

## COMPARATIVE ANALYSIS OF SUSTAINABLE DEVELOPMENT OF HIGHER EDUCATION INSTITUTIONS IN PERCEPTION OF STUDENTS OF SELECTED POLISH AND INTERNATIONAL UNIVERSITIES

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**Purpose:** The aim of this study was to assess the awareness of sustainability among higher education students of seven public, non-public and foreign universities, as well as their perceptions of sustainable development in higher education institutions and their expectations in this regard.

**Design/methodology/approach:** The study was quantitative and survey-based, utilizing a questionnaire method, and consisted of two stages. In the first stage, a literature review was conducted to provide a foundation for selecting the issues to be included in the questionnaire. Proper definition of the research topics was essential to ensure the reliability of the study.

The next stage involved administering a survey to the aforementioned research group using a computer-assisted web interview (CAWI) format. This method was chosen primarily due to facilitating anonymity, which may contribute to the reliability of responses and improve response rates. The advantages of this method also include its reach, the time required to conduct the study, and cost minimization.

**Findings:** The study clearly revealed a high level of awareness among students on this topic, with a level of 87.50% demonstrating awareness. Apart from the students of one university, the level of unawareness was insignificant.

The surveyed students identified features they believe should characterize a sustainable university. Of the 26 proposed features, students from both Polish universities highlighted all of them with varied number of votes. The least score obtained a feature “Offers a study program in Sustainable Development”. These findings suggest a noticeable lack of program solely dedicated to sustainable development neither as major or minor in none of the surveyed universities.

Moreover, the surveyed students, perceive their higher education institution completely different in terms of sustainable development. Students of TUoW, firstly see the university as any other institution (apart from educational mission) that cares about ecology and their internal and external stakeholders. While the students of ATA primarily perceive their university as sustainable developed institution through the prism of the program of studies (curricular and non-curricular courses and classes provided by the university) as well as the once for social responsibility for internal stakeholders; Students of Lusofone on the other hand provided a social approach to sustainable university.

The most surprising finding was very low level of participation in extracurricular activities and initiatives among all universities' students, except of Sapienza. These activities, which include social, charitable, organizational, and scientific endeavors, are essential for developing sustainable development skills find little interest among surveyed students.

The study suggests that, the surveyed universities still incorporate considerably fewer sustainable development topics in their curricula and organize limited extracurricular activities to support these competencies. Nevertheless, overall students' awareness of the concept of sustainable development is considerably high and highly satisfactory.

**Research limitations/implications:** Due to the sample selection and non-representative sample size, the study's results cannot be generalized to all students at higher education institutions neither in Poland, nor abroad. Nevertheless, the study provides new insights and can serve as an initial attempt at empirically verifying the awareness of students from all higher education institutions regarding sustainable development, their perceptions of the phenomenon of a sustainable higher education institution, and their expectations in this area. This is especially relevant given that the research questionnaire, due to its comprehensiveness, universality, and reliability, offers the potential for replication.

**Practical implications:** This article presents original research on the sustainable development of Polish and foreign higher education institutions in perception of their students' expectations, which has several implications for both researchers and university authorities and may serve as a starting point for developing analytical frameworks to assess the level of sustainable development implementation and measurement models for sustainable development in both Polish and foreign universities.

**Social implications:** Universities can contribute to the solutions of major challenges of the 21st century such as increasing environmental and socio-economic crises, inequalities of income and wealth and political instabilities by integrating the concept of sustainable development (SD) in research, organization, and by educating future decision makers. For instance, by integrating sustainability into the organization, universities can lead by example. Furthermore, through the curriculum, future decision makers can learn the competences needed to solve ecological, social, and economic problems in societies.

**Originality/value:** This paper has implications for both researchers and university authorities and may serve as a starting point for developing analytical frameworks to assess the level of sustainable development implementation and measurement models for sustainable development in both Polish and foreign universities.

**Keywords:** sustainable development, higher education.

**Category of the paper:** Research paper.

## 1. Introduction

The concept of sustainable development was first described in the 18th century (Meadows, 1972) and has evolved over the centuries to gain a central place in development discourse in the latter half of the 20th century (Du Pisani, 2007). Increased discussion about sustainable development has emerged in recent years due to growing ecological and social awareness, following years of focus primarily on economic growth. The approaching ecological crisis, along with global wealth inequality, has led to a renewed focus on sustainable development in global terms and across three dimensions (ecological, social, and economic). This has resulted

in the adoption of the Paris Agreement in 2015, which includes measures to limit global warming, adapt to and mitigate the effects of climate change, implement low-emission development in a way that does not restrict food production, and ensure that financial sector activities align with climate goals (Adoption of the Paris Agreement, December 2015). However, this concept will be difficult to implement without the involvement of traditional sources of social legitimacy in science and education, which are related to knowledge creation (Sulejewicz, 2008).

This article presents original research on the sustainable development of higher education institutions in perception of their students' expectations, which has several implications for both researchers and university authorities and may serve as a starting point for developing analytical frameworks to assess the level of sustainable development implementation and measurement models for sustainable development in both Polish and foreign universities.

## 2. Theoretical approach

Although there have been proven and successful developments in Higher Education for Sustainable Development (HESD) over the past 15 years, numerous challenges remain. One of the most significant challenges is the need for Higher Education Institutions (HEIs) to better integrate sustainability into curricula and research, and, most importantly, to embed it holistically within their institutional systems (Leal Filho et al., 2017).

Universities have the potential to contribute substantially to addressing major challenges of the 21st century, including escalating environmental and socio-economic crises, growing income and wealth inequalities, and political instability. They can do so by integrating the concept of sustainable development (SD) into research, institutional governance, and education. By incorporating sustainability into their organizational structures and operations, universities can lead by example. Furthermore, through sustainability-oriented curricula, future decision-makers can acquire the competencies needed to address ecological, social, and economic challenges. Despite this potential, however, many universities lag behind internationally in the implementation of comprehensive sustainability strategies (von Hauff, Nguyen, 2014).

Universities are key actors in supporting sustainable development through the development of SD strategies, the advancement of research, the education of future generations, and the implementation of sustainability within their own organizations. At the international level, the United Nations proclaimed 2005-2014 as the "Decade of Education for Sustainable Development", emphasizing the integration of Education for Sustainable Development (ESD) across all levels of education. At the national level in Germany, the Hochschulrektorenkonferenz (HRK) and the German Commission for UNESCO issued a joint statement in 2010 entitled *Universities for Sustainable Development*, calling on

universities to act in accordance with SD principles and to establish ESD as a core element across all areas of institutional activity (HRK & DUK, 2010).

With their three core functions—research, teaching, and service—universities are called upon to accept responsibility and actively contribute to sustainable development (Moore, 2005). The importance of SD in higher education is reinforced by international networks such as the International Sustainable Campus Network (ISCN). In addition, major research institutions, such as the Fraunhofer-Gesellschaft, have anchored sustainability in their mission statements and launched initiatives such as the internal “Sustainability Strategy” project in 2011 to support the development of a sustainable society, economy, and environment (Fraunhofer-Gesellschaft, 2011). As central actors in knowledge generation and dissemination, universities contribute to sustainable solutions through both basic and applied research, while equipping future leaders in government, business, and civil society with the skills and knowledge required to address complex sustainability challenges (Barth et al., 2007).

Due to their mission and scope of activities, universities have a particular responsibility to contribute to societal transformation and to the advancement of a more sustainable humanity (Barth, Rieckmann, 2012). HEIs can integrate sustainability across multiple domains, including education and curricula, research, campus operations, community engagement, organizational change and governance structures, as well as assessment and reporting (UNESCO, 2012; Lozano et al., 2015). This integration can occur through isolated initiatives within specific domains or, more effectively, through a whole-institution approach that embeds sustainability across all institutional functions (UNESCO, 2012).

Indeed, universities worldwide are making diverse efforts to incorporate sustainable development into their institutional frameworks. These efforts include innovative teaching and pedagogical approaches, curriculum reform, collaboration with other HEIs, the promotion of sustainable campus life experiences, and “educating-the-educators” programs (Lozano et al., 2013; Ramos et al., 2015). Particularly in Europe, some universities have emerged as leaders by implementing best practices in sustainability. Nevertheless, many initiatives remain limited to one or two sustainability domains, resulting in fragmented and compartmentalized approaches rather than holistic, systems-oriented strategies that integrate knowledge and perspectives across disciplines (Ramos et al., 2015). An exploratory literature review by Lozano et al. (2015) found that sustainability efforts in HEIs predominantly focus on education—such as curricula, pedagogies, competencies, and educator training—followed by campus operations, institutional frameworks, outreach, and assessment and reporting. Research was identified as the least developed domain. Curriculum-related initiatives range from the inclusion of environmental topics in existing courses to the development of dedicated modules or new undergraduate and postgraduate programs.

### 3. Materials and Methods

#### 3.1. Research Objective

The literature presents numerous studies on sustainable development concept with a special concern of higher education institutions and their role in building awareness in the field of sustainable development.

The aim of this study was to perform comparative analysis of sustainable development of higher education institutions in perception of students of selected polish and international universities.

The main research questions were:

1. Are students aware of what sustainable development is?
2. What characteristics should define a sustainable higher education institution, and which of these characteristics are present at the institution where the students are studying?
3. Does the university provide students with opportunities to engage in extracurricular activities outside the curriculum, including social, charitable, organizational, and scientific initiatives that build competencies in the field of sustainable development? Do students participate in these activities, and why did they decide to take part in them?
4. Which form of activity offered by the university best develops competencies in sustainable development, and how do students plan to further develop their competencies in this area?

#### 3.2. Sample and Data Collection

The study was conducted in years 2020-2025 using a non-random sample. The 480 respondents to the research questionnaire were students of:

**Public universities in Warsaw:**

- Maria Grzegorzewska University (Grzegorzewska) (89).
- Warsaw University of Technology (WUoT) (61).

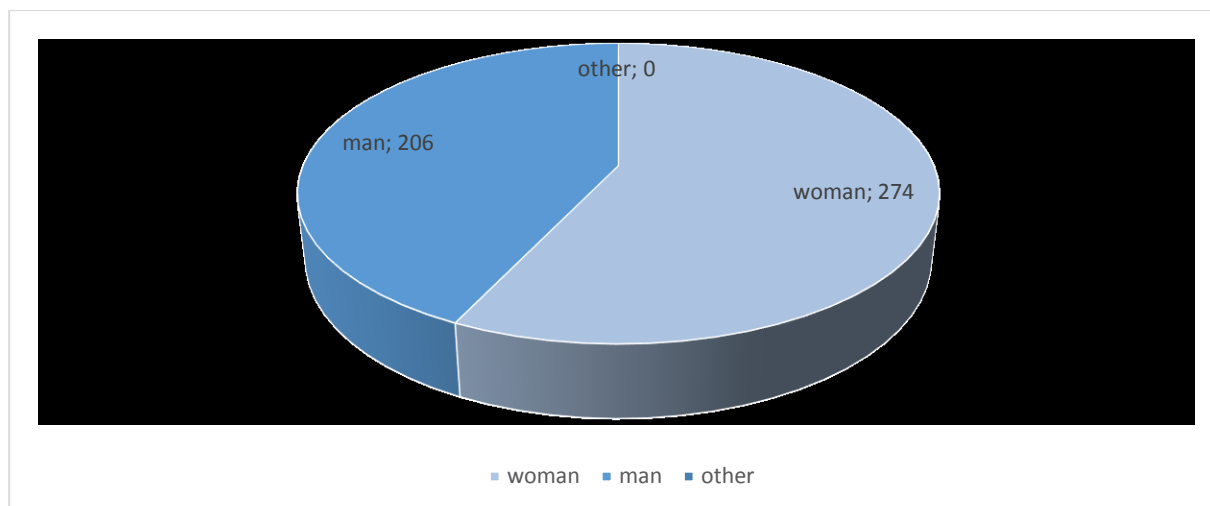
**Non-public universities in Warsaw:**

- Management Academy of Applied Sciences in Warsaw (MANS) (25).
- WSB Merito University Warsaw (WSB) (55).
- University of Technology and Art in Applied Sciences in Warsaw (UTA) (139).

**Foreign universities:**

- Sapienza University of Rome (Sapienza) (48).
- Lusophone University of Porto (Lusophone) (63).

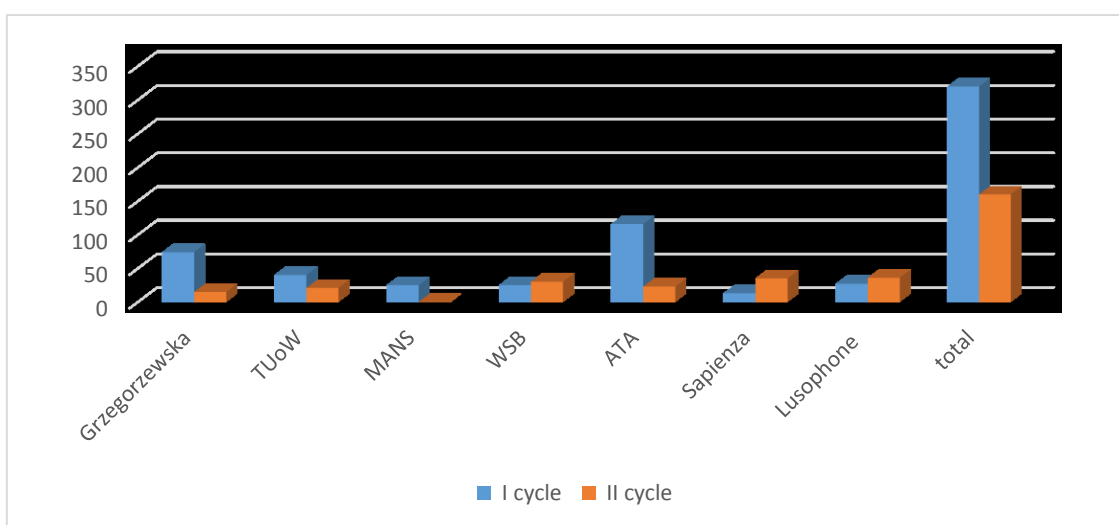
Among the respondents, the majority were women—274, representing 57.08% of the sample. The study included 206 men (42.92%).



**Figure 1.** Gender representation in the surveyed sample.

Source: own research.

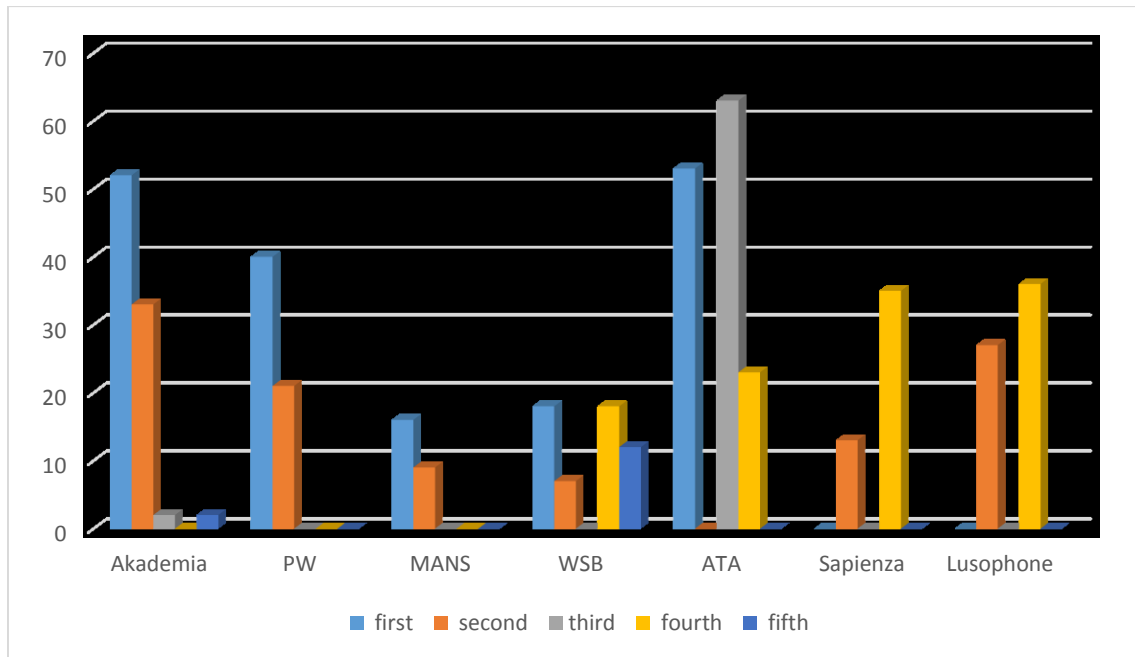
Regarding the level of studies, the largest group consisted of 1<sup>st</sup> cycle students—320 (66.67%), while the second-largest group were students of 2<sup>nd</sup> cycle studies—160 (33.33%). None of the respondents was enrolled in postgraduate studies. Moreover, the students of MANS were entirely students of 1<sup>st</sup> cycle program.



**Figure 2.** Level of studies by respondents.

Source: own research.

The predominant group by year of study was first- (55 students) and second-year (46) students, numbering 101 (68.24%). The third- and fourth-year students, totaling 47, were represented by 24 and 23 students respectively. None of the respondent was fifth-year student. Moreover, none of TUOW students were at their third- and fourth-year of studies.



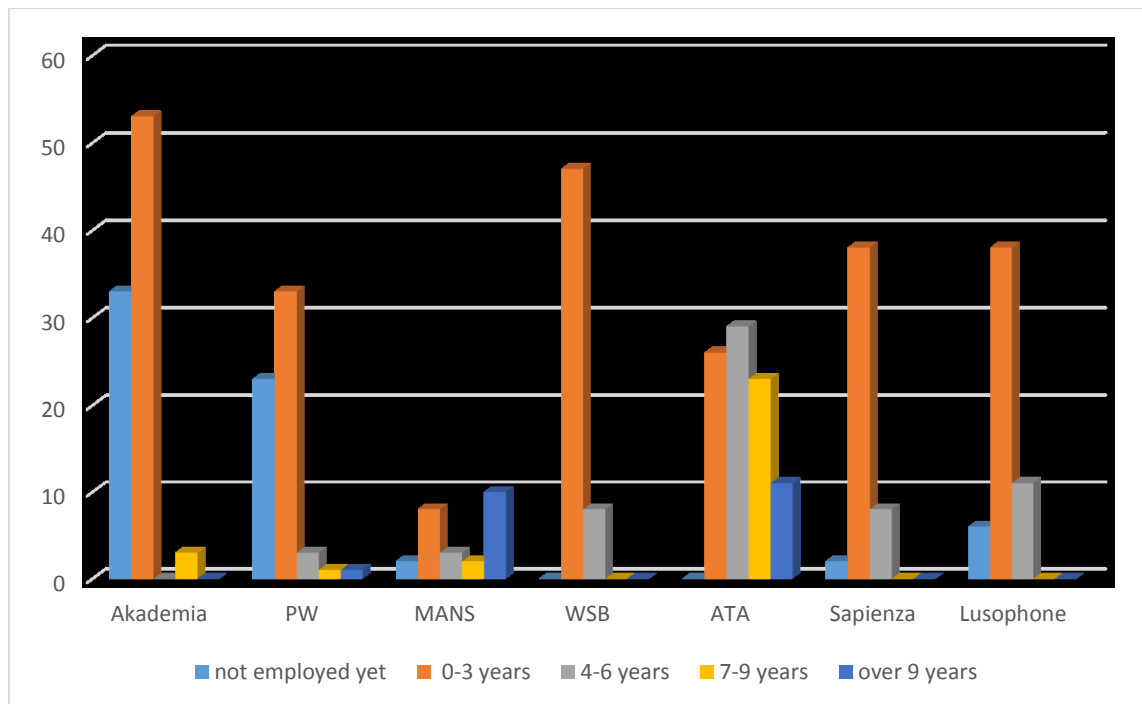
**Figure 3.** Year of studies by respondents.

Source: own research

Respondents were categorized into four work experience groups:

- 0-3 years,
- 4-6 years,
- 7-9 years,
- Over 9 years.

The vast majority of respondents fell into the 0-3 years work experience category—243 students (50.62%). The smallest group, consisting of 22 students were with over 9 years of experience represented 4.58% of the sample. The second-largest group, representing students not employed yet equaled 13.75% of respondents; Students with 4-6 years of experience—62 individuals represented 12.92% of the sample. Twenty-two respondents (4.58%) reported over 9 years of work experience.



**Figure 4.** Length of a professional career by respondents.

Source: own research.

### 3.3. Research Methods

The study was quantitative and survey-based, utilizing a questionnaire method, and consisted of two stages. In the first stage, a literature review was conducted to provide a foundation for selecting the issues to be included in the questionnaire. Proper definition of the research topics was essential to ensure the reliability of the study.

The next stage involved administering a survey to the aforementioned research group using a computer-assisted web interview (CAWI) format. This method was chosen primarily due to facilitating anonymity, which may contribute to the reliability of responses and improve response rates. The advantages of this method also include its reach, the time required to conduct the study, and cost minimization.

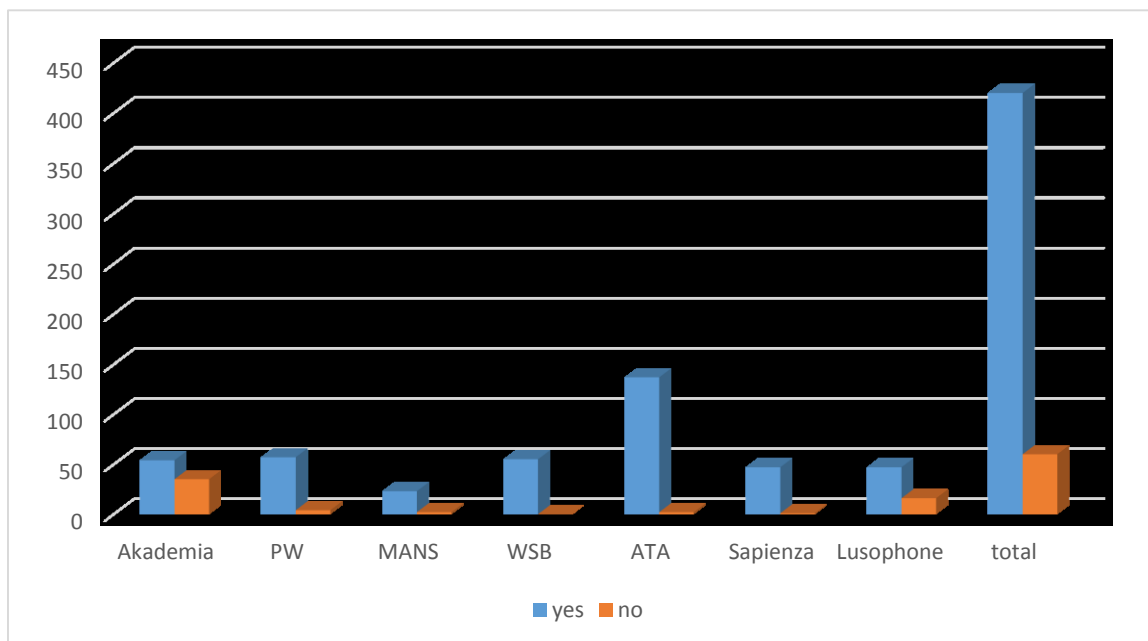
The study employed methodological triangulation, primarily data triangulation—i.e., comparing research conducted across different populations and locations—such as two public universities in Warsaw: Maria Grzegorzewska University and Warsaw University of Technology; three non-public universities in Warsaw: Management Academy of Applied Sciences in Warsaw, WSB Merito University Warsaw and University of Technology and Art in Applied Sciences in Warsaw and two international universities: Sapienza University of Rome and Lusophone University of Porto.

Additionally, comparisons were made with theoretical studies. To a lesser extent, researcher triangulation was used, as the study was conducted by two researchers.

Due to the sample selection and non-representative sample size, the study's results cannot be generalized to all students at higher education institutions in Poland. Nevertheless, the study provides new insights and can serve as an initial attempt at empirically verifying the awareness of students from all higher education institutions regarding sustainable development, their perceptions of the phenomenon of a sustainable higher education institution, and their expectations in this area. This is especially relevant given that the research questionnaire, due to its comprehensiveness, universality, and reliability, offers the potential for replication.

#### 4. Research

The first question of the survey concerned students' awareness of what sustainable development is. A total of 146 students, representing 87.50% of the study sample, responded that they are aware of the concept of sustainable development. The remaining 12.50% of respondents answered this question negatively. The responses are presented in Figure 5.



**Figure 5.** Students' awareness of sustainable development concept.

Source: own research.

Next, students were asked to indicate the characteristics they believe define a sustainable university. They could select any number of features from the list of responses:

- provides knowledge on sustainable development in courses not directly related to sustainable development,
- offers courses specifically on sustainable development,
- provides extracurricular activities that promote sustainable behaviors,

- offers a study program in "Sustainable Development",
- uses renewable energy sources,
- implements solutions aimed at saving water, heat and electricity,
- promotes sustainable waste management (sorting, recycling, reuse),
- promotes green mobility for students,
- promotes green mobility for employees,
- reduces the consumption of natural resources, including paper,
- encourages students to reduce their consumption of natural resources,
- encourages employees to reduce their consumption of natural resources,
- eliminates exclusion of people with disabilities among employees,
- eliminates exclusion of minorities among employees,
- eliminates exclusion of disadvantaged groups among employees,
- eliminates exclusion of people with disabilities among students,
- eliminates exclusion of minorities among students,
- eliminates exclusion of disadvantaged groups among students,
- eliminates exclusion of people with disabilities among prospective students,
- eliminates exclusion of minorities among prospective students,
- eliminates exclusion of disadvantaged groups among prospective students,
- promotes gender equality, minority rights and inclusion of disadvantaged groups within the organization,
- promotes high standards of environmental and social behavior through projects and initiatives,
- encourages charitable work and volunteer projects,
- implements projects aimed at social inclusion,
- provides scholarship programs for economically disadvantaged students.

Students provided answers which were grouped in Table 1.

**Table 1.**

*Students' indication of characteristics of sustainable university*

<b>What do you think are the characteristics of a sustainable university?</b>	<b>Grzegorzewska</b>	<b>TUW</b>	<b>MANS</b>	<b>WSB</b>	<b>ATA</b>	<b>Sapienza</b>	<b>Luzofone</b>
Provides knowledge about sustainable development in classes not directly related to sustainability	23	25	10	34	84	9	8
Offers courses specifically on sustainable development	28	23	15	23	76	23	5
Provides extracurricular activities that promote sustainable behaviors	26	24	10	14	78	19	12
Offers a study program in "Sustainable Development"	3	6	17	1	35	6	0
Uses renewable energy sources	34	29	14	0	74	5	1
Implements solutions aimed at saving water, heating, and electricity	39	39	14	0	58	17	15

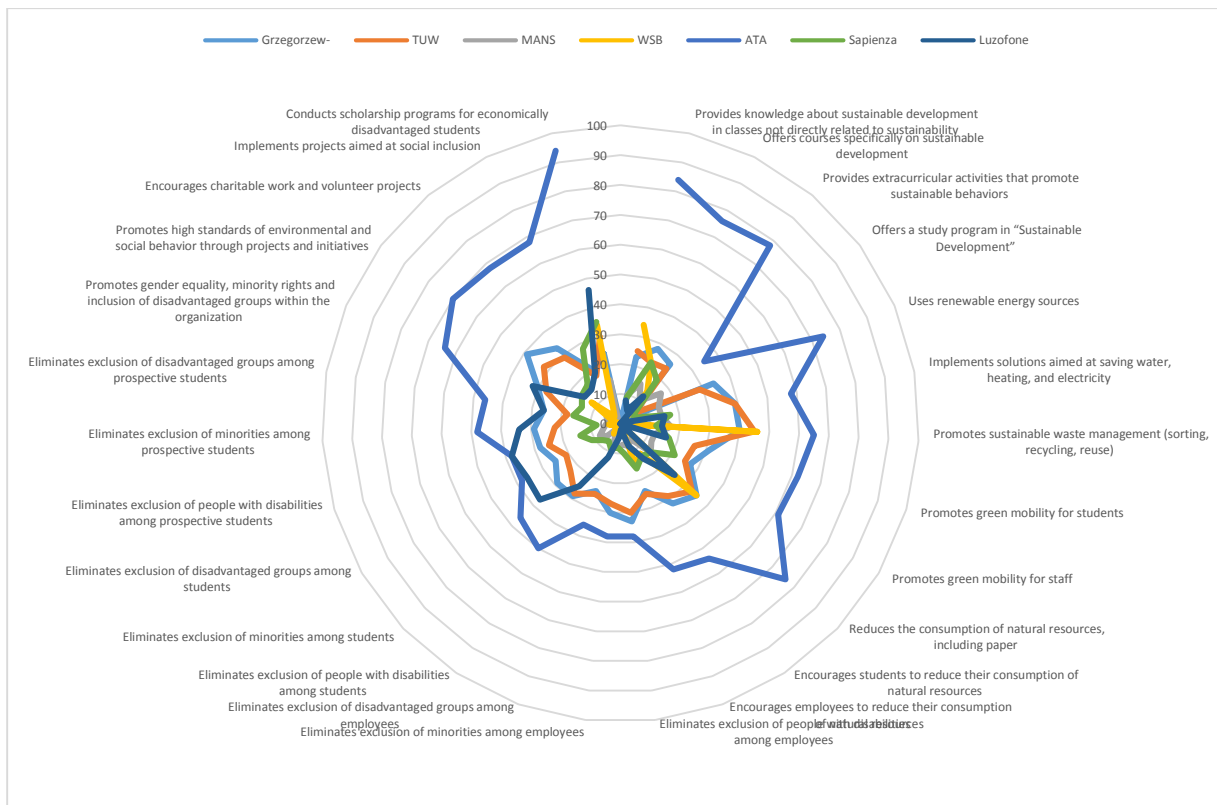
Cont. table 1.

Promotes sustainable waste management (sorting, recycling, reuse)	40	45	17	46	65	12	14
Promotes green mobility for students	31	26	12	0	62	17	16
Promotes green mobility for staff	27	25	12	0	61	21	0
Reduces the consumption of natural resources, including paper	35	33	14	35	76	14	25
Encourages students to reduce their consumption of natural resources	32	29	6	12	54	13	14
Encourages employees to reduce their consumption of natural resources	24	25	8	15	52	16	8
Eliminates exclusion of people with disabilities among employees	33	30	7	0	38	10	2
Eliminates exclusion of minorities among employees	30	27	8	2	38	8	5
Eliminates exclusion of disadvantaged groups among employees	24	25	6	0	36	9	12
Eliminates exclusion of people with disabilities among students	29	28	2	4	50	7	25
Eliminates exclusion of minorities among students	29	23	6	2	46	8	37
Eliminates exclusion of disadvantaged groups among students	25	21	8	2	38	11	36
Eliminates exclusion of people with disabilities among prospective students	28	25	6	2	38	14	38
Eliminates exclusion of minorities among prospective students	29	22	5	4	48	8	34
Eliminates exclusion of disadvantaged groups among prospective students	26	18	4	0	46	16	26
Promotes gender equality, minority rights and inclusion of disadvantaged groups within the organization	30	27	5	3	64	14	32
Promotes high standards of environmental and social behavior through projects and initiatives	39	32	4	12	70	16	15
Encourages charitable work and volunteer projects	33	29	3	3	68	17	15
Implements projects aimed at social inclusion	20	18	2	5	68	28	19
Conducts scholarship programs for economically disadvantaged students	24	30	15	34	94	35	46

Source: own research.

The results were also visualized on the following Figure. Firstly, students identified the following as the most important characteristics of a sustainable university: Conducts scholarship programs for economically disadvantaged students; Promotes sustainable waste management (sorting, recycling, reuse); Reduces the consumption of natural resources, including paper; Provides knowledge about sustainable development in classes not directly related to sustainability; Offers courses specifically on sustainable development. The least significant feature according to students is: "Offers a study program in "Sustainable Development".

The full set of students' responses is presented both in Table 1 (above) as well as in Figure 6.



**Figure 6.** Students' indication of characteristics of sustainable university.

Source: own research

Students of the researched universities indicated different characteristics they believe define a sustainable university. While Students of ATA provided more indicators of sustainable development of the university from the point of view curricular and non-curricular courses and classes provided by the university as well as the once for social responsibility for internal stakeholders, students of TUV had more institutional approach to sustainable development of the university; Students of Lusofone on the other hand provided a social approach to sustainable university. For better visualization of the difference in responses between students of seven universities, the radar Figure 6 was introduced.

The next question asked to respondents to identify characteristics of sustainable development that are present at their own university. Once again, they could select any number of responses they deemed appropriate. The response options were the same as in the previous question.

Students of all researched universities most frequently appointed: "Conducts scholarship programs for economically disadvantaged students". That indication of sustainable development was selected 242 times. Second most appointed SD feature of the university was: "Provides knowledge on sustainable development in courses not directly related to sustainable development". That feature was selected 172 times. Third place was reserved for "Promotion sustainable waste management (sorting, recycling, reuse)" which was a SD characteristic of university for 126 students. "Encourages charitable work and volunteer projects" was the last feature of sustainable university that exceeded a threshold of 100 appointments.

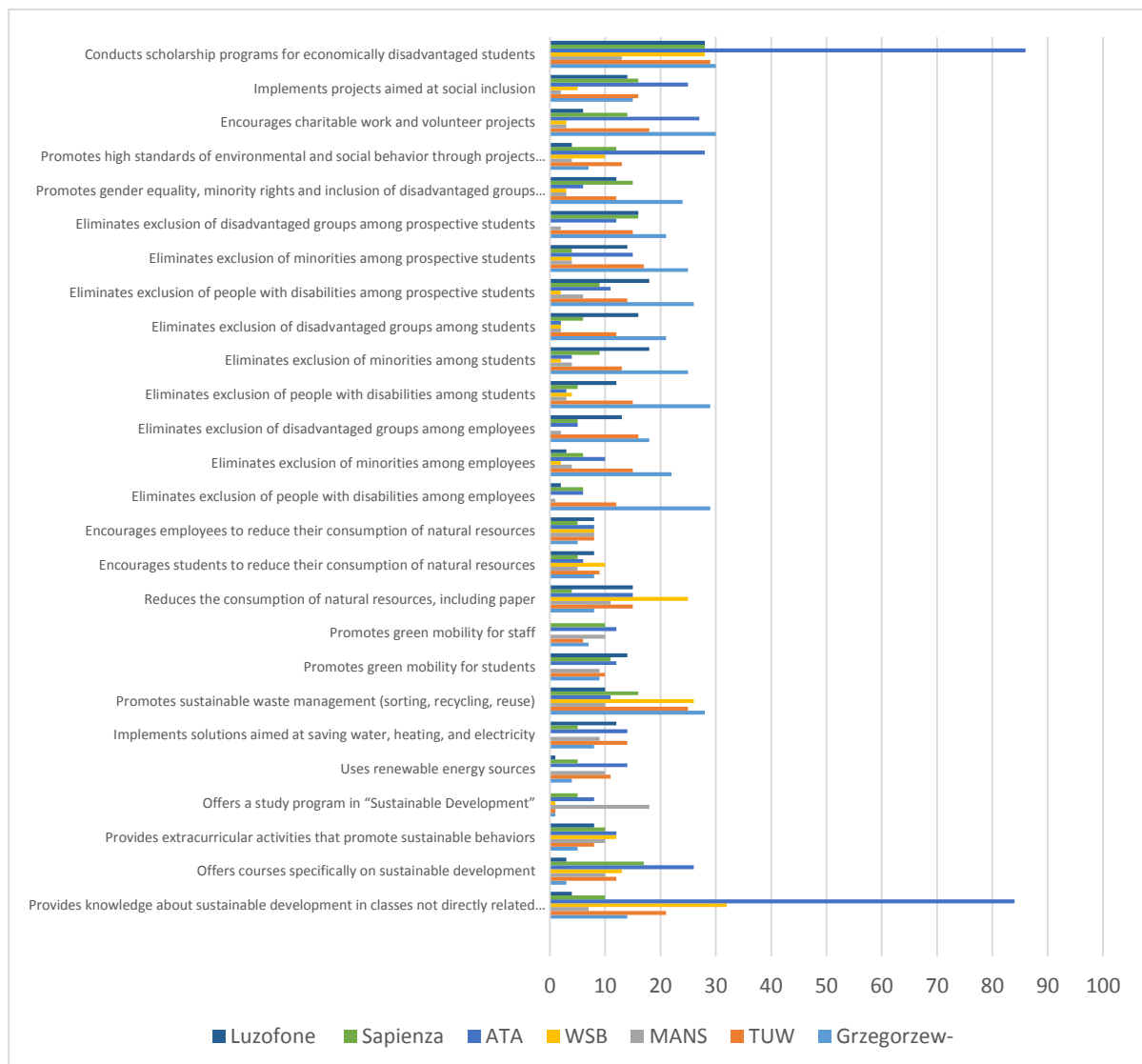
Other characteristics received scattered selections, ranging from 90 to 34 mentions. Notably, not even one characteristic provided in a survey in students' vision of a sustainable university was selected below 34. "Offers a study program in "Sustainable Development"" was the least frequently chosen characteristics of sustainable university. Moreover, majority of characteristics of sustainable development university were aligned in the opinion of students of selected 7 universities. A detailed breakdown of these characteristics is shown in Table 2.

**Table 2.**  
*Students' sustainability indications of their university*

What do you think are the characteristics of a sustainable university?	Grzegorzewska	TUW	MANS	WSB	ATA	Sapienza	Luzofone
Provides knowledge about sustainable development in classes not directly related to sustainability	14	21	7	32	84	10	4
Offers courses specifically on sustainable development	3	12	10	13	26	17	3
Provides extracurricular activities that promote sustainable behaviors	5	8	10	12	12	10	8
Offers a study program in "Sustainable Development"	1	1	18	1	8	5	0
Uses renewable energy sources	4	11	10	0	14	5	1
Implements solutions aimed at saving water, heating, and electricity	8	14	9	0	14	5	12
Promotes sustainable waste management (sorting, recycling, reuse)	28	25	10	26	11	16	10
Promotes green mobility for students	9	10	9	0	12	11	14
Promotes green mobility for staff	7	6	10	0	12	10	0
Reduces the consumption of natural resources, including paper	8	15	11	25	15	4	15
Encourages students to reduce their consumption of natural resources	8	9	5	10	6	5	8
Encourages employees to reduce their consumption of natural resources	5	8	8	8	8	5	8
Eliminates exclusion of people with disabilities among employees	29	12	1	0	6	6	2
Eliminates exclusion of minorities among employees	22	15	4	2	10	6	3
Eliminates exclusion of disadvantaged groups among employees	18	16	2	0	5	5	13
Eliminates exclusion of people with disabilities among students	29	15	3	4	3	5	12
Eliminates exclusion of minorities among students	25	13	4	2	4	9	18
Eliminates exclusion of disadvantaged groups among students	21	12	2	2	2	6	16
Eliminates exclusion of people with disabilities among prospective students	26	14	6	2	11	9	18
Eliminates exclusion of minorities among prospective students	25	17	4	4	15	4	14
Eliminates exclusion of disadvantaged groups among prospective students	21	15	2	0	12	16	16
Promotes gender equality, minority rights and inclusion of disadvantaged groups within the organization	24	12	3	3	6	15	12
Promotes high standards of environmental and social behavior through projects and initiatives	7	13	4	10	28	12	4
Encourages charitable work and volunteer projects	30	18	3	3	27	14	6
Implements projects aimed at social inclusion	15	16	2	5	25	16	14
Conducts scholarship programs for economically disadvantaged students	30	29	13	28	86	28	28

Source: own research.

The graphical representation of students' sustainability indications of their university was gathered in Figure 7.



**Figure 7.** Students' sustainability indications of their university.

Source: own research.

The next question aimed to determine whether the universities surveyed provide their students with opportunities to engage in extracurricular activities, beyond the curriculum—such as social, charitable, organizational, and scientific activities—that help build sustainable development competencies.

The detailed answers of students of all the researched universities were collected in Table 3.

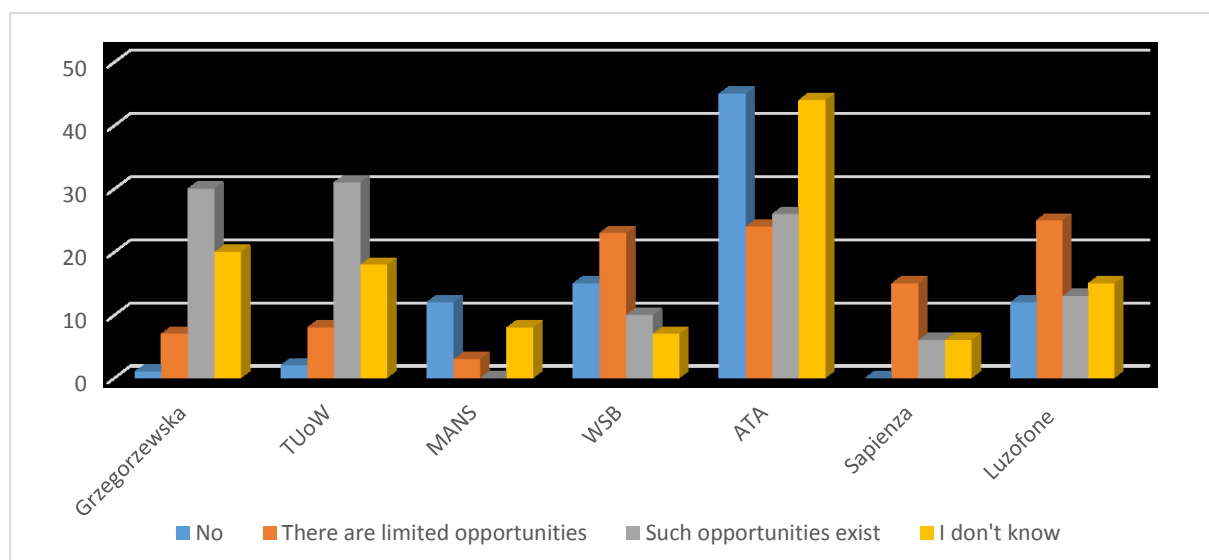
**Table 3.**

*Students' awareness of opportunities to engage in extracurricular activities outside of the curriculum, including social, charitable, organizational, and scientific activities that build competencies in sustainable development organized by their universities*

Does your university provide students with opportunities to engage in extracurricular activities outside of the curriculum, including social, charitable, organizational, and scientific activities that build competencies in sustainable development?	Grzegorzewska	TUoW	MANS	WSB	ATA	Sapienza	Luzofone
No	1	2	12	15	45	0	12
There are limited opportunities	7	8	3	23	24	15	25
Such opportunities exist	30	31	0	10	26	6	13
I don't know	20	18	8	7	44	6	15
<b>total</b>	<b>58</b>	<b>59</b>	<b>23</b>	<b>55</b>	<b>139</b>	<b>27</b>	<b>65</b>

Source: own research.

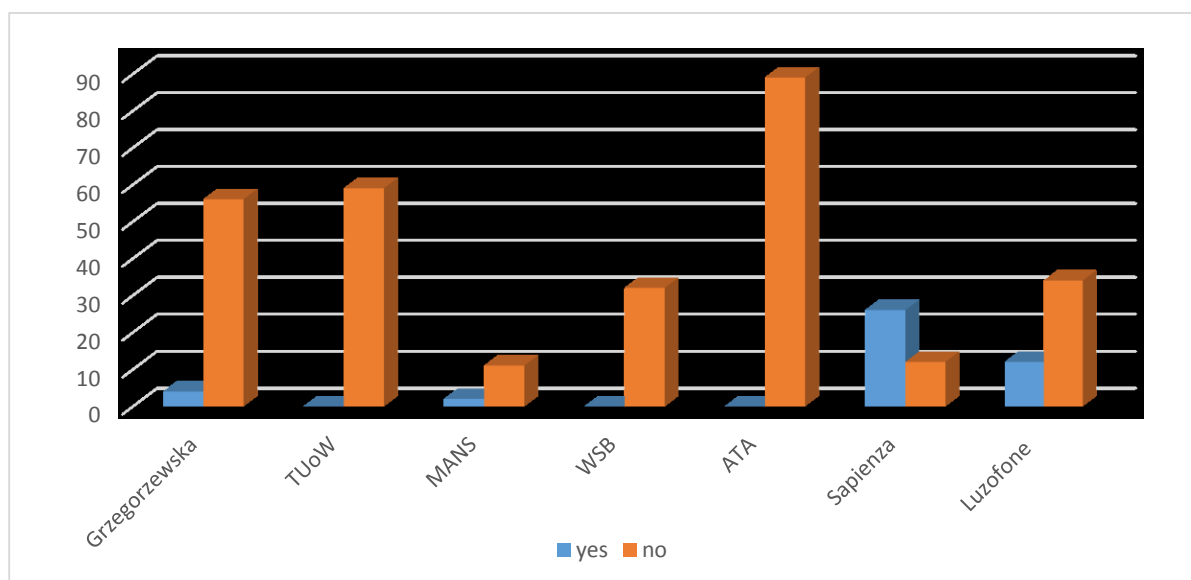
118 out of 426 answers, which represent 28% of responses declared that surveyed students are not aware of opportunities to engage in extracurricular activities outside of the curriculum, including social, charitable, organizational, and scientific activities that build competencies in sustainable development organized by their universities. 27% of investigated students indicated that such opportunities exist.  $\frac{1}{4}$  of students in the research sample declared that there are limited opportunities to engage in those activities at their universities. Only 20% out of 426 answers declared no opportunity to engage in extracurricular activities outside of the curriculum, including social, charitable, organizational, and scientific activities that build competencies in sustainable development. Therefore, in the research sample 52% of the respondents are aware of these types of activities (see Figure 8).



**Figure 8.** Students' awareness of opportunities to engage in extracurricular activities outside of the curriculum, including social, charitable, organizational, and scientific activities that build competencies in sustainable development organized by their universities.

Source: own research.

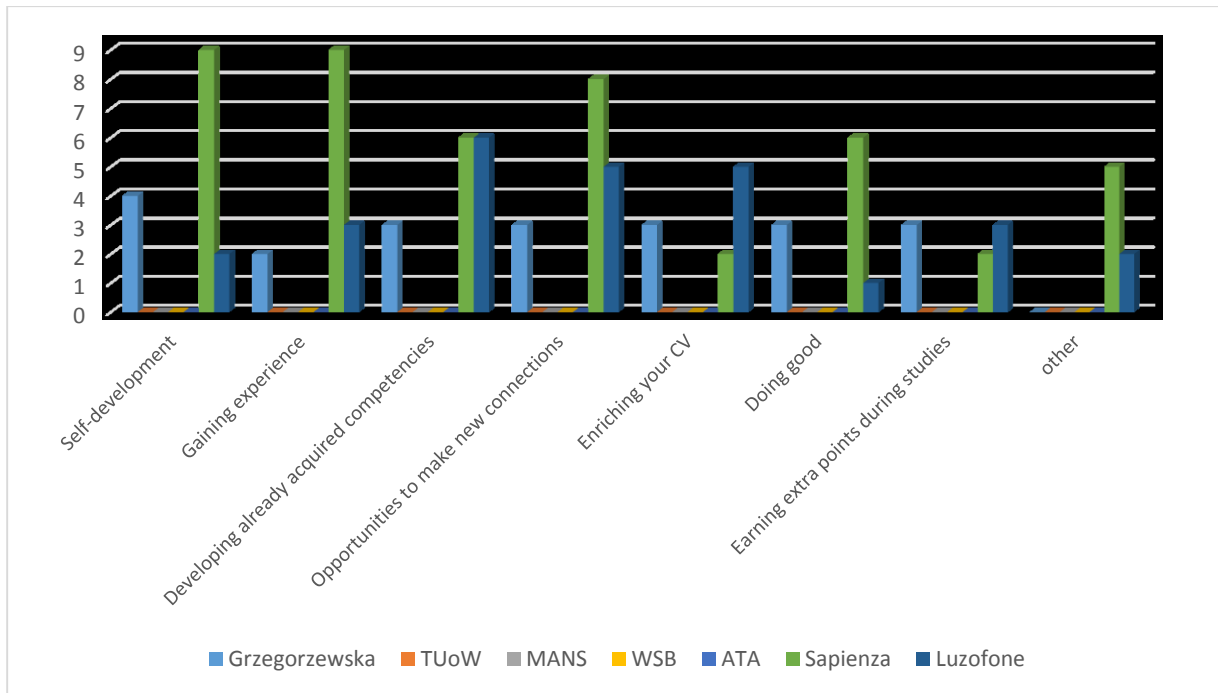
In response to the question of whether they participate in extracurricular activities, beyond the curriculum—such as social, charitable, organizational, or scientific activities organized by their university that build sustainable development competencies— 86.94% of all the respondents answered negatively. Only 13.06% of students declared that they participate in extracurricular activities building sustainable development competencies of students. Remarkably, they majority of them are students of Sapienza University of Rome (see Figure 9).



**Figure 9.** Participation in extracurricular activities building sustainable development competencies of students.

Source: own research.

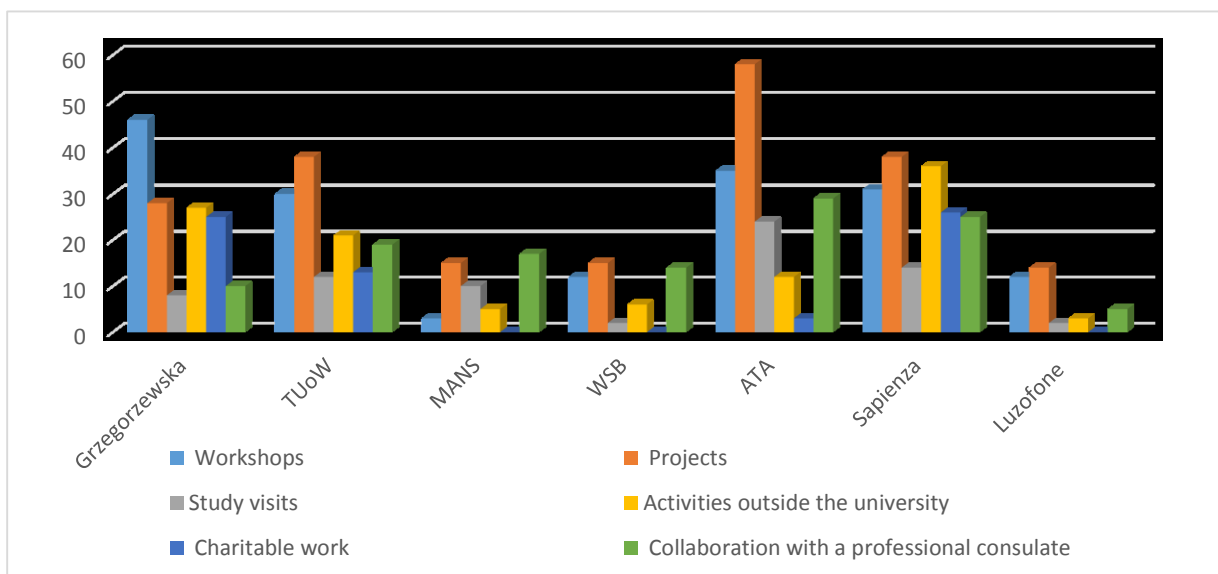
Students of all researched universities were asked to appoint their motives of participation in activities organized by their university that build sustainable development competencies. Remarkably, students of only three universities (Maria Grzegorzewska University, Sapienza University of Rome and Lusophone University of Porto) answered in that field. Motives of participation in activities organized by their university that build sustainable development competencies received scattered selections: 16.84% appointed “Opportunities to make new connections”, 15.79% of responses regarded “Self-development” and “Developing already acquired competencies” equally and 14,74% appoints belonged to “Gaining experience”. The remaining answers (“Enriching CV”, “Doing good” and “Earning extra points during studies”) oscillated around 10% of indications. Moreover, majority of motives of participation in activities organized by their university that build sustainable development competencies were aligned in the opinion of students of 3 universities. A detailed breakdown of these characteristics is shown in Figure 10.



**Figure 10.** Motives of participation in activities organized by their university that build sustainable development competencies.

Source: own research.

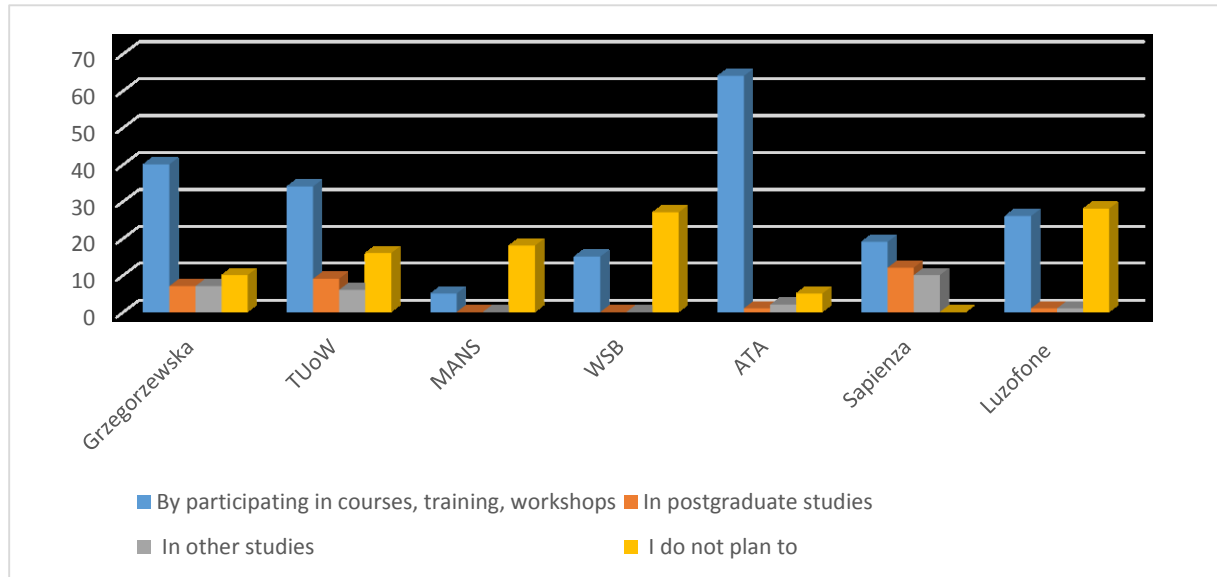
The next question asked which types of activities offered by their university students felt most effectively developing sustainable development competencies. According to students that participated in the survey, projects were the top choice, with 27.78% of choices and workshops with 22.75%. The remaining forms of activities offered by universities students felt most effectively developing sustainable development competencies were less significant to the respondents and the detailed responses are presented in Figure 11.



**Figure 11.** Types of activities offered by universities students felt most effectively developing sustainable development competencies.

Source: own research.

The final question asked how students plan to develop their competencies in sustainable development. Remarkably, students from all researched universities declared that they plan to develop their competencies in sustainable development. They prioritized participating in courses, training sessions, or workshops, with 55.92% of indications. Nevertheless, 28.65% of students do not plan to develop their competencies in sustainable development. For detailed answers, see Figure 12.



**Figure 12.** Students' plans to develop their competencies in sustainable development.

Source: own research.

## 5. Results and conclusions

The purpose of this study was to assess the awareness and expectations of university students from public universities in Warsaw: Maria Grzegorzewska University, Warsaw University of Technology; non-public universities in Warsaw: Management Academy of Applied Sciences in Warsaw, WSB Merito University Warsaw, University of Technology and Art in Applied Sciences in Warsaw; foreign universities: Sapienza University of Rome, Lusophone University of Porto regarding sustainable development at higher education institutions. The analysis focused on the students' perspectives. The study clearly revealed a high level of awareness among students on this topic, with a level of 87.50% demonstrating awareness. Apart from the students of one university, the level of unawareness was insignificant.

The surveyed students identified features they believe should characterize a sustainable university. Of the 26 proposed features, students from all the surveyed universities highlighted all of them with varied number of votes. The least score obtained a feature "Offers a study

program in Sustainable Development”. These findings suggest a noticeable lack of program solely dedicated to sustainable development neither as major or minor in none of the surveyed universities.

Moreover, the surveyed students, perceive their higher education institution completely different in terms of sustainable development. Students of TUoW, firstly see the university as any other institution (apart from educational mission) that cares about ecology and their internal and external stakeholders. While the students of ATA primarily perceive their university as sustainable developed institution through the prism of the program of studies (curricular and non-curricular courses and classes provided by the university) as well as the once for social responsibility for internal stakeholders; Students of Lusofone on the other hand provided a social approach to sustainable university.

The most surprising finding was very low level of participation in extracurricular activities and initiatives among all universities’ students, except of Sapienza. These activities, which include social, charitable, organizational, and scientific endeavors, are essential for developing sustainable development skills find little interest among surveyed students.

The study thus suggests that, the surveyed universities still incorporate considerably fewer sustainable development topics in their curricula and organize limited extracurricular activities to support these competencies. Nevertheless, overall students’ awareness of the concept of sustainable development is considerably high and highly satisfactory (apart from the students of one Polish university). It is worth noticing, that the answers of students though from different scopes of universities are comparable to a large extent which proves the topic of sustainable development is equally seriously concerned in all surveyed universities. Considering the current labor market and the growing demand for sustainability specialists, universities could benefit from implementing a model based on a holistic approach to sustainability education, integrating these topics widely across educational programs and fostering the development of practical skills in this critical area. That approach could be reached by including the business environment entities as well as by introducing micro-credentials to the program of studies.

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