

Article

The Role of Universities in Achieving Sustainable Development

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CITATION

Alsayrayreh, F. I. (2025). The Role of Universities in Achieving Sustainable Development. *Intercontinental Journal of Social Sciences*, 2(1), 24-37. <https://doi.org/10.62583/snmqs644>

Received: 1 October 2024

Accepted: 16 December 2024

Available online: 25 Jan 2025

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Abstract: The study sought to identify the role of the university in sustainable development, through a social survey of a sample of 70 individuals. The results showed that the university contributes significantly to promoting sustainable development with an average rating of 3.55. The university also plays an important role in achieving sustainable development through activities related to community service and research, which focus on the importance of optimal use of energy and the application of new methods in waste recycling, and spreading awareness among students about the importance of the environment and caring for it. The results also showed no difference between males and females in their social responsibility towards environmental sustainability. Accordingly, the study recommended the importance of developing curricula that focus on environmental awareness, as well as cooperation in this field with all sectors.

Keywords: Sustainability, social environment, university, renewable energy, community service.

1. Introduction

Development aims to meet the current and future needs of individuals, with numerous resources and wealth used to achieve integrated development in our societies. However, these resources are increasingly depleting because they are non-renewable, particularly water resources, energy, and raw materials, which are consumed excessively on a global scale. Despite the prevailing view that the Earth is an inexhaustible source of resources and energy, many environmental risks threaten its sustainability (Tahon, 2022).

Sustainable development is a concept associated with economic and social aspects, globally recognized by the United Nations. The UN uses it to create a roadmap for environmental, economic, and social development across the world. Its primary aim is to raise living standards for all individuals in societies while developing tools, methods, and productive strategies that do not deplete natural

resources or burden the environment, ensuring the continued availability of resources for future generations (Al-Qudra, 2020).

Sustainable development is concerned with optimizing the use of available resources to meet human needs while protecting the rights of future generations. This has helped reduce environmental pollution (Abdul Rashid, 2021), and universities play a fundamental role in spreading awareness among students about the importance of environmental sustainability. Accordingly, this study will contribute to shedding light on a very important topic, which is sustainable development, which can enhance the power of decision-making related to environmental sustainability.

1.2. Problem

Sustainable development links current and future generations by ensuring access to resources and necessities without compromising the environment's ability to support future generations. This process involves fair distribution of resources, reducing disparities between advanced and developing societies, and promoting social justice, economic growth, and environmental protection (Al-Temimi, 2022).

1.3. Objectives

1. Identify the role of Al-Ain University in achieving sustainable development.
2. Suggest strategies to enhance the role of Al-Ain University in sustainability.
3. Explore whether gender affects perceptions of the university's role in sustainable development.

1.4. Questions

The study answers the following questions:

1. What is the role of Al-Ain University in achieving sustainable development?
2. What suggestions can enhance Al-Ain University's role in sustainability?

Hypothesis: There is no statistically significant effect of gender (male, female) on the role of Al-Ain University in achieving sustainable development.

1.5. Literature review

This section reviews relevant studies, starting with recent Arab and international research. Notable studies explore the role of universities in sustainability, ranging from "green universities" and digital transformation to environmental awareness and sustainable development in various educational systems globally. These studies emphasize the importance of education, research, and community engagement in advancing sustainability goals.

Sabih (2022) aimed to explore mechanisms for transforming Egyptian universities into green institutions. Using a comparative analysis approach, the study analysed a sample of 19 Egyptian universities. The findings revealed several green university practices, including the promotion of sustainable activities through green pathways, education, scientific research, and active participation in raising environmental awareness among students and graduates. The study

recommended the broader dissemination of the green university concept, the adoption of global green university rankings, and the organization of sustainability-related training programs to foster a green-oriented society.

Al-Hasbi (2022) examined the relationship between digital transformation and sustainable development, particularly focusing on the role of higher education institutions during the COVID-19 pandemic at Libyan universities. A descriptive approach was used with a sample of 87 students. The study revealed a significant negative perception towards digital transformation, attributed to limited implementation of e-learning systems. It called for a comprehensive digital planning strategy that addresses both practical and knowledge-based needs to enhance educational and training processes. Al-Otaibi (2022) investigated the role of Saudi universities in raising environmental awareness among students and evaluated their understanding of sustainable development. Using descriptive and correlational survey methods, the study sampled 384 students. The results highlighted the critical role universities play in promoting awareness, which should be further supported by faculty members and integrated into student activities and curricula. The study recommended the organization of awareness campaigns, training sessions, and conferences on sustainability to improve climate literacy among students.

Khalif (2021) examined the role of blended learning in sustainable development from the perspective of faculty members. Using a survey of 130 faculty members, the study concluded that integrated education in applied colleges contributes more effectively to sustainable development compared to other educational systems. Similarly, Abu Clinic (2021) explored an integrated vision to overcome obstacles hindering the implementation of sustainable development practices. Based on a random sample of 33 students, the study found that sustainable development is closely linked to the availability of resources within a country.

Bahgat (2020) investigated the relationship between entrepreneurship education and sustainable development in universities. Through a random sample of 150 student and staff participants, the study highlighted the need to improve university administration, institutional culture, and curriculum to better support sustainable development. Likewise, Abdulkader (2020) proposed a strategic framework to promote a culture of sustainable development among Egyptian university students. With a sample of 31 participants, the study revealed moderate levels of sustainable development across economic, environmental, and social domains.

Shatti (2020) studied the role of Saudi universities in aligning higher education outcomes with sustainable development requirements. Using a sample of 80 individuals, the study emphasized the importance of graduate quality in meeting societal development needs. On the other hand, Abdul Hakim (2020) analysed the role of Yemeni universities in promoting sustainable development.

With a sample of 45 students, the findings underscored the significance of incorporating the green economy into university education. Additionally, Al-Kamim (2020) explored ways to enhance Yemeni universities' contributions to sustainable development across various sectors. Based on a survey of 78 students, the study found that universities still rely on routine approaches and lack social and research initiatives that support sustainable development.

Khamisa (2020) focused on the contributions of higher education programs in Jordanian universities to scientific research for sustainable development. Using a random sample of 302 faculty members, the study revealed moderate involvement of higher education programs in advancing sustainable development. Similarly, Eid (2019) assessed the role of student activities in achieving the Sustainable Development Goals at Fayoum University. From a sample of 372 students, the study highlighted the need to develop university activities and curricula to achieve meaningful sustainable development.

Abdelmoula (2019) analysed the role of educational research at Aswan University in supporting sustainable development in Egypt. Through an analysis of 59 doctoral and master's theses, the study found that educational research prioritized economic, social, and environmental aspects of sustainable development but placed less emphasis on innovation. Lastly, Mahfouz (2018) investigated sustainable development and quality in higher education. From a random sample of 178 students, the study stressed the importance of improving administrative management systems to align with quality standards and emphasized the need for skilled individuals to achieve sustainability.

Al-Dosari (2017) analysed the role of community service programs and continuing education in Saudi universities. Using a survey method on a sample of 211 faculty members and 32 deans and vice-deans, the results showed moderate contributions to sustainability needs. The study recommended developing programs that promote intellectual freedom, career development, and youth awareness about sustainability. Muna (2022) investigated strategies to transform Malaysia's GJU into a sustainable green university. A descriptive approach was employed with a sample of 56 universities. The results demonstrated the potential to recycle 103 tons of waste annually into compost. The study recommended reducing paper and plastic consumption, as well as implementing double-sided printing and on-demand printing policies.

Cristina (2021) examined the role of universities in addressing societal challenges through a case study of 23 universities. The findings emphasized community engagement as foundational to sustainable development. The study recommended fostering student projects, cultural activities, and diverse councils to enhance regional collaboration. Ruzena (2019) analysed environmental management systems in Slovakian universities using an analytical descriptive method on 40 universities. The study identified essential sustainability standards and recommended adopting green university strategies, along with integrating

environmental management systems. Valerity (2019) explored challenges and solutions at Krasnoyarsk State Pedagogical University. Using an analytical descriptive method, the study highlighted the need for improved quality of life through regional collaboration and social engagement. It stressed the importance of working with nonprofit organizations to drive change.

Vivian (2019) examined sustainable leadership and its role in supporting educational transformation. Using case studies and narrative analysis on 66 cases, the study emphasized the need for courageous, well-cultured leadership. It recommended modernizing leadership frameworks and policies to support sustainable education systems. Finally, Rebeca (2017) investigated the role of dual-strategy approaches in achieving sustainable development at Vinculación University. Using an analytical descriptive method with 21 faculty members, the results emphasized the importance of planning and aligning resources with educational and research contexts. The study recommended motivating communities to adopt sustainable development strategies across various sectors.

2. Methodology

2.1. Sample and Sampling

The study adopts a descriptive research approach, aiming to describe phenomena accurately without intervening or manipulating variables. The study sample consists of 70 students randomly selected from a population of 5,000 students at Al-Ain University for the academic year 2024/2025.

Table 1
Distribution of Study Sample Members According to Personal Variables

Variable	Category	Sample Size	Percentage
Gender	Male	45	64.3%
	Female	25	35.7%
	Total	70	100%
Age	20 - 30 years	18	25.7%
	31 - 40 years	30	42.8%
	41 - 50 years	12	17.2%
	51 and above	10	14.3%
	Total	70	100%
Marital Status	Single	10	14.3%
	Married	40	57.1%
	Divorced	11	15.7%
	Widowed	9	12.9%
	Total	70	100%
Employment Status	Government Sector	35	50%
	Private Sector	25	35.7%
	Freelance	10	14.3%
	Total	70	100%
Income Level	Less than 6,000 AED	9	12.8%
	7,000 - 13,000 AED	41	58.6%
	More than 14,000 AED	20	28.6%
	Total	70	100%

As shown in Table 1, the study sample consists of 45 male students (64.3%) and 25 female students (35.7%). The largest age group is between 31-40 years (42.8%), while the smallest group is aged 51 and above (14.3%). Regarding marital status, the majority of the participants are married (57.1%), while the smallest group consists of widowed individuals (12.9%). As for employment status, the highest percentage is from those employed in the government sector (50%), followed by those in the private sector (35.7%). The smallest group comprises those engaged in freelance work (14.3%). Lastly, the income level shows that most participants fall within the 7,000 - 13,000 AED category (58.6%), with the lowest percentage in the less than 6,000 AED category (12.8%). This distribution reflects the socio-demographic variety of the sample and provides insights into the study's diversity based on personal and economic variables.

2.2. Tool

The current study relied on a questionnaire composed of two sections: Section 1: This section addressed the demographic characteristics of the study sample, including variables such as gender, age, educational status, employment status, monthly income, and family size. Section 2: This section consisted of items aimed at answering the study's research questions and achieving its objectives. It contained 9 items, distributed across two axes: The first one included 5 items as: (1) The university is concerned with organizing seminars and studies for the benefit of the environment and pollution prevention. (2) The university curriculum is aligned with contemporary requirements and changes (adapted to sustainable development. (3) The university focuses on continuous training for staff, providing opportunities for benefiting from expertise, and enhancing knowledge and skills. (4) The university sets clear and specific goals to achieve sustainable development. (5) The university implements a clear policy to activate scientific research that best addresses community needs. The second includes 5 items as: (1) Integrating new curricula aligned with the three dimensions of sustainable development: **economic**, **social**, and **environmental**. (2) Coordinating between the university and official bodies to select topics for academic research that benefit sustainable development. (3) Increasing seminars, forums, and conferences focused on sustainable development, especially environmental development. (4) Strengthening scientific research that provides significant benefit to the community. (5) Training and qualifying faculty members and improving their academic levels to contribute to sustainable development.

To verify the content validity of the tool, the initial version of the questionnaire was presented to the supervisor for feedback. The supervisor evaluated the clarity of the items, their linguistic structure, and their relevance to the field of study. Any suggested amendments or observations were incorporated to improve the questionnaire's suitability for the research context. To assess the reliability of the questionnaire and ensure its internal consistency, the Cronbach's

Alpha formula (α) was used, as indicated in Table 2. This method provides a measure of the degree to which the items within the questionnaire are consistent in measuring the same underlying construct.

Table 2

Internal Consistency Reliability Coefficients of the Questionnaire

Tool	Internal Consistency Reliability
Questionnaire	0.92

It can be observed from Table (2) that the value of the internal consistency reliability of the questionnaire is 0.92. This value indicates the quality of the scale's construction and its suitability for the purposes of this study. In order to make judgements on the means of the study tool, its sections, and the related items, the response levels were determined based on the five-point Likert scale, which was calculated as follows: The category length is calculated as:

$$5 - 1 = 4 \text{ (range)} \Rightarrow \frac{4}{3} = 1.33 \text{ (category length)}$$

Based on this, the response levels are defined as follows:

- **Low degree:** 1 - 2.33
- **Medium degree:** 2.34 - 3.67
- **High degree:** 3.68 - 5

3. Results

3.1. Results of the First Question: What is the role of Al Ain University in achieving sustainable development?

To answer the first question, the mean scores and standard deviations were calculated for the role of Al Ain University in achieving sustainable development. Table (3) below shows the results.

Table 3

Mean Scores and Standard Deviations for the Statements Related to the Role of Al Ain University in Achieving Sustainable Development

Rank	T	Statement	Mean Score	Standard Deviation	Degree
1	3	The university provides specialized scientific courses for sectors related to environmental protection.	3.88	0.73	High
2	2	The university adopts plans and programmes that contribute to reducing the problem of environmental pollution.	3.70	0.98	High
3	4	The university collaborates with various community sectors to find ways to preserve and protect the environment.	3.47	1.51	Moderate
4	1	The university preserves all available resources and uses them wisely to achieve sustainable development.	3.40	1.71	Moderate
5	5	The university encourages conducting scientific research related to the environment and its protection.	3.33	1.51	Moderate
Overall Degree	-	-	3.55	0.968	Moderate

In this table, the mean scores reflect the participants' evaluation of Al Ain University's role in sustainable development. The first and second statements received higher ratings, indicating that the university's efforts in providing

specialized courses and implementing environmental protection plans are regarded positively. However, statements regarding collaboration with community sectors and conducting scientific research received moderate ratings, suggesting there may be room for further improvement in these areas. The overall degree of the university's role in achieving sustainable development is considered "Moderate," with an average mean score of 3.55.

3.2.Results of second question: What Are the Suggestions for Enhancing the Role of Al Ain University in Achieving Sustainable Development?

To answer the second question, the mean scores and standard deviations of the suggestions for enhancing the role of Al Ain University in achieving sustainable development were calculated. Table (4) presents this data.

Table 4

Mean Scores and Standard Deviations for the Suggestions to Enhance the Role of Al Ain University in Achieving Sustainable Development

Rank	T	Statement	Mean Score	Standard Deviation	Degree
1	3	Encouraging researchers and students to conduct research in sustainable development.	4.06	0.92	High
2	4	Organizing training courses to raise awareness about sustainable development.	4.00	0.98	High
3	2	Linking the university's faculties with various sectors of society.	3.53	1.53	Moderate
4	1	Ensuring that sustainable development is included as a general course for students.	3.30	1.40	Moderate

It appears from Table (4) that the mean scores for the study sample's ratings on the statements regarding suggestions to activate the role of Al Ain University in achieving sustainable development were overall 3.72, with a high rating. The individual mean scores ranged between 3.30 and 4.06. According to the table, two statements received a high rating: Statement (3), which states: "Encouraging researchers and students to conduct research in sustainable development," with a mean score of 4.06 and a high rating, and Statement (4), which states: "Organizing training courses to raise awareness about sustainable development," with a mean score of 4.00 and a high rating. The remaining statements received a moderate rating, with their mean scores ranging from 3.30 to 3.53. The highest mean score was for Statement (2), which states: "Linking the university's faculties with various sectors of society," with a mean score of 3.53, while the lowest mean score was for Statement (1), which states: "Ensuring that sustainable development is included as a general course for students," with a mean score of 3.30.

3.3.Results of the Hypothesis of the Study: There is no statistically significant effect at the significance level ($\alpha \leq 0.05$) of the role of Al Ain University in

achieving sustainable development attributed to the gender variable (Male, Female).

To test this hypothesis, the relationship between the role of Al Ain University in achieving sustainable development and the gender variable (Male, Female) was examined. The study used the "t-test" to identify differences between the two groups.

Table 5

Mean, Standard Deviation, and t-value to Identify the Differences in the Responses of the Study Sample Regarding the Role of Al Ain University in Achieving Sustainable Development Attributed to the Gender Variable (Male, Female)

Gender	Frequency	Mean	Standard Deviation	t-value	Significance Level
Male	45	3.63	0.63	0.127	0.639
Female	25	3.40	0.59		

It can be seen from the above table that the significance level (0.639 = sig) is greater than the significance level ($\alpha \leq 0.05$). Therefore, the null hypothesis is accepted. It is evident that there is no statistically significant effect at the significance level ($\alpha \leq 0.05$) regarding the role of Al Ain University in achieving sustainable development. This explanation demonstrates that there was no significant difference between males and females in their views on the role of Al Ain University in achieving sustainable development, based on the results of the t-test and the significance value. Ent attributed to the gender variable (Male, Female).

4. Discussion

4.1. Discussion the First Question results: The results showed that the mean scores for the study sample's estimates of the role of Al Ain University in achieving sustainable development were 3.55, which is considered moderate. This result is attributed to the fact that universities, including Al Ain University, are one of the key pillars for achieving sustainable development in societies. They play multiple roles, including education, scientific research, and community service. Thanks to its academic and scientific capabilities, the university can act as a main driver in achieving a balance between economic growth, social justice, and environmental protection.

Universities play a crucial role in contributing to sustainable development by conducting scientific research and serving as global platforms to publish the latest findings related to sustainable solutions for challenges in climate, energy, water, and food. This is achieved through the development of qualitative programs and strategic initiatives. Additionally, universities can significantly advance sustainable development by adopting sustainable practices on their campuses in these areas. These findings align with those of Sabih (2022), Al-Hassabi (2022), and Al-Otaibi (2022), who emphasized the importance of universities in achieving

sustainable development and highlighted their potential to be active partners with both public and private institutions in promoting sustainability.

4.2. Discussion the Second Question results: The results also revealed that the university plays a significant role in achieving sustainable development by implementing necessary measures and adopting a comprehensive approach to sustainable development, which can be integrated into curricula and community activities. These findings align with those of Al-Otaibi (2022), Khalif (2021), and Abu Ayyadah (2021), who emphasized the university's critical role in building and developing society through education, research, and community service.

4.3. Discussion the Hypothesis results: The results indicated no differences between females and males in achieving sustainable development through the university, demonstrating that the university considers gender equality in participation in activities, programs, and research. This finding aligns with the results of Subaih (2022), Al-Otaibi (2022), Khalifa (2021), and Abu Ayyadah (2021), which highlighted that both males and females can equally contribute to sustainable development programs at the university.

5. Conclusion

It is evident that the university plays a vital role in raising awareness about sustainable development and achieving it within society through community activities, research programs, and curricula. University students can actively contribute to building and developing society while protecting the environment from pollution. In this context, universities can adopt sustainable strategies, such as enhancing the quality of human resources and implementing renewable energy systems on campus. Like other studies, the current research faced certain challenges. One limitation was that it focused on a single community, making it advisable to extend future research to diverse communities for broader applicability. Another challenge was the reliance on questionnaires; thus, using alternative methods, such as interviews, is recommended to collect data and further test new hypotheses. The study, therefore, makes the following recommendations:

1. **Curriculum Development:** Align curricula with the rapid changes occurring in advanced societies and draw lessons from international experiences in this field.
2. **Scientific Research Support:** Encourage and fund scientific research targeting the environment, climate, and sustainability.

3. **Workshops and Training:** Conduct workshops and courses to raise awareness among university students about the importance of sustainability.
4. **Social Innovation Centers:** Establish specialized centers for social innovation to promote activities aimed at social development within the university.
5. **Private Sector Partnerships:** Collaborate with private sector institutions to improve plans addressing environmental issues at the university and local campuses.
6. **Awareness Campaigns:** Launch environmental awareness campaigns and sustainable agriculture projects to engage the university community.

Declaration of Competing Interest: The author declares that he has no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Funding Statement: The author received no financial support for the research, authorship, and/or publication of this article.

Ethics Statement: Informed consent and assent were obtained from the participating students, prior to data collection. Anonymity and confidentiality of the information provided by the participants were ensured.

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