

Student perceptions on sustainable entrepreneurship: ecological, social, and cultural dimensions

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Abstract

This study examines students' perceptions on sustainable entrepreneurship within cultural diversity context in Asia, focusing on ecological, social, and cultural dimensions. By surveying 144 students from various faculties who attended an international public lecture, the research revealed a comprehensive understanding of sustainability among the participants. The analysis indicated a strong correlation among the three dimensions, suggesting that students view sustainability as an interconnected concept. However, the study also found significant differences in perceptions across different faculties, showing that educational background influences students' understanding on sustainability. These findings emphasize the need to integrate sustainability education into university curricula to equip students with the knowledge and skills necessary to become sustainable entrepreneurs. Additionally, the results of this study offer insights for developing entrepreneurship training programs that are more relevant to the Asian context, encouraging the establishment of businesses that positively impact society and the environment.

Keywords: culture, ecology, social, sustainable entrepreneurship

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Article history

Received November 9, 2024
Revised November 27, 2024
Accepted November 29, 2024
Published Online Desember 1, 2024

Cite this article:

Dadi, D., Ratnawati, R., Fatimah, A. T., & Faridah, D. (2024). Student perceptions on sustainable entrepreneurship: ecological, social, and cultural dimensions. *Interdisciplinary International Journal of Conservation and Culture*, 2(2), 60-70. <https://doi.org/10.25157/ijcc.v2i2.4482>

INTRODUCTION

Previous studies have explored students' perceptions on sustainable entrepreneurship across multiple dimensions. The results of these studies suggest that social and environmental perceptions have a positive impact on sustainable entrepreneurship intentions, while economic perceptions may not have a significant influence (Boudia & Hagain, 2023). Cultural context plays a role in how sustainable values influence these intentions, with solidarity values showing a stronger relationship than pro-environmental values (Gimenez-Jimenez & Harc, 2024). Students' understanding of sustainable entrepreneurship is limited, highlighting the need for purposeful educational programs (Richomme-Huet & de Freyman, 2014). Factor analysis of sustainability knowledge among entrepreneurship students revealed four main dimensions: social equity, environmental sustainability, cultural responsibility, and economic viability (Nuringsih et al., 2023). These findings suggest that sustainable entrepreneurship education should incorporate a multidimensional approach, addressing social, environmental, cultural, and economic aspects to better prepare students' understanding of sustainable venture creation.

Studies also highlight the importance of students' understanding of sustainable entrepreneurship. Personal sustainability tendencies and university support play a significant role in shaping students' intentions toward sustainable (Chahal & Baber, 2024; Sharma et al., 2024). Universities can foster sustainable entrepreneurship intentions by providing sustainability education, promoting campus sustainability, and offering entrepreneurship support (Chahal & Baber, 2024; Sharma et al., 2024). However, students' knowledge of the Sustainable Development Goals (SDGs) is very low, which may hinder the achievement of the SDGs in the future (Sharma et al., 2024). Perceived green values significantly predict students' sustainable entrepreneurship intentions (Nuringsih et al., 2023). Higher education institutions are uniquely positioned to promote sustainable entrepreneurship

by empowering students to find and exploit opportunities that contribute to sustainability (Brazdauskas & Žirnelė, 2018). Improving curriculum design to promote sustainable entrepreneurship among students is essential, focusing on creative thinking to solve social and environmental challenges (Brazdauskas & Žirnelė, 2018).

Research on sustainable entrepreneurship has evolved to include social, environmental, and economic dimensions; however, their integration continues to pose challenges (Tilley & Parrish, 2006). While the emphasis is often placed on social and environmental aspects, economic and cultural factors are not as thoroughly incorporated. Sociocultural elements, such as family characteristics and community engagement, can greatly impact the development of sustainable entrepreneurship (Baporikar & Fotolela, 2021). The field has expanded to cover social, environmental, and sustainable entrepreneurship, each contributing to broader sustainability goals. Nonetheless, challenges persist, including insufficient emphasis on critical reflection processes and the physical limits of the Earth's resources (Schaefer et al., 2015). Sustainable entrepreneurship is acknowledged as a multilevel phenomenon that connects various dimensions across entrepreneurial processes, market transformations, and societal progress. Future research should investigate the relationship between contextual influences on venture development and transformational outcomes at multiple levels to enhance our understanding of entrepreneurship for sustainable development (Johnson & Schaltegger, 2020).

Other studies have shown a significant gap between the theory and practice of sustainable entrepreneurship in higher education. Universities play a crucial role in supporting sustainable entrepreneurship by educating aspiring entrepreneurs (Tiemann et al., 2018). However, there is a lack of integration of entrepreneurship skills into sustainability education programs (Hermann & Bossle, 2020). Many institutions offer sustainability education without providing concrete tools for change, while entrepreneurship programs often fail to address sustainability issues (Planck et al., 2024). To bridge this gap, scholars have proposed a framework that combines sustainability and entrepreneurship competencies in educational programs (Hermann & Bossle, 2020; Planck et al., 2024). This framework aims to empower students to become sustainable entrepreneurs who can create market dynamics for the advancement of the environment and society (Brazdauskas & Žirnelė, 2018). Implementing such an integrated approach requires institutional support and changes in curriculum design to prepare business students to adapt their strategies to sustainable development priorities (Brazdauskas & Žirnelė, 2018; Tiemann et al., 2018).

Research on sustainable entrepreneurship highlights the need to consider the broader context beyond the individual entrepreneur. While personal values and traits influence sustainable practices (Kraus et al., 2018), focusing solely on individual factors is reductionist (Fors & Lennerfors, 2019). Individual care relationship theory proposes that entrepreneurs are dependent, emotional, and relationally connected, challenging assumptions of independent rationality (Fors & Lennerfors, 2019). Organizational culture and resource reconfiguration also play a significant role in adopting a sustainable orientation (Kraus et al., 2018). Sustainable entrepreneurship aims to conserve nature, life support, and society while pursuing opportunities for economic and non-economic gain (Shepherd & Patzelt, 2011). Research should explore the interplay between "what to preserve" and "what to grow" (Shepherd & Patzelt, 2011). Additionally, investigating how entrepreneurs can act as agents of change in society becomes important, given the new circumstances of sustainability-based investment and financing (Hossain, 2021; Kraus et al., 2018).

Given previous research that has identified the important role of social, environmental, and cultural dimensions in shaping students' perceptions on sustainable entrepreneurship, this study aims to explore students' understanding of this concept more specifically among students from various faculties attending an international public lecture on sustainable entrepreneurship in the Asian context.

METHODS

This study aims to explore students' perceptions on sustainable entrepreneurship. The research sample consists of students from Galuh University who attended an international public lecture titled "Sustainable Entrepreneurship (SE) Education & Training in the Asian Community Context." Attendance at this public lecture was open to all students, although participation was limited to 150 individuals. Out of this total, 144 students agreed to complete the research questionnaire. An analysis of the respondents' profiles reveals that participants come from various faculties at Universitas Galuh, as shown in Table 1 below.

Table 1. Frequency of Participants by Gender and Faculty

Gender	Faculty	Frequency
Male	Faculty of Teacher Training and Education	8
	Faculty of Social and Political Sciences	7
	Faculty of Engineering	3
	Faculty of Economics	4
	Faculty of Agriculture	10
	Total	32
Female	Faculty of Teacher Training and Education	40
	Faculty of Law	3
	Faculty of Health Sciences	30
	Faculty of Social and Political Sciences	11
	Faculty of Engineering	6
	Faculty of Economics	12
	Faculty of Agriculture	10
	Total	112

In this study, we gathered data on students' perceptions on sustainable entrepreneurship within the Asian context. The focus of our research encompasses three main dimensions: ecological, social, and cultural.

The ecological dimension addresses environmental issues specific to Asia, such as air pollution, waste management, and deforestation. The social dimension points out the cultural diversity, social inequality, and unique social challenges faced in the Asian region. Meanwhile, the cultural dimension emphasizes the significance of local values in managing a sustainable business.

To assess these three dimensions, we created a research instrument in the form of a Likert scale consisting of 30 statements, with each dimension represented by 10 statements that have been validated. The internal reliability of this instrument is very high, as indicated by a Cronbach's Alpha value of 0.972. Data collection occurred during the lecture period, specifically from the third session to the seventh session.

Table 2. Sustainable Entrepreneurship Indicators in Ecological, Social, and Cultural Dimensions

Dimensions	Indicators
Ecology	Understand the impact of climate change on business in Asia
	Identify local natural resources that can be sustainably utilized in business
	Know about green product certifications that apply in Asia (e.g., Ecocert, Green Leaf)
Social	Understand the importance of empowering local communities in business development
	Identify vulnerable community groups and design inclusive business solutions
	Understand the concept of circular economy and its potential application in Asia
Culture	Adapt successful business models in other countries to the local cultural context in Asia
	Understand the importance of preserving cultural heritage in business development
	Identify unique business opportunities based on the richness of Asian culture

The data analysis for this study includes descriptive analysis and correlation tests. The descriptive analysis aims to characterize the participants based on gender and faculty across each

dimension. The correlation test is conducted to examine the relationships between different dimensions, classified by gender and faculty background. The hypotheses are as follows:

- Null Hypothesis (H_0): There is no significant relationship between the ecological, social, and cultural dimensions in the perception of sustainable entrepreneurship.
- Alternative Hypothesis (H_1): There is a significant relationship between the ecological, social, and cultural dimensions in the perception of sustainable entrepreneurship.

RESULTS AND DISCUSSION

Descriptive analysis of perceptions of ecological, social, and cultural dimensions in sustainable entrepreneurship: comparison between male and female

The results of the descriptive analysis on gender across three dimensions of sustainable entrepreneurship—ecology, society, and culture—are shown in Table 3. General observations can be made by examining the averages, data distribution (including standard deviation and range), and mode.

Table 3. Descriptive Statistics of Students' Perceptions of Ecological, Social, and Cultural Dimensions in Sustainable Entrepreneurship Based on Gender

Gender	Descriptive Statistics	Ecology	Social	Culture
Male	N	32	32	32
	Mean	41.28	39.97	39.84
	Median	41.50	40.00	40.00
	Mode	40 ^a	40	40
	Std. Deviation	7.363	7.485	7.561
	Variance	54.209	56.031	57.168
	Range	40	40	40
	Sum	1321	1279	1275
Female	N	112	112	112
	Mean	40.07	40.21	39.33
	Median	40.00	40.00	40.00
	Mode	40	40	40
	Std. Deviation	4.694	5.134	5.453
	Variance	22.031	26.363	29.737
	Range	21	24	27
	Sum	4488	4503	4405

According to Table 3, the average perception of ecology among male participants is 41.28, which is slightly higher than the average of 40.07 for female participants. A similar trend is observed in perceptions of society and culture, where men also tend to have slightly higher average values. Additionally, the standard deviation for men is consistently larger than that for women across all variables, indicating that the data for men is more spread out and varied compared to that for women. In all dimensions, the range of values for men is the same (40), whereas the range for women is smaller. This further suggests that the data for men show more variability. Overall, the model for all variables and both genders indicates that the value 40 is the most frequently observed across all categories.

Analysis of the survey data in Table 3 regarding understanding of the ecological, social, and cultural dimensions in the business context shows quite encouraging results. In general, both male and female respondents have a good understanding of the three dimensions. This can be seen from the high average value for all indicators, indicating that most respondents have sufficient awareness of the importance of sustainability in running a business.

Furthermore, the data also shows a high level of consistency among respondents. The low standard deviation value indicates that respondents' answers tend to be similar, with no significant differences between individuals. Another interesting finding is the absence of striking gender

differences in understanding the three dimensions. This shows that both male and female have the same level of awareness of sustainability and social issues in the business world.

If we look more specifically at each dimension, it can be seen that both male and female have a good understanding of the impact of climate change on business and the importance of environmentally friendly product certification. In the social dimension, both groups also show a good understanding of local community empowerment and the concept of a circular economy. Meanwhile, in the cultural dimension, respondents generally understand the importance of adapting business models to local cultural contexts and identifying unique business opportunities based on cultural richness.

The results of this study differ from the results of research on gender perceptions in sustainable entrepreneurship which revealed significant differences between male and female entrepreneurs. Women tend to be more proactive in seeking green business opportunities and promoting sustainability principles in their operations compared to men (Joensuu-Salo et al., 2024). Sustainable female entrepreneurs demonstrate strong feminist attitudes and are aware of their contribution to global sustainability (Ousios & Farooqi, 2017). They also develop and utilize wider professional and social networks than their male counterparts. However, gender differences in risk perception and attitudes towards entrepreneurship persist, especially in the early stages of entrepreneurship (Figueroa-Domecq et al., 2022). Despite these differences, established entrepreneurs of both genders (Ousios & Farooqi, 2017) demonstrate similar approaches to sustainability and entrepreneurship, indicating the need for non-essential gender-inclusive policies to promote sustainable tourism entrepreneurship (Figueroa-Domecq et al., 2022).

The survey results from this study indicate a growing public awareness of the importance of running a sustainable business, benefiting both male and female. However, it is important to recognize that a good understanding of sustainability does not always lead to actionable change. To promote the adoption of sustainable business practices, additional efforts are necessary. This includes developing more comprehensive educational programs, integrating sustainability topics into the educational curriculum, and providing incentives for businesses that implement effective practices.

Descriptive analysis of perceptions of ecological, social, and cultural dimensions in sustainable entrepreneurship: comparison between faculties

The results of the descriptive analysis, which focuses on the student-faculty background across three dimensions of sustainable entrepreneurship—ecology, social aspects, and culture (Table 4). A general interpretation can be made by examining the average values, data distribution (including standard deviation and range), and mode.

Table 4. Descriptive Statistics of Students' Perceptions on Ecological, Social, and Cultural Dimensions in Sustainable Entrepreneurship Based on Faculty Background

Faculty	Descriptive Statistics	Ecology	Social	Culture
Faculty of Teacher Training and Education	N	48	48	48
	Mean	40.71	40.17	39.52
	Median	40.00	39.50	40.00
	Mode	40	37	40
	Std. Deviation	3.736	4.746	5.136
	Variance	13.956	22.525	26.383
	Range	19	20	20
	Sum	1954	1928	1897
Faculty of law	N	3	3	3
	Mean	40.00	41.00	40.33
	Median	40.00	40.00	40.00
	Mode	36a	36a	40
	Std. Deviation	4.000	5.568	.577
	Variance	16.000	31.000	.333

Faculty	Descriptive Statistics	Ecology	Social	Culture
Faculty of Health Sciences	Range	8	11	1
	Sum	120	123	121
	N	30	30	30
	Mean	40.83	41.10	40.23
	Median	40.50	40.00	40.00
	Mode	41	40	40
	Std. Deviation	5.515	5.714	5.964
	Variance	30.420	32.645	35.564
	Range	20	20	20
Faculty of Social and Political Sciences	Sum	1225	1233	1207
	N	18	18	18
	Mean	39.83	40.22	39.89
	Median	40.00	40.00	40.00
	Mode	40	40	40
	Std. Deviation	8.424	8.378	8.253
	Variance	70.971	70.183	68.105
	Range	40	40	40
	Sum	717	724	718
Faculty of Economics	N	9	9	9
	Mean	39.56	38.33	38.89
	Median	42.00	40.00	40.00
	Mode	30a	30a	50
	Std. Deviation	7.780	8.109	9.103
	Variance	60.528	65.750	82.861
	Range	21	24	27
	Sum	356	345	350
Faculty of Engineering	N	16	16	16
	Mean	41.13	40.75	39.69
	Median	41.00	39.50	39.50
	Mode	37a	39a	40
	Std. Deviation	5.954	6.159	6.052
	Variance	35.450	37.933	36.629
	Range	20	18	20
	Sum	658	652	635
Faculty of Agriculture	N	20	20	20
	Mean	38.95	38.85	37.60
	Median	39.00	39.00	38.50
	Mode	33a	39	35a
	Std. Deviation	3.953	3.329	4.235
	Variance	15.629	11.082	17.937
	Range	14	14	17
	Sum	779	777	752

Table 4 shows that the average scores for the three dimensions tend to range from 39 to 41, indicating a fairly good level of understanding among students toward sustainability issues. The relatively small standard deviation indicates that students' perceptions within a faculty tend to be homogeneous or not too varied. However, there is greater variation between faculties. There are small but significant differences in the average scores between faculties, indicating that educational background and study interests can influence students' perceptions of the sustainability dimensions.

In the Ecology dimension, the Faculty of Teacher Training and Education and the Faculty of Health Sciences tend to have higher average scores than other faculties, indicating a better understanding of environmental issues. In the social dimension, there is no significant difference between faculties in terms of perceptions of the social dimension. In the cultural dimension, the

Faculty of Teacher Training and Education and the Faculty of Health Sciences also show a better understanding of the cultural dimension than other faculties.

Students typically possess a reasonably good awareness of sustainability issues, particularly regarding the ecological and social dimensions. However, their perceptions of these dimensions can be influenced by their educational background (faculty). Those studying within disciplines focused on social and environmental sciences generally exhibit a deeper understanding of sustainability issues. The findings of this study indicate the potential for developing more integrated educational programs that could enhance students' comprehension of the overarching concept of sustainability.

Research indicates that students often have a limited grasp of sustainability, predominantly concentrating on its environmental aspect (Damico et al., 2022; García-González et al., 2020). Only a small fraction of students can recognize all three dimensions of sustainability simultaneously (Damico et al., 2022). Educational background plays a significant role in shaping students' perceptions, with those enrolled in specific sustainability courses demonstrating increased knowledge and proactive approaches to sustainability. Nonetheless, the integration of sustainability within university curricula remains insufficient, as many students report not receiving adequate information about sustainability through their coursework (Damico et al., 2022). This lack of comprehensive understanding also affects educators, who often maintain a simplistic, environmentally focused view of sustainability (Birdsall, 2014). To bridge this gap, universities are encouraged to create more integrated educational programs that enhance students' overall understanding of sustainability concepts and better prepare them for future professional challenges (Birdsall, 2014; Damico et al., 2022).

Correlation Analysis of Perceptions of Ecological, Social, and Cultural Dimensions in Sustainable Entrepreneurship: Comparison between Male and Female

The table below displays the results of a correlation analysis that examines the relationship between male and female students' perceptions of the ecological, social, and cultural dimensions of sustainable entrepreneurship. This analysis aims to identify gender differences in perceptions of sustainability within the context of entrepreneurship.

Table 5. Correlation Analysis of Students' Perceptions of Ecological, Social, and Cultural Dimensions in Sustainable Entrepreneurship Based on Gender

Test	Gender			Ecology	Social	Culture
Spearman's rho	Male	Ecology	Correlation Coefficient	1.000	.834**	.758**
			Sig. (2-tailed)	.	<,001	<,001
			N	32	32	32
		Social	Correlation Coefficient	.834**	1.000	.794**
			Sig. (2-tailed)	<,001	.	<,001
			N	32	32	32
		Culture	Correlation Coefficient	.758**	.794**	1.000
			Sig. (2-tailed)	<,001	<,001	.
			N	32	32	32
	Female	Ecology	Correlation Coefficient	1.000	.736**	.680**
			Sig. (2-tailed)	.	<,001	<,001
			N	112	112	112
		Social	Correlation Coefficient	.736**	1.000	.833**
			Sig. (2-tailed)	<,001	.	<,001
			N	112	112	112
		Culture	Correlation Coefficient	.680**	.833**	1.000
			Sig. (2-tailed)	<,001	<,001	.
			N	112	112	112

** . Correlation is significant at the 0.01 level (2-tailed).

From the correlation table, it can be seen that there is a significant relationship between the three dimensions (ecology, social, and culture) for both male and female respondents. This is indicated

by the high correlation coefficient value (approaching 1) and very low significance ($p < 0.01$). A positive correlation coefficient indicates that the higher a person's perception of one dimension, the higher the perception of the other dimensions. A correlation coefficient approaching 1 indicates a strong relationship between the dimensions.

Based on the results of the correlation analysis, it can be concluded that the three dimensions of sustainable entrepreneurship (ecology, social, and culture) are closely related. An increase in understanding of one dimension tends to be followed by an increase in understanding of the other dimensions. This finding has important implications for the development of sustainable entrepreneurship education and training programs, which need to integrate the three dimensions holistically.

The results of the correlation analysis show a very significant relationship between the dimensions of ecology, society, and culture in the perception of sustainable entrepreneurship. Both male and female respondents showed a strong correlation between these three dimensions. This indicates that an individual's understanding of one aspect of sustainability tends to be accompanied by a good understanding of the other aspects. These findings support the hypothesis that these three dimensions are closely interrelated and inseparable in the context of sustainable entrepreneurship.

The strong correlation between the ecological, social, and cultural dimensions has broad implications for entrepreneurial practice. First, it suggests that a holistic approach is needed in building a sustainable business. Efforts to improve environmental performance cannot be separated from efforts to empower communities and preserve cultural values. Second, these findings also highlight the importance of education and public awareness of the comprehensive concept of sustainability. Educational programs need to be designed to help individuals understand the interconnections between the ecological, social, and cultural dimensions in the context of business.

Recent studies highlight the complex interactions between culture, gender, and education in shaping sustainable entrepreneurial intentions among students. (Fleck et al., 2021) observed that gender and field of study moderated the relationships between entrepreneurial constructs. Both studies emphasize the importance of cultural factors in influencing entrepreneurial perceptions and intentions. (Yasir et al., 2021) identified environmental values, social values, and consideration of future consequences as indirect factors influencing sustainable entrepreneurial intentions. (Zahrani, 2022) proposed a model linking entrepreneurial culture, sustainability training, and education, and found that sustainable entrepreneurial culture has a positive impact on training and education. These studies collectively show that developing a sustainable entrepreneurial culture through targeted education and training programs can enhance students' entrepreneurial intentions and contribute to sustainability goals (Fleck et al., 2021; Yasir et al., 2021; Zahrani, 2022).

Based on the results of the analysis, several recommendations can be put forward for the development of sustainable entrepreneurship. First, it is necessary to develop comprehensive performance indicators that cover all three dimensions of sustainability. Second, further research is needed to identify the factors that influence the strength of the relationship between these dimensions. Third, it is necessary to design training and mentoring programs that integrate ecological, social, and cultural aspects of business development. Thus, entrepreneurs can be produced who are not only focused on financial gain but also commit to long-term sustainability.

Correlation Analysis of Perceptions of Ecological, Social, and Cultural Dimensions in Sustainable Entrepreneurship: Comparison between Faculties

The following table presents the results of the correlation analysis showing the relationship between students' perceptions from various faculties on the ecological, social, and cultural dimensions of sustainable entrepreneurship. This analysis aims to identify differences in perceptions between faculties regarding sustainability in the context of entrepreneurship.

Table 6. Correlation Analysis of Student Perceptions of Ecological, Social, and Cultural Dimensions in Sustainable Entrepreneurship Based on Faculty Background

Faculty				Ecology	Social	Culture
Faculty of Teacher Training and Education	Spearman's rho	Ecology	Correlation Coefficient	1.000	.734**	.627**
			Sig. (2-tailed)	.	<,001	<,001
			N	48	48	48
		Social	Correlation Coefficient	.734**	1.000	.838**
			Sig. (2-tailed)	<,001	.	<,001
			N	48	48	48
		Culture	Correlation Coefficient	.627**	.838**	1.000
			Sig. (2-tailed)	<,001	<,001	.
			N	48	48	48
Faculty of Law	Spearman's rho	Ecology	Correlation Coefficient	1.000	1.000**	.866
			Sig. (2-tailed)	.	.	.333
			N	3	3	3
		Social	Correlation Coefficient	1.000**	1.000	.866
			Sig. (2-tailed)	.	.	.333
			N	3	3	3
		Culture	Correlation Coefficient	.866	.866	1.000
			Sig. (2-tailed)	.333	.333	.
			N	3	3	3
Faculty of Health Sciences	Spearman's rho	Ecology	Correlation Coefficient	1.000	.832**	.800**
			Sig. (2-tailed)	.	<,001	<,001
			N	30	30	30
		Social	Correlation Coefficient	.832**	1.000	.862**
			Sig. (2-tailed)	<,001	.	<,001
			N	30	30	30
		Culture	Correlation Coefficient	.800**	.862**	1.000
			Sig. (2-tailed)	<,001	<,001	.
			N	30	30	30
Faculty of Social and Political Sciences	Spearman's rho	Ecology	Correlation Coefficient	1.000	.619**	.638**
			Sig. (2-tailed)	.	.006	.004
			N	18	18	18
		Social	Correlation Coefficient	.619**	1.000	.758**
			Sig. (2-tailed)	.006	.	<,001
			N	18	18	18
		Culture	Correlation Coefficient	.638**	.758**	1.000
			Sig. (2-tailed)	.004	<,001	.
			N	18	18	18
Faculty of Economics	Spearman's rho	Ecology	Correlation Coefficient	1.000	.945**	.801**
			Sig. (2-tailed)	.	<,001	.009
			N	9	9	9
		Social	Correlation Coefficient	.945**	1.000	.873**
			Sig. (2-tailed)	<,001	.	.002
			N	9	9	9
		Culture	Correlation Coefficient	.801**	.873**	1.000
			Sig. (2-tailed)	.009	.002	.
			N	9	9	9
Faculty of Engineering	Spearman's rho	Ecology	Correlation Coefficient	1.000	.840**	.723**
			Sig. (2-tailed)	.	<,001	.002
			N	16	16	16
		Social	Correlation Coefficient	.840**	1.000	.884**
			Sig. (2-tailed)	<,001	.	<,001
			N	16	16	16
		Culture	Correlation Coefficient	.723**	.884**	1.000
			Sig. (2-tailed)	.002	<,001	.
			N			

Faculty				Ecology	Social	Culture
				N	16	16
Faculty of Agriculture	Spearman's rho	Ecology	Correlation Coefficient	1.000	.539*	.418
			Sig. (2-tailed)	.	.014	.067
			N	20	20	20
		Social	Correlation Coefficient	.539*	1.000	.529*
			Sig. (2-tailed)	.014	.	.017
			N	20	20	20
		Culture	Correlation Coefficient	.418	.529*	1.000
			Sig. (2-tailed)	.067	.017	.
			N	20	20	20

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

According to the findings in Table 6, most variable pairs exhibit a significant positive relationship, suggesting that as scores increase in one dimension, scores in the other dimensions also tend to rise. This trend indicates that students generally possess a cohesive understanding of the three dimensions of sustainability. However, there is notable variability in the strength of these relationships across different faculties. Specifically, the Faculty of Teacher Training and Education, Faculty of Health Sciences, and Faculty of Economics demonstrate stronger correlations among the three dimensions, reflecting a more holistic understanding of sustainability among their students. In contrast, the Faculty of Social and Political Sciences and the Faculty of Agriculture exhibit slightly weaker relationships, particularly between the ecological and cultural dimensions. This disparity may stem from these faculties' more specialized focus on social and cultural aspects. Notably, the social dimension appears to have a stronger connection with the other dimensions than the ecological dimension does. This suggests that students are more inclined to associate social factors with ecological and cultural elements in their perceptions of sustainability. Consequently, the correlation data analysis leads to the conclusion that a significant relationship exists between the ecological, social, and cultural dimensions in students' perceptions, highlighting their tendency to view sustainability as a comprehensive and interconnected concept. Variations in educational background and areas of study can influence the strength of these relationships, with the social dimension playing a crucial role in bridging the ecological and cultural dimensions.

Research shows that students' perceptions of sustainability are complex and diverse, and are in line with the results of this study. Studies show that students tend to view sustainability holistically, recognizing the interconnections between ecological, social, and cultural dimensions (Berglund & Gericke, 2016; Kuusalu et al., 2023). However, the strength of this relationship can vary based on educational background and focus of study (Naukkarinen & Jouhkimo, 2021). The social dimension often plays an important role in connecting ecological and cultural aspects (Kuusalu et al., 2023). Students' conceptions of sustainability, especially sociocultural ones, significantly influence their perceptions of the professional relevance of sustainability (Sundermann & Fischer, 2019). In particular, students' priorities and views on sustainability dimensions can change depending on whether these dimensions are presented separately or in an integrated manner (Berglund & Gericke, 2016). These findings highlight the importance of adopting a holistic approach and systemic thinking in sustainability education (Kuusalu et al., 2023) and developing inclusive education models that address differences in perceptions among different groups of students (Naukkarinen & Jouhkimo, 2021).

This study presents several limitations, including the varying sample sizes among faculties, which may impact statistical power. Consequently, the findings may not be generalizable to a broader student population. Furthermore, this analysis focused solely on the relationship between three specific dimensions, while other factors such as knowledge, attitudes, and behaviours may also play a role in shaping students' perceptions of sustainability.

CONCLUSION

Analysis of students' perceptions on the ecological, social, and cultural dimensions of sustainable entrepreneurship showed positive results. In general, both male and female had a good understanding of these three dimensions. There was a strong correlation between the three dimensions, indicating that students tend to view sustainability as a holistic concept. However, there was a slight difference between faculties, with faculties that focused on social and environmental sciences tending to have students with a better understanding. The results of this study indicate that students have a fairly high awareness of the importance of sustainability in the business world. A good understanding of the ecological, social, and cultural dimensions shows the potential to encourage the implementation of sustainable business practices. However, to achieve this goal, further efforts are needed, such as the development of more intensive educational programs, the integration of sustainability materials into the curriculum, and the provision of incentives for business actors who implement good practices.

Limitations and future direction

Research on students' perceptions on sustainability presents several limitations. First, the generalizability of the findings is constrained, as the sample is drawn from a single educational institution. Second, the operational definition of sustainability can vary among researchers, complicating direct comparisons of research outcomes. Additionally, the instruments utilized in the studies may not comprehensively capture all aspects of students' perceptions. The results may also be influenced by the temporal and cultural context in which the research is conducted.

To address these limitations and enhance our understanding of students' perceptions of sustainability, several research directions warrant consideration. First, replicating the study with a more diverse sample could improve the generalizability of the results. Second, developing more effective measurement instruments could yield more accurate and reliable data. Third, longitudinal studies could shed light on how students' perceptions evolve over time. Furthermore, cross-cultural comparative research and qualitative studies can provide deeper insights into the factors influencing students' perceptions. Finally, research focusing on the implementation of sustainable practices can help us understand how students' knowledge and awareness translate into real-world actions.

Acknowledgments

We would like to express our deepest gratitude to the Eurasia Foundation for the full support that has been given in the form of funding for the organization of an international public lecture in 2024 at Galuh University. This support means a lot to us in realizing quality and broad-impact academic activities.

Declarations

The first author was involved in formulating the initial concept and developing the research instrument to measure the dimensions of sustainable entrepreneurship. The second author was responsible for conducting literature searches and data analysis. The third author was responsible for further data analysis and drafting the article. Meanwhile, the fourth author focused on collecting research data.

REFERENCES

- Baporikar, N., & Fotolela, R. (2021). Socio-Cultural Facets for Sustainable Entrepreneurship Development. *International Journal of Sustainable Economies Management*, 9(4).
- Berglund, T., & Gericke, N. (2016). Separated and integrated perspectives on environmental, economic, and social dimensions – an investigation of student views on sustainable development. *Environmental Education Research*, 22(8).
-

- Birdsall, S. (2014). Measuring student teachers' understandings and self-awareness of sustainability. *Environmental Education Research*, 20(6).
- Boudia, M. F., & Hagain, F. (2023). Perceptions of the sustainable entrepreneurial intention of university students as picture for economic integration. *Les Cahiers Du Cread*, 39(2).
- Brazdauskas, M., & Žirnelė, L. (2018). Promoting Sustainable Entrepreneurship in Higher Education. *The Influence of Scientific Applied Research on the Quality of Modern Studies*, 1(11).
- Chahal, J., & Baber, H. (2024). University or Personal Sustainability—What Shapes Sustainable Entrepreneurship Intentions of Students? *Journal of Entrepreneurship and Innovation in Emerging Economies*, 23939575241237940.
- Damico, A. B., Aulicino, J. M., & Di Pasquale, J. (2022). What Does Sustainability Mean? Perceptions of Future Professionals across Disciplines. *Sustainability (Switzerland)*, 14(15).
- Figuroa-Domecq, C., Kimbu, A., de Jong, A., & Williams, A. M. (2022). Sustainability through the tourism entrepreneurship journey: a gender perspective. *Journal of Sustainable Tourism*, 30(7).
- Fleck, E., Kakouris, A., & Winkel, D. (2021). Cultural traits of entrepreneurship education: a cross-national study. *Journal of Entrepreneurship in Emerging Economies*, 13(5).
- Fors, P., & Lennerfors, T. T. (2019). The individual-care nexus: A theory of entrepreneurial care for sustainable entrepreneurship. *Sustainability (Switzerland)*, 11(18).
- García-González, E., Jiménez-Fontana, R., & Goded, P. A. (2020). Approaches to teaching and learning for sustainability: Characterizing students' perceptions. *Journal of Cleaner Production*, 274.
- Gimenez-Jimenez, D., & Harc, M. (2024). Students' Sustainable Entrepreneurship Intentions: The Role of Sustainable Values and Culture. *Journal of Entrepreneurship*, 33(1).
- Hermann, R. R., & Bossle, M. B. (2020). Bringing an entrepreneurial focus to sustainability education: A teaching framework based on content analysis. In *Journal of Cleaner Production* (246).
- Hossain, S. (2021). Factors Influencing Sustainable Entrepreneurial Practices: Looking at Individual-Level Factors through Conventional Entrepreneurial Perspectives. *The International Journal of Business & Management*, 9(8).
- Joensuu-Salo, S., Kangas, E., Könönen, L., & Koivuranta, A. (2024). Gendered Perspectives on Sustainable Entrepreneurship: A Study of Finnish SMEs. *International Conference on Gender Research*, 1(1).
- Johnson, M. P., & Schaltegger, S. (2020). Entrepreneurship for Sustainable Development: A Review and Multilevel Causal Mechanism Framework. *Entrepreneurship: Theory and Practice*, 44(6).
- Kraus, S., Burtscher, J., Vallaster, C., & Angerer, M. (2018). Sustainable entrepreneurship orientation: A reflection on status-quo research on factors facilitating responsible managerial practices. *Sustainability*, 10(2).
- Kuusalu, S. R., Laine, P., Maijala, M., Mutta, M., & Patzelt, M. (2023). University language students' evaluations of ecological, social, cultural and economic sustainability and their importance in language teaching. *International Journal of Sustainability in Higher Education*, 25(9).
- Naukkarinen, J., & Jouhkimmo, L. (2021). Toward integrated and inclusive education for sustainability with school–university cooperation. *Sustainability*, 13(22).
- Nuringsih, K., Edalmen, E., & N., N. M. (2023). Modeling of Sustainability Knowledge: Under Perception on Entrepreneurship Students. *International Journal of Application on Economics and Business*, 1(1).
- Outsios, G., & Farooqi, S. A. (2017). Gender in sustainable entrepreneurship: evidence from the UK. *Gender in Management*, 32(3).
- Planck, S., Wilhelm, S., Kobilke, J., & Sailer, K. (2024). Greater than the Sum of Its Parts: Combining Entrepreneurial and Sustainable Competencies in Entrepreneurship Education. *Sustainability*, 16(9).
- Richomme-Huet, K., & de Freyman, J. (2014). *What Sustainable Entrepreneurship Looks Like: An Exploratory Study from a Student Perspective*.
- Schaefer, K., Corner, P. D., & Kearins, K. (2015). Social, Environmental and Sustainable Entrepreneurship Research. *Organization & Environment*, 28(4).
-

- Sharma, L., Bulsara, H. P., Trivedi, M., & Bagdi, H. (2024). An analysis of sustainability-driven entrepreneurial intentions among university students: the role of university support and SDG knowledge. *Journal of Applied Research in Higher Education*, 16(2).
- Shepherd, D. A., & Patzelt, H. (2011). The New Field of Sustainable Entrepreneurship: Studying Entrepreneurial Action Linking “What Is to Be Sustained” With “What Is to Be Developed.” *Entrepreneurship: Theory and Practice*, 35(1).
- Sundermann, A., & Fischer, D. (2019). How does sustainability become professionally relevant? Exploring the role of sustainability conceptions in first year students. *Sustainability (Switzerland)*, 11(19).
- Tiemann, I., Fichter, K., & Geier, J. (2018). University support systems for sustainable entrepreneurship: Insights from explorative case studies. *International Journal of Entrepreneurial Venturing*, 10(1).
- Tilley, F., & Parrish, B. D. (2006). From poles to wholes: facilitating an integrated approach to sustainable entrepreneurship. *World Review of Entrepreneurship, Management and Sustainable Development*, 2(4).
- Yasir, N., Mahmood, N., Mehmood, H. S., Babar, M., Irfan, M., & Liren, A. (2021). Impact of environmental, social values and the consideration of future consequences for the development of a sustainable entrepreneurial intention. *Sustainability*, 13(5).
- Zahrani, A. A. (2022). Promoting sustainable entrepreneurship in training and education: The role of entrepreneurial culture. *Frontiers in Environmental Science*, 10.
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