

Research Article

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The Degree of Scientific Research Contribution in Achieving Sustainable Development from Faculty Members' Perspectives

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Abstract

Background/purpose. This study aimed to know the degree of scientific research contribution in achieving sustainable development from the faculty members' perspectives in Jordanian universities. The study sample consisted of 458 faculty members from Jordanian universities who were selected using the convenience sampling method.

Material/Method. The descriptive analytical approach was employed in the research due to its relevance to the objectives of the current study. To achieve the study objectives, a survey was developed consisting in its final form of 31 items.

Results. The findings revealed that faculty members perceived the contribution of scientific research to sustainable development as moderate. Additionally, the results indicated no statistically significant differences in respondents' assessments based on gender or faculty.

Conclusion. Increasing university support for scientific research related to sustainable development, and strengthening partnerships between academic institutions and the public and private sectors in the country. Furthermore, developing training programs for faculty members can enhance research productivity and align it with development goals.

1. Introduction

The modern world is undergoing rapid transformations across political, economic, social, scientific, technological, cultural, environmental, and informational spheres. These changes are increasingly interconnected, creating a global society where information spreads instantly, and events in one region can have far-reaching effects worldwide. Amid these rapid advancements, driven by continuous scientific, technological, and informational revolutions, the role of universities has become more vital than ever. As hubs of intellectual and cultural influence, universities play a key role in promoting awareness of sustainable development at all levels. Through their resources, student engagement, and community involvement, they actively contribute to sustainable development efforts and the pursuit of an improved quality of life.

As the primary institutions for preparing skilled researchers and supporting continuous scientific inquiry, universities cannot address contemporary challenges in isolation from the broader social, economic, political, and cultural framework. They distinguish themselves from other educational institutions by their commitment to scientific research, which is their fundamental mission. Through research, universities not only achieve their academic goals but also foster meaningful societal progress. Scientific research acts as a catalyst for advancement, forming the basis for various development initiatives that enhance social well-being. Additionally, it expands knowledge and offers practical solutions to the challenges faced by society and its institutions (Bissio, 2016).

The concept of sustainable development has gained widespread recognition among policymakers and global leaders, yet a universally agreed-upon definition remains elusive. This evolving concept continues to undergo refinement and reassessment. The United Nations (2024) defines sustainable development as "a developmental process that aims to meet the needs of the present without compromising the ability of future generations to meet their own needs." This approach emphasizes achieving an integrated balance between economic, social, and environmental dimensions of development.

Given this perspective, universities play a crucial role in promoting sustainable development by integrating their principles into education, research, and community engagement. They contribute by raising awareness, equipping students to tackle environmental and social challenges, and conducting research that offers innovative solutions to sustainability issues. By integrating sustainable development into their core functions, universities become key drivers of progress, fostering a more resilient and sustainable future (Maatallah et al, 2024).

2. Literature review

The concept of sustainable development emerged as an inevitable response to the failure of past policies and strategies that, from a sustainability perspective, had persisted for decades. Recognizing these shortcomings, advocates of sustainable development sought to correct the traditional approach to development by restoring balance among the key components of a society's wealth: natural, human, social, and manufactured resources. This shift aimed to establish clear objectives for sustainable development, ultimately ensuring intergenerational equity in resource use while maintaining a clean environment, economic prosperity, and social harmony (Late, 2017).

Unlike previous development models that focused solely on increasing per capita income without considering environmental consequences or future generations, sustainable development introduces a more holistic and interconnected approach. Its primary goal is to reconcile economic and social progress with environmental conservation. By analyzing various definitions of sustainable development and identifying its distinguishing features compared to traditional development, Murphy (2012) and Gallup (2018) highlight key characteristics:

- Sustainable development is more intricate and interconnected, particularly in its relationship between natural and social elements.
- It prioritizes addressing the needs of the most impoverished communities and aims to mitigate global poverty.
- It incorporates a qualitative dimension, emphasizing cultural and spiritual development while preserving societies' civilizational identities.
- The quantitative and qualitative aspects of sustainable development are interwoven, making them inseparable and difficult to measure independently.
- It has an international scope, requiring the active participation of wealthy nations in the development of poorer countries.

Scientific research plays a pivotal role in societal development by generating knowledge that contributes to problem-solving and economic growth. However, the impact of scientific production is not merely measured by the number of studies conducted but by the extent to which research findings are applied to real-world challenges. Universities, as knowledge hubs, can significantly enhance development by aligning their educational objectives with sustainable development goals. The wealth of developed nations stems largely from their practical application of science and technology, emphasizing the importance of university-driven research in economic advancement. This can be achieved through research focused on economic development, proposing and debating economic policies, and identifying solutions to implementation challenges (El-Jardali, 2018).

The United Nations Decade of Education for Sustainable Development (2005-2015) underscored the need to leverage education in achieving sustainable development. This initiative necessitated the development of educational, scientific, and cultural policies to enhance human well-being, environmental balance, and key development objectives such as poverty alleviation, gender equality, and sustainable practices in agriculture, water management, environmental conservation, and biodiversity (Junior & Horne, 2019). Consequently, applied research with a direct impact on community development has become increasingly important. Education serves as both a research field, where scientific theories are tested and refined, and a practical field, where teaching methodologies, curriculum development, and administrative innovations are implemented to enhance learning outcomes. Research-driven educational advancements reflect the quality and effectiveness of education as both a discipline and a practice (Gallup, 2018).

Scientific research continues to receive heightened attention for its role in addressing societal challenges at both theoretical and applied levels. Harbison (Aktas, 2015) asserted that a nation's progress is fundamentally tied to its ability to develop and effectively utilize the knowledge and capabilities of its people. Without such advancements, a country cannot achieve broader development goals. Bhowmik et al. (2018) further emphasized the crucial link between universities, research, and sustainable development. They argued that scientific research serves as a primary driver of societal improvement, economic growth, and technological innovation. By generating research that informs investment and development projects, universities facilitate workforce advancement, boost exports, reduce imports, and address pressing societal challenges. Accordingly, universities function as incubators for scientific research, integrating their efforts with national and global sustainable development strategies through targeted policies, funding, and research infrastructure.

Cauce (2016) defined development as a process of continuous improvement that adapts to rapid changes across various aspects of life, requiring optimal use of available resources, both material and human. Sustainable development, as described by Celikdemir et al. (2017), extended this concept by focusing on elevating societal living standards across urban, social, economic, and cultural

dimensions. It aims to optimize resource utilization in a manner that meets present needs without compromising the ability of future generations to meet theirs. Initially viewed as an environmental concept, sustainable development has evolved into a comprehensive framework that integrates social, economic, and environmental considerations.

Empirical studies have demonstrated that scientific research is a key factor in the transition of many nations from developing to developed status. The success of advanced economies is largely attributed to their robust investment in research and innovation. Recognizing this, developed nations allocate substantial resources to research funding, fostering what is known as the scientific research financing process (Nasira, 2022). Scientific research, including university theses, plays a fundamental role in knowledge creation and dissemination across natural sciences, social sciences, and humanities. Its contributions to industrial, agricultural, and service sectors drive productivity enhancements, quality improvements, and modernization of administrative, commercial, and developmental methodologies. Furthermore, the evolution of policies and legislation supporting scientific research underscores its significance in national and global development (Alnasraween et al., 2021).

Thus, scientific research has become an indispensable tool for bridging the gap between developing and developed nations. It is not only the means to achieve economic and societal progress but also a mechanism for preserving cultural identity and national achievements. As Celikdemir et al. (2017) asserted, sustainable development and scientific research are inseparable pillars of a nation's advancement, shaping a future that is both prosperous and sustainable.

The significance of this study stems from the importance of the topic it addressed, which is the degree of contribution of scientific research and university theses to achieving sustainable development, the environment in which it was conducted, and the target group, the research sample, as the research targeted a sample of faculty members in Jordanian universities. The importance of the research also lies in the results and recommendations that can direct university research and theses in a manner that is consistent with achieving sustainable development in the future.

2.1. Research problem and its questions

Universities, including Jordanian universities, play a pivotal role in modernizing society, promoting scientific values, and fostering a culture of research. Their contribution extends to supporting resources and capabilities across various fields, making them essential institutions for advancing scientific research. This underscores the need to leverage universities' potential by directing academic studies and theses toward addressing societal challenges efficiently and cost-effectively. Aligning research efforts with societal needs and aspirations is fundamental to ensuring universities fulfill their mission and achieve their objectives.

In light of this, the present study aims to examine the extent to which scientific research and university theses contribute to sustainable development from the perspective of faculty members in Jordanian universities. The research seeks to address the following key questions:

-RQ-1. To what extent does scientific research contribute to achieving sustainable development, as perceived by faculty members in Jordanian universities?

-RQ-2. Are there statistically significant differences at the $\alpha \leq 0.05$ in the perceived contribution of scientific research to sustainable development based on faculty members' gender and faculty?

By exploring these questions, the study aims to provide valuable insights into the role of academic research in sustainable development and identify factors that may influence its effectiveness.

2.2. Previous Studies

The following is a presentation of some of these studies and research related to the current study.

Miloud and El Tayeb (2024) conducted a study in Algeria that aimed to explore how Lounici Ali University - Blida 2 contributes to achieving the Sustainable Development Goals. The study relied on a field methodology that included collecting data from faculty members and students, and analyzing the initiatives and programs implemented by the university in the fields of education, scientific research, and community service. The results showed that the university plays an effective role in promoting environmental awareness, encouraging research related to sustainable development, and implementing environmentally friendly practices on campus. The study recommended the need to strengthen partnerships with local and international institutions to achieve greater integration in sustainable development efforts. Moataz & Mardas (2023) conducted a study that aimed to explore the reality of scientific research in Sudan and its role in achieving sustainable development, which was measured by the gross domestic product. The study focused on the volume of spending on scientific research in Sudan during the period (2005-2020), and the researchers relied on the descriptive analytical approach and the standard approach to analyze the data. The results showed a direct relationship between the gross domestic product and the human development index in Sudan, indicating that increasing investment in scientific research may contribute to enhancing sustainable development in the country. The study recommended increasing spending on scientific research and developing the research infrastructure in Sudan to achieve sustainable and comprehensive development.

Al-Atoum (2014) conducted a study that aimed to reveal the role of university education in achieving sustainable development in Jordanian society from the academic leaders' perspectives. It also aimed to reach proposals for developing university education to achieve sustainable development in Jordanian society. The study sample amounted to 193 academic leaders. The study's results indicated that the role of university education in Jordan's pursuit of sustainable development in its society was moderate. The results showed that there were no statistically significant differences for the study variables (university type, gender, academic rank, experience) on the estimates of the areas of the role of university education in Jordan in achieving sustainable development from the point of view of academic leaders.

Al-Dhahian et al. (2000) assessed the degree of alignment between scientific research and development requirements and strategies in the GCC countries, while also comparing educational research with the needs of sustainable development. The study employed a descriptive approach. The results revealed that 76.5% of the research was aligned with development plans, whereas 23.5% was not compatible with them.

Al-Ajez and Nashwan (2000) investigated the role of Palestinian universities in attracting higher education, as well as the contribution of scientific research to economic and social development. The study also aimed to identify the challenges facing postgraduate programs and propose solutions. Using a descriptive approach, the study highlighted key issues, including a lack of research skills, weak peer review processes in research deanships, and insufficient societal awareness of the importance of scientific research and its role in development.

In the same manner, Abdul Rahman (2010) proposed a vision for enhancing academic production in postgraduate programs in the Gaza Strip, in alignment with development plans. The study employed a descriptive approach. The study suggested: establishing a coordination council between universities and institutions concerned with development plans, continuing government support for higher education institutions and postgraduate programs that contribute to achieving development, and creating a strategic plan for postgraduate programs that is linked to the needs of

society. Al-Kaseh and Moamen (2022) highlighted the role of the university in activating sustainable development as one of the most important cognitive institutions that form the relationship between the whole and the part in society, and a field study of a sample of university professors at the Faculty of Economics and Political Science at Bani Walid University. The study adopted the descriptive analytical approach, and the (T) test was used. A questionnaire consisting of 22 paragraphs was developed, and a study sample consisting of 19 university professors from the college was selected. The results showed a deficiency in the performance of the Faculty of Economics and Political Science in fulfilling its tasks for the benefit of sustainable development, whether in the field of scientific research, teaching methods and curricula, or training.

Ali (2011) determined the role of education and scientific research in achieving development in its various aspects in light of the knowledge-based society and the economics of education in Syria. The researcher used the descriptive approach and the comparative approach to organize and manage research institutions in some contemporary global trends. The study concluded that research management in education does not perform its full duty compared to others in other countries. The researcher developed a vision for organizing educational research to achieve renewal and development and to determine the material and human resources necessary to advance the requirements of development. Al-Adwani and Moajab (2013) explored the concept of sustainable development, its goals, and the challenges it faces in its various fields. The researcher used the descriptive approach. The results of the study showed the concept of sustainable development as a response to concerns arising from environmental deterioration as a result of the traditional development approach. Sustainable development is a planned and purposeful process that deals with the reality and future of generations when dealing with human resources and national wealth, in order to improve the quality of life. It focuses on meeting human needs through political and administrative incentives, and relies on educational and economic progress, as well as cultural and technical advancements, and the rational consumption of environmental resources. Additionally, it emphasizes development, effective partnership, and continuous collaboration between the state, individuals, and civil society institutions. The results also showed the existence of an interactive and reciprocal relationship between the environment and sustainable development on the one hand, and education and scientific research on the other hand, as there is no sustainable development without the environment and without education.

Mohamed & Ali (2015) conducted a study aimed at presenting a future vision for educational research to meet the requirements of the knowledge society. The study used the descriptive approach. The study concluded with a number of theoretical and field results, the most important of which are: that educational and scientific research can contribute to building a knowledge society if the necessary components are available, through the scientific formation of researchers and faculty members, and the application of educational knowledge by building real knowledge communities and employing the results of scientific and educational research in developing the reality of educational practices.

Additionally, Hans (2000) identified the strategy of building the university towards sustainable development. The descriptive approach was used. The results showed that the University of Amsterdam focuses on integrating activities as an approach to sustainable development, developing new strategies for university management, restructuring its operations in light of the global knowledge network, changing the roles and functions of the university in line with the requirements of sustainable development, supporting faculty members in the field of multidisciplinary research, and instilling the values of sustainable development among students, graduates and university employees.

García et al.(2024) conducted a study that aimed to explore the relationship between the quality of academic performance of universities and their contribution to achieving the Sustainable

Development Goals (SDGs). The researchers analyzed universities ranked among the top 100 in the higher education impact rankings and used a regression model to determine the relationship between academic quality dimensions and university positions in this ranking. The results showed that universities increased their efforts in disseminating information related to the SDGs, reflecting their increasing commitment to achieving these goals. The results also showed a positive association between the quality of academic research and the university's international orientation and its ranking, indicating that universities with distinguished academic performance contribute more to achieving the SDGs.

Prost & Schöpfel (2024) evaluated French doctoral theses in the field of sustainable development through achieving two main objectives. The study used data available on the French national portal for theses, which provided information on academic research related to sustainable development in French universities. The results of the study showed that out of 431,997 French doctoral theses since 1985, there are 3,467 theses related to sustainable development, or 0.8%. The main universities that contribute significantly to research related to sustainable development were identified, highlighting prominent academics in this field. The study also showed a diverse distribution of research across different academic disciplines, reflecting the multidimensionality of the subject of sustainable development. The study assessed the extent to which these theses are available to the public within open learning initiatives, which facilitates access to knowledge and enhances research collaboration.

Reider et al.(2018) analyzed the impact of higher education institutions (HEIs) on sustainable development (SD). The study reviewed what higher education institutions do to achieve sustainability, and studied the direct and indirect impact of their activities on society, the environment, and the economy. The study relied on a systematic review of the scientific literature published in peer-reviewed journals between 2005 and 2017, and used inductive content analysis to identify the main topics and areas affected by the activities of higher education institutions. The study developed a conceptual framework that clarifies the relationship between the activities of these institutions and their impact on sustainable development. The study identified six main areas in which higher education institutions can affect sustainable development, either directly or indirectly, namely education, scientific research, governance, community collaboration, operational processes, and sustainability practices within the institution. The researchers noted that the scientific literature focuses largely on case studies of specific projects within higher education institutions, and that there is a lack of studies that address the impact in a comprehensive and perspective manner. More integrated. The study confirmed that higher education institutions play a fundamental role in promoting sustainable development by integrating sustainability principles into education and operational practices. The study showed that there are still gaps in research on how to achieve true integration of these principles across all aspects of the institution. The study recommended that decision-makers in higher education institutions can use this study to understand their impacts on society, the environment, and the economy more deeply, which helps them make more sustainability-conscious decisions.

Michael (2002) conducted a study aimed at measuring progress towards the concept of sustainable development and environmental efficiency, towards achieving sustainability in higher education. The study used the descriptive approach. The results showed that there are two aspects to evaluating sustainability: the first is through measuring environmental efficiency, which reflects the university's efforts to reduce the use of energy, water and other resources, and the second is through changes in systems, which are represented in incentives, rewards, goals and procedures, and by developing a framework for sustainability in higher education in light of standards and internal and external auditing processes.

Clarel & Dennis (2005) identified the strategy for applying the principles of sustainable development in university education. The study followed a descriptive approach and concluded with

recommendations to emphasize organizational commitment and the principles of continuity. It also emphasized the continuous improvement of organizational processes, as well as the continuous training and development of competencies and skills. Additionally, it recommended providing the necessary funding for change.

Through reviewing the previous studies that were reviewed, it becomes clear that there is a wide interest in the issue of sustainable development, with its various aspects and repercussions on individuals and societies, as most of them relied on the descriptive approach to achieve their goals, and they all concluded that it is necessary to make radical changes in the educational system and its goals in general, to be able to keep pace with expectations and integrate the culture of sustainable development and achieve its goals within educational institutions and the university environment, as the current study benefited from previous studies in the theoretical framework, study procedures and its tool to identify the degree of contribution of scientific research and postgraduate studies in achieving the goals of sustainable development and addressing its issues.

3. Methodology

The descriptive analytical approach was employed due to its relevance to the objectives of the current study.

3.1. Research Sample

The study participants were selected using the convenience sampling technique of faculty members from private universities in Jordan, comprising both male and female participants with various academic ranks and from diverse scientific and humanities faculties. The study tool was distributed electronically via Google Drive forms through the university's online groups, and 458 responses were received. Table 1 presents the distribution of the study sample based on demographic characteristics.

Table 1. Demographic characteristics of the study sample

Variable		Number
gender	Male	199
	Female	259
	Total	458
faculty	Humanities	247
	Scientific	211
	Total	458

3.2. The study tool

The study tool was developed by reviewing theoretical literature and previous studies, including those by Muhammad and Ali (2015) and Ali (2011). The tool consisted of 35 items in its initial form. Each item was evaluated using a three-point Likert scale: (1 – 2.33) : low, (2.34 – 3.67) : moderate, and (3.68 – 5) : high. The tool's validity and reliability were assured through the following procedures:

3.2.1. The tool validity

3.2.1.1. Content validity

The study instrument was presented to 10 experts from faculty members in Jordanian universities specializing in educational psychology, measurement and evaluation, and management,

to ensure the suitability of the paragraphs to measure what they were designed to measure, and the extent of their clarity and linguistic integrity. The tool in its final form consisted of 31 items.

3.2.1.2. Construct validity indicators

After applying the study tool to a pilot sample consisting of 40 faculty members, the correlation coefficients of each item with the total degree were extracted. These values ranged between 0.34 and 0.63 and were considered appropriate for the purposes of the current study.

3.2.2. Tool Reliability

To ensure the reliability of the tool, the instrument was applied to a survey sample consisting of 35 faculty members, and the internal consistency was extracted according to the Cronbach Alpha equation, which reached 0.89, and this value was considered appropriate for this study.

4. Findings

The findings of the first study question, which state: What is the degree of scientific research contribution in achieving sustainable development from the faculty members' perspective?

To answer this question, the Means and standard deviations were extracted, as Table 2 displays.

Table 2. Means and standard deviations of the study participants

#	Item	Mean	SD	Rank	degree
9	The university provides advanced electronic libraries that contain modern, advanced, and translated references that serve scientific research.	4.23	1.11	1	high
3	Researchers conduct scientific research and studies according to the priorities of scientific research in Jordan.	3.97	1.10	2	high
8	Universities provide the capabilities and funding necessary to conduct scientific research and studies, enabling the benefit of their results.	3.88	1.16	3	high
31	Contribute to enriching the university library through modern and translated books, references, and periodicals to help researchers conduct scientific research.	3.88	1.19	4	high
6	The university encourages research cooperation with other local universities through research teams that work in a team spirit in all fields, because group research helps address problems comprehensively and holistically.	3.82	1.28	5	high
15	There is a national strategy for scientific research and postgraduate studies at the level of the Kingdom that works to direct scientific research to serve issues of comprehensive and sustainable development.	3.62	1.31	6	Moderate
2	Scientific research and theses contribute to providing educational ideas that help develop the educational structure.	3.60	1.27	7	Moderate
5	The university communicates with local universities in the field of scientific research and postgraduate studies in a	3.59	1.23	8	Moderate

	way that serves the process of comprehensive and sustainable development.				
22	Contributes to the formation of specialized scientific competencies that meet the university's need for faculty members.	3.58	1.30	9	Moderate
30	Encourages the movement of scientific writing and production that serves universities and society.	3.43	1.57	10	Moderate
10	The university is interested in the recommendations of conferences related to scientific research and postgraduate studies.	3.31	1.37	11	Moderate
26	The quality and number of scientific research help in spreading scientific knowledge in society.	3.23	1.71	12	Moderate
23	Develops the skills of community members through the multiplicity and diversity of postgraduate programs.	3.22	1.27	13	Moderate
13	There are official bodies that sponsor and support scientific research and postgraduate studies at the Kingdom level to benefit from the results of scientific research and postgraduate studies.	3.16	1.33	14	Moderate
21	Provides society with thinkers and scientists who contribute effectively to the production of scientific and cultural heritage and the development of society.	3.10	1.35	15	Moderate
16	Postgraduate programs help in the advancement of the individual and society in a way that serves sustainable human development.	3.08	1.44	16	Moderate
14	There is a higher authority for scientific research and postgraduate studies at the Kingdom level that works to direct the university to benefit from the results of scientific research in a way that serves development issues.	3.04	1.60	17	Moderate
1	Research and scientific theses contribute to the development of higher education institutions at the level of universities, colleges, and study programs.	3.02	1.29	18	Moderate
4	The university aims to fulfill the requirements of sustainable development by guiding research and scientific theses, and integrating them into comprehensive and sustainable development plans.	2.99	1.31	19	Moderate
12	There is sufficient funding for scientific research based on supporting national programs that help achieve comprehensive and sustainable development.	2.68	1.39	20	Moderate
28	Contributes to enriching peer-reviewed scientific journals in universities.	1.97	1.24	21	Low
24	Provides researchers with the knowledge and skills required by the modern era to continue scientific research.	1.93	1.19	22	low

27	The quality and number of research and scientific theses in various scientific fields contribute to serving comprehensive and sustainable development.	1.91	1.23	23	low
7	A research database is available at the university that researchers rely on to conduct their research and theses.	1.90	1.10	24	low
17	Graduate programs help researchers achieve professional and career growth and develop their capabilities.	1.84	1.10	25	low
19	Contributes to preparing the necessary and trained human cadres to advance economic and social projects.	1.66	1.02	26	low
29	Encourages scientific research, which increases the university's effectiveness in serving the community.	1.59	0.92	27	low
18	Develops an academic personality capable of objective, critical, and sound scientific thinking.	1.50	1.03	28	low
20	Supplies the community with trained national competencies in all fields and specializations, which contributes to achieving comprehensive and sustainable development.	1.38	0.84	29	low
25	Contributes to preparing scientifically qualified leaders to serve and lead official and civil institutions and the private sector in a way that serves the sustainable development process.	1.38	0.86	30	low
11	There is coordination between the university and official bodies to select research and study topics to benefit from their results in a way that serves sustainable development.	1.30	0.71	31	low
Total degree		2.80	0.43	Moderate	

It is noted from Table 2 that the degree of scientific research contribution to achieve sustainable development from the faculty members' perspective in Jordanian universities was moderate, as the mean reached 2.80 with a standard deviation of 0.43. Item 9 came in first rank, which stated that "The university provides advanced electronic libraries that contain modern, advanced, and translated references that serve scientific research," with a mean of 4.23 and a standard deviation of 1.11. Item 11 came in last place, which stated that "there is coordination between the university and official bodies to select research and study topics to benefit from their results in a way that serves sustainable development." With a mean of 1.30 and a standard deviation of 0.71, and a low degree.

Findings of the second study question, which states: -RQ-2. Are there statistically significant differences at the $\alpha \leq 0.05$ in the perceived contribution of scientific research to sustainable development based on faculty members' gender and faculty?

To answer this question, the means and standard deviations were extracted, as displayed in Table 3.

Table 3. Means and standard deviations of the study participants according to their (gender and faculty)

Gender	Faculty	Means	SD	Frequencies
Male	Humanities	2.77	0.61	71
	scientific	2.86	0.38	116
	Total	2.83	0.48	187
Female	Humanities	2.78	0.40	179
	scientific	2.77	0.35	92
	Total	2.78	0.38	271
Total	Male	2.78	0.47	250
	female	2.82	0.37	208
	total	2.80	0.43	458

It is noted from Table 3 that there are apparent differences between the means of scientific research contribution to achieve sustainable development from faculty members' perspective in Jordanian universities according to the variables (gender and college), and to know whether these differences are statistically significant, a two-way variance analysis was extracted, as Table 4 displays.

Table 4. The 2-way ANOVA to examine the significance of the differences between the means of the study participant's according to their (gender and faculty)

Variance Source	Sum Square	df	Sum square	F	Sig
Gender	0.149	1	0.149	0.818	0.366
Faculty	0.161	1	0.161	0.885	0.347
Gender * faculty	0.247	1	0.247	1.501	0.221
Error	82.782	457	0.182		
Total	3672.430	458			

It is noted from Table 4. There are no statistically significant differences between the means of scientific contributions to achieve sustainable development from the point of view of faculty members in Jordanian universities, according to the variables (gender and college), as the significance values for the "F" values reached greater than 0.05 for each case.

5. Discussion

Human beings are both the goal and the means of development. Development revolves around enhancing human well-being and empowering individuals to drive progress. Achieving sustainable development requires a fundamental transformation in human thought, capabilities, and behavior, along with active participation in shaping and implementing development policies. Regardless of their professional roles or sectors, individuals must contribute their efforts toward realizing these objectives.

This study aimed to evaluate the contribution of scientific research and university theses to achieving sustainable development goals in Jordan, as perceived by faculty members at Jordanian universities. A descriptive-analytical methodology was used to collect data from a sample of faculty members, assessing the impact of academic research in supporting and advancing sustainable development.

The study's findings revealed that the overall contribution of scientific research and university theses to sustainable development was moderate. One possible explanation for this result is that university researchers often prioritize academic promotions over research aimed at societal development. Additionally, lack of funds and the absence of well-supported research centers focused on addressing societal needs may also contribute to this outcome. This result aligns with García et al. (2024), as the results show that universities have increased their efforts in disseminating information related to the SDGs, reflecting their growing commitment to achieving these goals. The results also showed a positive association between the quality of academic research and the university's international orientation and its ranking, indicating that universities with distinguished academic performance contribute more to achieving the SDGs.

In addition, these findings align with Prost & Schöpfel's (2024) study, which demonstrates that out of 431,997 French doctoral theses since 1985, there are 3,467 theses related to sustainable development, or 0.8%.

Finally, these findings aligned with Al-Atoum's (2014) study which showed that there were no statistically significant differences for the study variables (university type, gender, academic rank, experience) on the estimates of the areas of the role of university education in Jordan in achieving sustainable development from the point of view of academic leaders.

The results further revealed no significant differences based on gender, or faculty (scientific or humanities) in participants' assessments of research contributions to sustainable development. These findings align with those of Al-Ajez and Nashwan(2000), who explored the role of Palestinian universities in higher education and scientific research in economic and social development. Their study highlighted challenges facing graduate programs, such as limited research skills, weak peer-review mechanisms in research deanships, and a general lack of societal awareness regarding the importance of scientific research in development.

Similarly, the study's findings were consistent with those of Ali (2011), who examined the role of education and scientific research in fostering development within the framework of a knowledge-based society and educational economics in Syria. Using both descriptive and comparative approaches, Ali (2011) analyzed how research institutions were managed in various global contexts. The study concluded that research management in education did not perform optimally compared to other sectors and countries. In response, the researcher proposed a strategic vision for restructuring educational research to promote innovation, development, and the allocation of material and human resources necessary for meeting developmental goals.

Moreover, these findings aligned with Al-Atoum's (2014) study, which showed that the role of university education in Jordan in achieving sustainable development came at a moderate degree.

6. Conclusion

The current study aimed to explore the degree of scientific research contribution in achieving sustainable development from faculty members' perspectives. The findings indicated a moderate degree of contribution as perceived by the study participants. In addition, there were no statistically significant differences between the means of the faculty responses due to their gender or faculty. Overall, these findings underscore the need for enhanced research funding, stronger institutional

support, and a greater focus on aligning academic research with societal needs to maximize its impact on sustainable development.

7. Suggestion

To gain a deeper understanding of the impact of scientific research on sustainable development, further studies should be conducted to assess its contribution from the perspective of faculty members. Future research should also examine additional variables, such as academic rank and the type of university (governmental or private), to provide a more comprehensive view of the factors that influence this contribution.

Moreover, universities should enhance their support for research related to sustainable development by strengthening partnerships between academic institutions and both the public and private sectors. Additionally, the development of specialized training programs for faculty members is essential to improve research output, ensuring its alignment with sustainable development goals and maximizing its impact on societal progress.

Declarations

Author Contributions. A.A1: Introduction, conceptualization, methodology. A.A2: Literature review, discussion, and writing. A.A3: review-editing. A.A4: data analysis. A.A5: original manuscript preparation. All authors have read and approved the final version of the article.

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