Article

Degree of Environmental Sustainability and Green Financing Skills of Prince Sattam bin Abdulaziz University Students in the Light of Sustainable Development Goals of Vision 2030

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Abstract

This research aims to identify the degree of environmental sustainability and green financing skills of Prince Sattam bin Abdulaziz University Students in the light of sustainable development goals of Vision 2030. This is due to Prince Sattam bin Abdulaziz University (PSAU) launching the PSAU 2030 Sustainable Development Goals Roadmap (SDG) as part of its commitment towards the attainment of the United Nations (UN) SDGs. The researchers used a questionnaire survey and a personal interview, designed for this purpose. The method of internal stability (Cronbach's Alpha) was applied to estimate stability. The terminal comparison method was used to verify the validity in addition to the honesty of the arbitrators who specialized in educational and economic fields. To achieve the study objectives, the research used the descriptive survey and analytical methods. A research sample of 2374 students of Prince Sattam bin Abdulaziz University - Al-Kharj from the second semester in the academic year 1446 AH was selected randomly. The results showed a high degree of the university students' possession of environmental sustainability and green financing skills. There are also statistically significant differences at the level of significance (α= 0.05) environmental sustainability and green financing skills level of university students due to the gender variable (male - female), These findings highlight environmental sustainability and green financing as an essential competence for university students. Based on these results, the paper emphasized the necessity of imparting training to students around relevant environmental sustainability and green financing skills. The study also emphasizes the importance of longitudinal tracking of evidence-based cognitive instruction to better substantiate reform efforts and achieve sustainable development.

Keywords

Environmental Sustainability Skills, Green Financing Skills, Sustainable Development of Vision 2030, Science Learning.

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Introduction

In the twenty-first century, the world seeks to confront current environmental problems and issues: air pollution, loss of biodiversity, deforestation, nutrition, and global climate change by establishing projects and exploiting all available resources and capabilities to reach a high economic position; therefore, it is necessary for learners to have environmental awareness of these problems and issues. This is the role of universities that lies at the heart of sustainable development, and higher education institutions are essential to achieving education for a sustainable future. To address these problems and issues, many conferences and meetings were held, including the International Environmental Meeting (ARAMCO, 2023), Stockholm Sweden, the United Nations Sustainable Development Summit (United Nations, 2015), and the Rio Summit on Sustainable Development and Green Economy (United Nations, 2012).

Saudi Arabia and Middle East Green Initiatives 2021 come in line with the Kingdom's pioneering efforts to achieve global climate change goals preserve the environment and biodiversity by planting 10 billion trees, increasing green areas 12-fold as the largest reforestation effort in the world to reduce carbon emissions by more than 4% within global contributions, and combating land degradation and pollution to enhance living conditions (Saudi Green Initiatives, 2021). The Saudi Ministry of Education also paid great attention to the presence of smart buildings electronic transactions, and device extinguishing and archiving systems. Its building was approved as the first smart government building (Ministry of Education, 2022).

Natural Sciences is considered one of the most important academic disciplines focusing on students' acquisition of environmental sustainability and green finance skills in light of Sustainable Development of Vision 2030, based on the Sustainable Development Report (ESCWA, 2024, 19). Science curricula are also one of the most important components of curricula that contribute to building the student's personality, given their interest in studying topics of the natural environment, the relationship between humans and the mutual relationships in ecosystems, and their treatment of many concepts about sustainable development (Hamdi, 2023; Somwaru, 2016).

Substantial evidence demonstrates that education constitutes a cornerstone of human well-being. When educational levels rise, mortality rates consistently fall, health outcomes improve, and overall quality of life enhances (Balaj et al., 2024; Halpern-Manners et al., 2020). This evidence indicates that education functions as a fundamental catalyst for progress in environmental sustainability and green financing. In this regard, some studies and research have shown the importance of environmental sustainability and green financing in achieving the Vision 2030 Sustainable Development Goals (Li, 2025; Ragupathi & Sujatha, 2015; Saleem et al., 2022; Shaheen, 2020; UNESCO, 2019).

However, there still exists a research gap. Little has been conducted to understand the degree of environmental sustainability and green financing skills of Prince Sattam bin Abdulaziz University Students in the light of sustainable development goals of Vision 2030. The Kingdom of Saudi Arabia's leadership has shown interest in preserving the environment and basic needs of water, food, and energy in a sustainable manner. Their interest lies in developing environmentally friendly technologies to provide and desalinate water, adopt modern and sustainable technologies for food production and increase green spaces, carbon capture, utilization and storage technologies. In addition, efforts are made for producing low-cost electricity through sustainable technologies. A need is therefore felt to study the degree of environmental sustainability and green financing skills of Prince Sattam bin Abdulaziz University Students in the light of sustainable development goals of Vision 2030.

Based on the foregoing, the researchers' motivation to conduct the current research increased. This study addresses this critical gap because, to the best of their knowledge, no study has addressed the degree of environmental sustainability and green financing skills of Prince Sattam bin Abdulaziz University Students in the light of sustainable development goals of Vision 2030. Eventually, this research aims to achieve the following objectives: (1) The level of environmental sustainability skills among Prince Sattam bin Abdulaziz University students in light of Sustainable Development Goals of Vision 2030. (2) The level of green financing skills among Prince Sattam bin Abdulaziz University students in light of Sustainable Development Goals of Vision 2030. (3) Differences in environmental sustainability and green finance skills among Prince Sattam bin Abdulaziz University students were statistically significant ($\alpha = 0.05$) when gender was considered.

These objectives were accomplished by addressing the primary question: *What is the degree of environmental sustainability and green financing skills of Prince Sattam bin Abdulaziz University students in the light of sustainable development goals of Vision 2030?* This branched into following questions: (1) What is the

level of environmental sustainability skills among Prince Sattam bin Abdulaziz University students in the light of sustainable development goals of Vision 2030? (2) What is the level of green finance skills among Prince Sattam bin Abdulaziz University students, in light of sustainable development goals of Vision 2030? (3) Is there a statistically significant difference (α = 0.05) in environmental sustainability and green finance skills among Prince Sattam bin Abdulaziz University students based on gender (males - females)?

The significance of thecurrent research lies in providing data on the extent to which university students possess environmental sustainability and green finance skills, which would help in decision-making regarding the dimensions of sustainable development. This research would also assist faculty members and those in their judgment at Prince Sattam bin Abdulaziz University to reach a general perception of the extent to which university students possess environmental sustainability and green finance skills, and thus take this into account when presenting educational content in curricula, and designing lessons in a better way that ensures the continuity of ongoing support for these skills and their development among students. This study would also create an educational environment defined by appealing university academic skills in light of Sustainable Development Goals of Vision 2030 by preparing Prince Sattam bin Abdulaziz University students for environmental sustainability and green finance. Last, but not the least, this study would generate interactive environmental sustainability through green finance and living applications, and provide recommendations and proposals for other new research and studies related to the research topic.

Literature Review

Environmental Sustainability

It is a state of balance, flexibility, and interconnectedness that allows human society to meet its needs without exceeding the capacity of the ecosystems that support it to replenish the services required to meet those needs, and without engaging in actions that contribute to reducing biodiversity (Morelli, 2011; United Nations, 2022). Environmental sustainability is operationally defined in the current study as the sample's concern for environmental pollution, climate change, carbon footprint, recycling, and using environmentally friendly technologies in light of sustainable development of Vision 2030.

One of the main features of the Kingdom's orientation and approach to sustainability to confront human challenges and sustain the prosperity of societies is the launch of the "King Salman Foundation" by the Custodian of the Two Holy Mosques, King Salman bin Abdulaziz, in response to the aspirations aimed at creating a lasting impact for the individual and society (Saudi Press Agency, 2024). A sustainable environment is a link in implementing sustainability in general since achieving sustainability will only be accomplished by achieving economic and social sustainability, in addition to establishing a sustainable environment, thus we must develop a sustainable environment (Madkour, 2023).

The concept of sustainable development is defined in the glossary of the Global System for Sustainable Development as the process of meeting the needs of present and future generations without undermining the resilience of life-supporting properties or the integrity and cohesion of social systems (Global System for Sustainable Development, 2024). The SDG Action Platform also serves as a global registry of voluntary policies, commitments, multilateral partnerships, and other initiatives undertaken by governments, the UN system and a broad range of stakeholders to support the acceleration of the UN SDGs. Governments and other actors are encouraged to register their policies, initiatives, or commitments that accelerate the implementation of one or more SDGs on the platform by filling out a form that requests detailed information about each policy/initiative, including implementation details, beneficiaries, budget, resources, timeline and evaluation (SDG, 2024).

Environmental sustainability also refers to knowledge or feeling about the environment, and understanding the environment as a result of seeing, hearing, and experiencing it, as well as uncovering information (Du et al., 2018). The importance of environmental sustainability is evident through several measures viz., (i) Improving environmental performance and increasing energy efficiency; (ii) Creating added value by entering new and emerging markets, as environmental sustainability contributes to finding appropriate solutions to meet the growing market needs with the aim of outperforming competitors; (iii) Allowing for increased productivity and technical capacity, which allows for the exchange of shared information and participation in the innovation process in various departments within the organization; (iv) Being a source of attraction for investment, as financial opportunities increase for organizations that adopt environmental sustainability

programs; (v) Playing a fundamental role in promoting and activating green growth and achieving some goals, the most important of which are rationalizing energy and reducing emissions and greenhouse gases; and (vi) Allowing organizations to exhibit their environmental consciousness by manufacturing products that do not contain hazardous or poisonous elements; in exchange, organizations attempt to use the least amount of materials and energy in creating products (Aichouch & Tabakhi, 2020; Boutarfa & Farhi, 2020).

The effectiveness of the educational programs is significantly enhanced when integrated with supportive policy frameworks, including appliance labelling systems, efficiency standards, and improved access to clean technologies (IEA, 2025; OECD, 2017). Several studies have shown environmental sustainability, including (Alahmad, 2024), which identified the impact of corporate ingenuity on social, economic, and environmental performance with the mediating effect of corporate sustainability, which is summarized in (social responsibility, environmental management, health, customer management, safety, and risk management) in retail food companies in the Kingdom of Saudi Arabia. The stratified random sample method was utilized to select (317) questionnaires from the branches of food sales companies. The gathered data was evaluated using SEM and SMART-PLS 4. The measurement model was used to assess the model's dependability, as well as the path coefficient in the structural equation model to test the study hypothesis. The study's findings confirmed the positive impact of small and medium-sized enterprise sustainability on social, environmental, and economic performance, as well as significant effects on improving environmental, economic, and social performance, with small and medium-sized enterprise sustainability acting as a mediator in the study model.

Another study (Al-Otaibi & Al-Shabi, 2023) aimed to identify the role of environmental and social sustainability practices in the financial performance of Saudi banks from 2013-2021. The study used its data from (The Bloomberg database), and then the multiple linear regression model was applied. Likewise, Azmi et al. (2021) investigates the channels through which ESG activity impacts bank value and finds a positive relationship between ESG activity and both cash flows and efficiency, and explains why proponents of both stakeholder theory and trade-off theory have found evidence to support their predictions of the relationship between ESG activity and bank value.

Al-Jaidi and Al-Zahrani (2016) have shed light on the associations of corporate social and environmental responsibilities with corporate sustainability in the Kingdom of Saudi Arabia from 2007-2011. The study used pooled least squares regression analysis to estimate the associations proposed in the hypothesis. The sample consisted of 164 companies listed on the Tadawul platform. The study revealed that corporate social and environmental responsibility had a negative impact on company sustainability. The study advised that corporations should focus more on improving the role and quality of their social and environmental responsibilities, as this can have a positive impact on their long-term sustainability.

Green Financing

The Saudi Ministry of Finance defines green financing as eligible expenditures or projects that will meet any current or future required investment criteria or guidelines, especially about any direct or indirect environmental or sustainable impact of any project or any uses (Ministry of Finance, 2024). It is operationally defined in the current research as students of Prince Sattam bin Abdulaziz University possessing skills related to money for green development. This reduces the three risks of scientific economy, viz., environmental change, the need for balanced financing, and vital necessities, in light of Sustainable Development Goals of Vision 2030.

Green financing is a key enabler of achieving Sustainable Development Goals of Vision 2030. Green financing is an essential part of low-pollution green development, as it links the financial industry, environmental change, and sustainable development, as one of the missing links between knowledge and action in the progress towards green industry (Shaheen, 2020). Remote Energy (2024) emphasized empowering citizens with skills and education through various training programs in solar energy for both men and women, as millions of jobs are expected to become available in the renewable solar energy sector over the next decade.

The triple helix model of innovation based on the interaction between university, industry, and government, is also an important driver of green finance in the 21st century. Where the dynamic interaction between the university, industry, and government appears, where the government sets policies, and industry and university interact continuously. It is one of the most important models that describe the processes of knowledge transfer and the interactions that happen during its transfer, as this model focuses on creating strong links between the university, industry, and government (Ibrahim, 2015).

The idea of the triple helix model was borrowed from biotechnology, consisting of three helices that refer to the bimolecular structure of DNA in biophysics, and the metaphor here is to describe the interconnection and operations of the three forces (tripartite) in society: university, industry, and government (Blenker, Dreisler, & Kjeldsen, 2006). The importance of green financing is evident from (Shaheen, 2020; Wang & Zhi, 2016): (i) Protecting the environment and achieving optimal and sustainable use of resources; (ii) Directing the flow of funds; (iii) Effective management of environmental risks; (iv) Optimal allocation of environmental and social resources; (v) Reducing the risks of environmental economic activities to achieve the desired returns.

This is confirmed by previous research and studies that refer to green financing in light of sustainable development, in terms of professionalism in planning, implementation, and development, including the study of Arhinful, Mensah and Owusu-Sarfo (2024), which investigated the impact of board characteristics on the ESG (Environmental, Social, and Governance) performance of automobile companies listed on the Tokyo Stock Exchange. It aimed to discern how corporate governance affects these firms, focusing on both medium and larger-sized companies. The central research question was: how do board characteristics impact the ESG performance of automobile companies? Data from Thomson Reuters Eikon for 32 automobile companies, spanning 2005 to 2021, were analyzed, with the companies categorized into medium (15) and larger sized (17) classifications. The study employed random and fixed effect models and utilized Hausman specification tests to validate the consistency and efficiency of the fixed effect model against the random effect model. To address endogeneity, a two-step robust GMM methodology was applied. Results revealed intriguing findings: board gender diversity and meetings had a negative and insignificant impact on ESG performance, while non-executive directors had a detrimental and significant effect. Conversely, board size, educational background, CEO dual roles, and independent board members positively and significantly influenced ESG performance in these automobile companies. Given the significant impact identified, it is recommended to reconsider the composition of non-executive directors.

Scholars argue that conventional financing often neglects environmental criteria, leading to trade-offs between economic growth and emissions reduction (European Commission, 2023; FAO, 2024). Mushkil and Al-Atwani (2023) aimed to verify the effectiveness of spending on higher education in Iraq in the period from 2004-2021, and its impact on achieving sustainable development goals of Vision 2030. The study used the descriptive analytical approach, and one of the most prominent results it reached was the lack of specific allocations for the education sector in the general budget compared to the importance of this vital sector, which negatively affected the achievement of sustainable development.

Al-Otaibi and Al-Shabi (2023) aimed to identify the environmental and social sustainability practices in the financial performance of Saudi banks during the period from 2013 to 2021. The study used its data from the Bloomberg database, and then the multiple linear regression model was applied. The study reached several results, the most important of which were: a negative correlation between ESG, ROA, and ROE with statistical significance, which confirms that Saudi banks are keen to disclose financial statements, ownership structures, and information symmetry between shareholders and the board of directors, which benefits the return on equity, and thus is reflected in the bank's capital value.

Azmi et al. (2021) also sheds light on the relationship between environmental, social, and governance (ESG) activity and bank value. The study sample includes 251 banks over the period 2011–2017 from 44 emerging economies. The System Generalized Method of Moments (GMM) estimation was employed to control endogeneity. The result found a non-linear relationship between ESG activity and bank value, and indicate low levels of ESG activity positively impact bank value. However, there were diminishing returns to scale. Environmentally friendly activities have the greatest effect on bank value. The channels through which ESG activity impacts bank value were also examined to find a positive relationship between ESG activity and both cash flows and efficiency. ESG activity was found negatively affecting the cost of equity but having no effect on the cost of debt. These results explain why proponents of both stakeholder theory and trade-off theory have found evidence to support their predictions of the relationship between ESG activity and bank value.

Sebaa (2020) also emphasized clarifying the most important stations of environmental economics by addressing the relationship between economy and environment, as it is considered a landmark or a wide window in the philosophy of economic thought. It clarifies the costs of environmental problems and the requirements for the transition to a green economy by reviewing government policies and paying attention to rural development, environmental management systems and their role in sustainable development. Alwan's study (2016), too, sheds light on the relationship between higher education institutions and economic and social development processes

and finding solutions to overcome the spread of unemployment among graduates. It presented a proposed vision to activate the relationship between universities and the labor market in Egypt by benefiting from models of corporate universities in some countries that have pioneering interests in this field, such as India, Russia, and the United States of America. The study used the comparative approach, which is not limited to describing phenomena but rather analyzing and interpreting them in light of the circumstances of their societies and the prevailing cultural and societal forces in them, and opportunities to benefit from them in a manner consistent with the circumstances of society.

Hence, the previous studies show that there are several areas and opportunities available to students to increase their possession of environmental sustainability and green finance skills to achieve the goals of Sustainable Development in light of the Saudi Arabia Kingdom's Vision 2030. No study has dealt with the degree of environmental sustainability and green financing skills of Prince Sattam bin Abdulaziz University Students in the light of sustainable development goals of Vision 2030. This study, therefore, addresses various variables, research methodologies, and presents mechanisms, that were not covered in any of the prior investigations. Moreover, none of the prior research addresses the majority of the present research aims, especially about the degree of environmental sustainability and green financing skills of Prince Sattam bin Abdulaziz University students in the light of sustainable development goals and Saudi Vision 2030, which are the starting points or foundations on which the current study is based.

Methodology

Research Design
The study adopted a descriptive survey and analytical research design to investigate the degree/level of environmental sustainability and green financing skills of Prince Sattam bin Abdulaziz University students in the light of sustainable development goals and Saudi Vision 2030. The research design suited this study owing to its exploratory and analytical nature.

Research Determinants
i. *Spatial Determinants*: A randomly selected sample of students (2374) comprised (1161) males (49%) and (1213) female students (51%) - from Prince Sattam Bin Abdulaziz University Colleges - Al-Kharj – Riyadh.
ii. *Objective Determinants:* In some concepts of environmental sustainability and green financing, for their relevance to Sustainable Development Goals of Vision 2030.
iii. *Time Determinants*: The second semester of the academic year 1446 AH (2024-2025 AD).

Research Instruments
The three research tools of this study included:
i. ***Environmental Sustainability Questionnaire****:* To survey the opinion of Prince Sattam bin Abdulaziz University students about the skills of environmental sustainability in light of Sustainable Development Goals of Vision 2030. The study employed two 16-item questionnaires to assess environmental sustainability skills among Prince Sattam bin Abdulaziz University students, using a 5-point Likert scale. These questionnaires underwent expert validation (The terminal comparison method) and reliability (Cronbach's Alpha) testing with a sample of 600 additional students.
ii. ***Green Financing Questionnaire****:* To survey the opinion of Prince Sattam bin Abdulaziz University students about the skills of green finance in light of Sustainable Development Goals of Vision 2030. The study employed two 12-item questionnaires to assess green finance skills among Prince Sattam bin Abdulaziz University students, using a 5-point Likert scale. These questionnaires underwent expert validation (The terminal comparison method) and reliability (Cronbach's Alpha) testing with a sample of 600 additional students.
iii. ***Personal Interview Card:*** To assess the degree and level of environmental sustainability and green financing skills among Prince Sattam bin Abdulaziz University students in light of sustainable development goals of Vision 2030, as well as to assure the quality of the results and respond to research questions.

Results and Discussion

Right at the outset, to finalize the questionnaires and personal interview card, their validity and stability were confirmed by applying them to a sample of 600 individuals outside the research sample within the study community. The method of internal stability (Cronbach's Alpha) was applied to estimate stability. The terminal comparison method was used to verify validity in addition to the honesty of the arbitrators who specialize in the educational and economic fields. To determine the criteria for judging the responses of the sample population, the category length was determined by the following equation:

Relative weight = (Highest value - lowest value) / number of levels = (5-1) / 3 = 1.33

According to this equation, the criterion for judging the study sample estimates was adopted as shown in Table 1:

Table 1: *Relative Weight, Categories, and Verbal Estimates of the Questionnaires and the Personal Interview Cards.*

Rank	Extent	Verbal Estimation
1	From (1- 1.50)	Very small
2	From (1.51- 2.60)	Small
3	From (2.61- 3.40)	Medium
4	From (3.41- 4.20)	Large
5	From (4.21- 5)	Very large

Table 1 provides the Relative Weight, Categories, and Verbal Estimates of the Environmental Sustainability and Green Financing Questionnaires and the personal interview cards by the Relative weight equation: (Highest value - lowest value) / number of levels = (5-1) / 3 = 1.33. which are in: Rank 1 (very small), Rank 2 (small), Rank 3 (Medium), Rank 4 (Large), Rank 5 (Very Large).

Table 2: *The Validity of the Environmental Sustainability Questionnaire.*

Sets	Sample Volume	Mean	Freedom Degree	t- value	Significance level
Upper set	201	2.76	400	9.7	Significance at α= 0.05
Lower set	201	0.58			

Table 2 provides valuable insights into the validity assessment of the Environmental Sustainability Questionnaire. We notice that the statistically significant value of t is 9.7, which is significant at (α=0.01) significance level. It shows the difference between the two sets in their questionnaire scores. It acquired an acceptable degree of validity and was suitable for use in the research. This result indicates that the questionnaire demonstrated an acceptable level of validity, rendering it suitable for utilization within the research study.

Table 3: *Assessment of Stability Through Internal Consistency Concerning to the Environmental Sustainability Questionnaire using Cronbach's Alpha.*

Tool	No. of Total Skills	Cronbach's Alpha (α) stability coefficient
The Environmental Sustainability Questionnaire	16	0.86

Table 3 provides an evaluation of the questionnaire's stability when it comes to assessing the Environmental Sustainability Skills. This assessment is conducted using a statistical measure called Cronbach's Alpha (α) stability coefficient. In this case, the questionnaire contains 16 skills related to Environmental Sustainability Skill, and its Cronbach's Alpha value is calculated at 0.86. The Cronbach's Alpha coefficient is a measure of internal consistency, and in this context, a value of 0.86 indicates a high level of reliability, suggesting that the questionnaire is a consistent and dependable tool for assessing the specified skills in Environmental Sustainability.

Table 4: *The Validity Assessment of the Green Financing Questionnaire.*

Sets	Sample Volume	Mean	Freedom Degree	t- value	Significance level
Upper set	201	2.48	400	8.4	Significance at α= 0.05
Lower set	201	0.51			

Table 4 provides valuable insights into the validity assessment of the Green Financing Questionnaire. we notice that the statistically significant value of t is 8.4, which is significant at (α=0.01) significance level. It shows the difference between the two sets in their questionnaire scores. It acquired an acceptable degree of validity and was suitable for use in the research. This result indicates that the questionnaire demonstrated an acceptable level of validity, rendering it suitable for utilization within the research study.

Table 5: *Assessment of Stability Through Internal Consistency Concerning to the Green Financing Questionnaire using Cronbach's Alpha.*

Tool	No. of Total Skills	Cronbach's Alpha (α) stability coefficient
The Green Financing Questionnaire	12	0.87

Table 5 provides an evaluation of the questionnaire's stability when it comes to assessing the Green financing, Skills. This assessment is conducted using a statistical measure called Cronbach's Alpha (α) stability coefficient. In this case, the questionnaire contains 12 skills related to Green financing Skill, and its Cronbach's Alpha value is calculated at 0.87. The Cronbach's Alpha coefficient is a measure of internal consistency, and in this context, a value of 0.87 indicates a high level of reliability, suggesting that the questionnaire is a consistent and dependable tool for assessing the specified skills in Environmental Sustainability.

Table 6: *The Validity Assessment of the Personal Interview Card.*

Sets	Sample Volume	Mean	Freedom Degree	t- value	Significance level
Upper set	201	2.64	400	9.5	Significance at α= 0.05
Lower set	201	0.53			

Table 6 provides valuable insights into the validity assessment of the Personal interview card. we notice that the statistically significant value of t is 9.5, which is significant at (α=0.01) significance level. It shows the difference between the two sets in their questionnaire scores. It acquired an acceptable degree of validity and was suitable for use in the research. This result indicates that the Personal interview card demonstrated an acceptable level of validity, rendering it suitable for utilization within the research study.

Table 7: *Assessment of Stability Through Internal Consistency Concerning to the Personal Interview Card Using Cronbach's Alpha.*

Tool	No. of Questions	Cronbach's Alpha (α) stability coefficient
Personal Interview Card	6	0.84

Table 7 provides an evaluation of the personal interview card's stability when it comes to assessing the Environmental Sustainability and Green Financing Skills. This assessment is conducted using a statistical measure called Cronbach's Alpha (α) stability coefficient. In this case, the personal interview card contains 6 questions related to Environmental Sustainability and Green Financing Skills, and its Cronbach's Alpha value is calculated at 0.84. The Cronbach's Alpha coefficient is a measure of internal consistency, and in this context, a value of 0.84 indicates a high level of reliability, suggesting that the personal interview card is a consistent and dependable tool for assessing the specified skills related to environmental sustainability and green financing.

To address the research questions, we employed SPSS 29. Specifically, in response to the first research question: *concerning the level of environmental sustainability skills among Prince Sattam bin Abdulaziz University students, in light of Sustainable Development Goals of Vision 2030*, we calculated Arithmetic averages, standard deviations, Rank, verbal estimation, T-test for one group, and statistical significance of environmental sustainability as a whole, and its sub-skills were extracted.

Table 8: *The Level of Environmental Sustainability Skills Among Prince Sattam bin Abdulaziz University Students, in Light of Sustainable Development Goals of Vision 2030.*

Environmental Sustainability Skills Dimensions	Average			SD			Rank	Verbal estimation	T-value	Significance α=0.05
	male	female	total	male	female	total				
Environmental pollution awareness skills	4.4	4.5	4.45	0.3	0.3	0	5	Very large	153.37	sig
Climate Change Concern Skills	4.2	4.3	4.25	0.2	0.2	0	5	Very large	93.55	sig
Carbon footprint care skills	4.2	4.3	4.25	0.1	0.2	0.07	5	Very large	71.50	sig
Material recycling and reusing skills	4.1	4.3	4.20	0.1	0.2	0.07	4	Large	70.35	sig
Total of Environmental Sustainability Skills	4.23	4.35	4.29	0.09	0.05	0.04	5	Very large	297.50	sig

Table 8 shows that the Arithmetic average ranged from 4.20 to 4.45 and ranked very high, the standard deviation ranged from 0 to 0.07, and T-values ranged from 70.35 to 297.50, all of which are statistically significant at α=0.05. These findings align with prior research by Alahmad (2024), ESCWA (2024), Madkour (2023), Al-Otaibi and Al-Shabi (2023), United Nations (2022), Ministry of Education (2022), Azmi et al. (2021), Al-Jaidi and Al-Zahrani (2016), which also emphasized the importance of a diverse range of tools aimed at enhancing environmental sustainability skills in light of Sustainable Development Goals of Vision 2030.

To answer the second research question: *What is the level of green financing skills among Prince Sattam bin Abdulaziz University students, in light of Sustainable Development Goals of Vision 2030?* we calculated Arithmetic averages, standard deviations, Rank, verbal estimation, T-test for one group, and statistical significance of green financing as a whole and its sub-skills were extracted.

Table 9: *The Level of Green Financing Skills Among Prince Sattam bin Abdulaziz University Students, in Light of Sustainable Development Goals of Vision 2030.*

Green Financing Skills Dimensions	Average			SD			Rank	Verbal estimation	T-value	Significance α=0.05
	male	female	total	male	female	total				
Directing the flow of funds	4.1	4.3	4.20	0.1	0.2	0.07	5	Very large	93.54	sig
Optimal allocation of environmental and social resources	4.2	4.3	4.25	0.1	0.2	0.07	5	Very large	86.30	sig
Understanding the relationship between the economy and the environment	4.2	4.4	4.3	0.1	0.2	0.07	5	Very large	79.31	sig
Total of Green Financing Skills	4.16	4.33	4.25	1.7	0.07	0	5	Very large	262.73	sig

Table 9 shows that the Arithmetic average ranged from 4.20 to 4.25 and ranked very high, the standard deviation ranged from 0 to 0.07, and T-values ranged from 86.30 to 262.73, all of which are statistically significant at α=0.05. These findings align with prior research by the Ministry of Finance (2024), Mushkil and Al-Atwani (2023), Al-Otaibi and Al-Shabi (2023), United Nations (2022), Azmi et al. (2021), Sebaa (2020), and Alwan (2016), all of which underscored the importance of a diverse array of tools aimed at enhancing green financing skills in light of Sustainable Development Goals of Vision 2030.

To answer the third research question: *Is there a statistically significant difference (α = 0.05) in environmental sustainability and green financing skills among Prince Sattam bin Abdulaziz University students*

based on gender (males - females)? Arithmetic averages, standard deviations, T-test for two independent samples, and statistical significance of environmental sustainability and green financing as a whole, and their sub-skills were extracted.

Table 10: *Significant Differences in Environmental Sustainability Skills of Prince Sattam bin Abdulaziz University Students based on Gender (males - females)? at α=0.05.*

Environmental Sustainability Skills Dimensions	Male		Female		T-value	Significance α=0.05
	Average	SD	Average	SD		
Environmental pollution awareness skills	4.4	0.3	4.5	0.3	2.76	sig
Climate Change Concern Skills	4.2	0.2	4.3	0.2	1.97	sig
Carbon footprint care skills	4.2	0.1	4.3	0.2	1.98	sig
Material recycling and reusing skills	4.1	0.1	4.3	0.2	2.18	sig
Total of Environmental Sustainability Skills	4.23	0.09	4.35	0.05	2.17	sig

Table 10 reveals statistically significant differences in Environmental Sustainability Skills among Prince Sattam bin Abdulaziz University students based on gender (males - females), with respective T-values of 2.76, 1.97, 1.98, 2.18, and 2.17, all exceeding the critical value at α=0.05. These findings align with previous studies Alahmad (2024), Madkour (2023), Al-Otaibi and Al-Shabi (2023), United Nations (2022), Ministry of Education (2022), Azmi et al. (2021), Al-Jaidi and Al-Zahrani (2016), indicating that environmental sustainability skills enhance productive thinking, such as creativity and critical thinking, promoting advanced educational outcomes and societal progress.

Table 11: *Significant Differences in green Financing Skills of Prince Sattam bin Abdulaziz University Students Based on Gender (males - females)? at α=0.05.*

Green Financing Skills Dimensions	Male		Female		T-value	Significance α=0.05
	Average	SD	Average	SD		
Directing the flow of funds	4.1	0.1	4.3	0.2	1.96	sig
Optimal allocation of environmental and social resources	4.2	0.1	4.3	0.2	1.96	sig
Understanding the relationship between the economy and the environment	4.2	0.1	4.4	0.2	2.18	sig
Total of Green Financing Skills	4.16	1.7	4.33	0.07	2.11	sig

Table 11 reveals statistically significant differences in green financing skills among Prince Sattam bin Abdulaziz University students based on gender (males - females), with respective T-values of 1.96, 1.96, 2.18, 2.18, and 2.11, all exceeding the critical value at α=0.05. These findings align with previous studies the Ministry of Finance (2024), Alahmad (2024), Madkour (2023), Mushkil and Al-Atwani (2023), Al-Otaibi and Al-Shabi (2023), United Nations (2022), Azmi et al. (2021), Sebaa (2020), Alwan (2016), Al-Jaidi and Al-Zahrani (2016), indicating that green financing skills enhance productive thinking, such as creativity and critical thinking, promoting advanced educational outcomes and societal progress.

Next, the study focused to clarify and verify the above-mentioned results and to answer the primary research question: *What is the degree of environmental sustainability and green financing skills of Prince Sattam bin Abdulaziz University students in the light of sustainable development goals of Vision 2030?* First, the personal interview cards were analyzed. Arithmetic Average, standard deviations, and rankings were extracted for the degree of environmental sustainability and green financing skills of Prince Sattam bin Abdulaziz University students in the light of sustainable development goals of Vision 2030. Table 12 summarizes the state of environmental sustainability, and Table 13 presents the state of Green Financing, measured on a three-point Likert scale:

Table 12: *Descriptive Analysis of the Degree of Environmental Sustainability and Green Financing Skills of Prince Sattam bin Abdulaziz University Students in the Light of Sustainable Development Goals of Vision 2030.*

No. of questions	Question	Average	SD	Rank	Verbal estimation
1	Do you believe that having environmental sustainability skills contributes to achieving sustainable development goals of Vision 2030?	3	0	1	Very high
4	Have contemporary technology and its developments helped you acquire environmental sustainability skills?	2.73	0.46	2	Very high
2	Are there appropriate opportunities - at or outside the university - for university students to participate in awareness campaigns and seminars on environmental sustainability (preserving renewable resources and the water environment, climate change, and the carbon footprint) as opportunities to achieve sustainable development goals of Vision 2030?	2.60	0.63	3	Very high
3	Do the course activities you studied provide an appropriate environment - inside and outside classrooms - to support environmental sustainability skills, achieving Sustainable Development Goals of Vision 2030?	2.46	0.74	4	Very high
Degree of environmental sustainability and green financing skills of Prince Sattam bin Abdulaziz University students in the light of sustainable development goals of Vision 2030?		2.70	0.33		Very high

These results from Table 12 may lead to all the study sample members seeing that Environmental Sustainability skills contribute strongly to achieving Sustainable Development goals of Vision 2030 through achieving: Environmental pollution awareness skills, Climate Change Concern Skills.

Carbon footprint care skills, and Material recycling and reusing skills, which was confirmed by the answer to open question No. (5): What ideas do you propose to enhance environmental sustainability skills, and do you think they will contribute to achieving sustainable development by 2030? The sample members' responses confirmed that:

1. University courses aim to focus on the concepts of sustainability, the green economy, climate change, and natural resource management, and integrate environmental sustainability concepts into the educational curriculum from the early stages.
2. Introducing applied environmental projects within the various courses in all university disciplines.
3. Community training programs and workshops aimed at raising awareness and empowering new generations and individuals with environmental skills and conservation of natural resources, teaching urban and organic farming skills, repairing tools instead of throwing them away, and encouraging the use of solar and wind energy as an alternative to polluting factory smoke due to burning gasoline.
4. Stimulating green innovation aims to support environmentally friendly ideas and projects through competitions for environmental innovation, or project incubators for young people to innovate solutions such as recycling technologies or reducing water consumption, and providing containers within the university dedicated to recycling plastics, paper, and metals.

These results are in agreement with IEA (2025), OECD (2017), Alahmad (2024), Madkour (2023), Al-Otaibi and Al-Shabi (2023), Saleem et al. (2022), United Nations (2022), Ministry of Education (2022), Azmi et al. (2021), Shaheen (2020), UNESCO (2019), Al-Jaidi and Al-Zahrani (2016), and Ragupathi and Sujatha (2015).

To the open question No. (6): "In your opinion, how can the students of Prince Sattam bin Abdulaziz University contribute to achieving the sustainability of environmental resources?" all participants confirmed that:

1. Initiatives should be made to promote environmental awareness among students, such as the

establishment of student clubs specialized in the environment, and the organization of awareness campaigns on conservation and recycling within the campus.

2. Contributing to research projects and graduation projects on: providing innovative solutions for water and energy management, as well as studying the impact of climate change on the local area, and developing smart applications for resource conservation or environmental quality monitoring.

3. Partnering with local authorities through cooperation with municipalities, environmental associations or the private sector in: afforestation campaigns, environmental rehabilitation of some sites, and "Earth Day" or "Earth Hour" activities.

4. Benefiting from the university's facilities as an environmental model by converting some of the university's buildings into "green buildings" using solar energy or natural ventilation systems, student participation: through design and implementation projects, which enhances their skills and contributes to reducing the university's environmental impact, and participation in the university's green initiatives and tree planting.

These results are in agreement with IEA (2025), OECD (2017), Alahmad (2024), Madkour (2023), Al-Otaibi and Al-Shabi (2023), United Nations (2022), Azmi et al. (2021), Al-Jaidi and Al-Zahrani (2016).

Table 13: *The Degree of Environmental Sustainability and Green Financing Skills of Prince Sattam bin Abdulaziz University Students in the Light of Sustainable Development Goals of Vision 2030.*

No	Question	Average	SD	Rank	Verbal estimation
1	Do you believe that having green finance skills contributes to achieving sustainable development goals of Vision 2030?	2.80	0.41	1	Very high
4	Have contemporary technology and its developments helped you acquire green finance skills?	2.80	0.41	2	Very high
3	Do the course activities you studied provide an appropriate environment - inside and outside classrooms - to support green finance skills, achieving sustainable development goals of Vision 2030?	2.78	0.43	3	Very high
2	Are there appropriate opportunities - at or outside the university - for university students to participate in awareness campaigns and seminars on green finance (the triple helix model of innovation based on interaction between university, industry and government, financial awareness, and optimal allocation of environmental and social resources) opportunities to achieve sustainable development goals of Vision 2030?	2.33	0.82	4	Very high
	Degree of environmental sustainability and green financing skills of Prince Sattam bin Abdulaziz University students in the light of sustainable development goals of Vision 2030?	2.68	0.20		Very high

These results from Table 13 may lead to all the study sample members seeing that Environmental Sustainability skills contribute strongly to achieving Sustainable Development Goals of Vision 2030 through achieving: Directing the flow of funds, Optimal allocation of environmental and social resources, and understanding the relationship between the economy and the environment. This was confirmed by the responses to open question No. (5): What ideas do you propose to enhance green finance skills, and do you think they will contribute to achieving sustainable development by 2030? The participants confirmed that:

1. University courses aim to focus on the concepts of sustainable finance, green economy, environmental finance, sustainable investments and environmental projects, financial feasibility analyses of environmental projects, and the integration of green finance concepts into the educational curriculum from the early stages, to prepare graduates who are aware of environmental responsibility in investment decisions.

2. Case studies on environmentally friendly financing projects inside and outside Saudi Arabia Kingdom should be implemented.
3. Community training programs and workshops should aim at equipping students and professionals with practical skills ready for the green labor market through how to assess the feasibility of environmental projects, environmental and financial impact reporting skills, renewable energy and low-carbon financing models, green finance, carbon markets, alternative and renewable energy.
4. Establishing incubators for sustainable projects that aim to support student entrepreneurs in designing environmental projects (urban agriculture, recycling, green technology) with green finance, and teaching them to prepare action plans compatible with environmental standards and submit them to funding bodies, and provide common standards for green finance.

These results are in agreement with FAO (2024), Ministry of Finance (2024), European Commission (2023), Mushkil and Al-Atwani (2023), Al-Otaibi and Al-Shabi (2023), Madkour (2023)v, United Nations (2022), Azmi et al. (2021), Sebaa (2020), Al-Jaidi and Al-Zahrani (2016), and Alwan (2016).

All participants confirmed by responding to open question No. (6): In your opinion, how can the students of Prince Sattam bin Abdulaziz University contribute to supporting green finance? The participants confirmed that:
1. Environmental student initiatives that aim to promote awareness of green finance, represented by the establishment of student clubs and exhibitions that highlight the development of financial skills, green projects, and the organization of awareness campaigns and activities on sustainable investment within the campus.
2. Contributing to research projects and graduation projects to link academic knowledge to real-world sustainable solutions: to provide innovative solutions for sustainable investment, the shift towards a green economy, and the development of smart applications for the green economy.
3. Partnering with local authorities and visiting banks and sustainable finance institutions through: simulating green investment and environmental decisions, and investing in sustainable green finance projects.
4. Participating in the university's green initiative by preparing awareness content about green finance through social media and billboards at the university, and presenting ideas for investable environmental projects to promote the transformation into a green economy within the goals of Vision 2030 and achieving sustainable development.

These results are in agreement with the results of FAO (2024), Ministry of Finance (2024), European Commission (2023), Mushkil and Al-Atwani (2023), Al-Otaibi and Al-Shabi (2023), Madkour (2023), United Nations (2022), Azmi et al. (2021), Sebaa (2020), Al-Jaidi and Al-Zahrani (2016), and Alwan (2016).

The current results align with previous research emphasizing the importance of environmental sustainability and green financing skills. For example, several studies underscored the need to cultivate Sustainable Development Goals of Vision 2030 in students viz., (Al-Jaidi & Al-Zahrani, 2016; Al-Otaibi & Al-Shabi, 2023; Alahmad, 2024; Alwan, 2016; Azmi et al., 2021; European Commission, 2023; FAO, 2024; IEA, 2025; Madkour, 2023; Ministry of Education, 2022; Ministry of Finance, 2024; Mushkil & Al-Atwani, 2023; OECD, 2017; Sebaa, 2020; United Nations, 2022). These findings highlight environmental sustainability and green financing as an essential competence for students alike.

Conclusion

Additionally, the recommendation for supplemental students' training around relevant environmental sustainability and green financing skills agrees with past work. Specializing in professional development toward technology integration and other pertinent abilities can better equip students to promote higher-order environmental sustainability and green financing skills.

Ultimately, the success of interventions underscores the potential for environmental sustainability and green financing improvement through well-designed initiatives tailored to local contexts. Longitudinal tracking of evidence-based cognitive instruction could better substantiate reform efforts aimed at eventual sustainable development. Equipping students with adaptable higher-order abilities likely requires coordinated endeavors

unifying policy, research, and practice across courses activity settings.

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