nejati and Nejati (2013), Velazquez et al. (2006).

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Urszula KOBYLIŃSKA • Fatima AHASBI

POSTRZEGANIE ZRÓWNOWAŻONEJ UCZELNI WŚRÓD STUDENTÓW ZAGRANICZNYCH – KRYTYCZNE CZYNNIKI OCENY WŚRÓD STUDENTÓW Z UE I SPOZA UE

STRESZCZENIE: Zrównoważony rozwój stał się kamieniem węgielnym strategicznych priorytetów instytucji szkolnictwa wyższego, szczególnie w rozwiązywaniu globalnych wyzwań. W niniejszym artykule opsiano postrzeganie zrównoważonej uczelni wśród studentów zagranicznych, skupiając się na kluczowych czynnikach kształtujących ich oceny. Wykorzystując metodologię opartą na badaniach ilościowych (CAWI), zbadano percepcję studentów zarówno z krajów UE, jak i spoza UE, ze szczególnym uwzględnieniem identyfikacji kluczowych obszarów zrównoważonej uczelni, w tym środowiskowych działań kampusu, edukacji i świadomości, badań i innowacji, a także ram zarządzania i pomiaru wyników. Wyniki podkreślają istotne różnice kulturowe i geograficzne: studenci z UE wyżej oceniają zrównoważone działania podejmowane przez ich macierzyste uniwersytety w każdym badanym obszarze niż ich odpowiednicy spoza UE. Największe różnice występują w postrzeganiu działań związanych z polityką kampusu, edukacją i zarządzaniem. Mniejsza różnica jest widoczna w zmiennych związanych z podstawowymi działaniami kampusu, gdzie wartość p wskazuje na mniej istotne różnice. Różnice w ocenach mogą wynikać z różnic kulturowych, doświadczeń edukacyjnych, oczekiwań i poziomu integracji z europejskim systemem edukacyjnym i społecznym.

SŁOWA KLUCZOWE: zrównoważona uczelnia, studenci zagraniczni, percepcja, ESG

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