RESEARCH ARTICLE

Green Transformational Leadership as an Approach to Achieving Sustainable Environmental Development in Arab Universities

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ABSTRACT

The study aims the reality of green transformational leadership as an approach for achieving sustainable environmental development in Arab universities and the requirements for enhancing green transformational leadership as an approach for achieving sustainable environmental development in Arab universities. The research methodology involves using the descriptive approach. The research sample consists of (713) faculty members and (75) academic leaders "faculty deans, faculty deputies, department heads" randomly selected from Arab universities. Two key questionnaires are used as research instruments to achieve the research objectives. The findings indicate that the degree of availability of green transformational leadership as an approach to achieving sustainable environmental development in Arab universities is medium, with a mean (3.40) and a standard deviation (0.703). The results also show that ranking of the domains in terms of the mean is as follows: green individualized consideration, green idealized influence, green inspirational motivation, and green intellectual stimulation, while agreement regarding the proposed proposals is high with a mean (4.76) and a standard deviation (0.812). Given the results, the article recommends strengthening green transformational leadership as an approach to achieving sustainable environmental development in Arab universities

INTRODUCTION

Of late, environmental problems have worsened and the ensuing environmental disasters include but are not limited to - global warming, biodiversity issues, pollution, seawater acidification, water shortages, adverse weather conditions, deforestation, depletion of natural resources and an increase

in the global carbon footprint in the name of economic development (Sun et al., 2022). According to the Global Climate Risk Index 2020, environmental problems represent a major challenge for developing and developed countries equally (Eckstein et al., 2019). Hence, as recognized by the Secretary-General of the United Nations, we are not on track to achieve the Sustainable Development Goals by 2030, as governments and organizations in developed and developing countries must inculcate environmental concerns to address these challenges (Mi et al., 2019). Therefore, the environment has become a pressing issue for everyone, including organizations (Adnana et al., 2020). Stopping its destruction and making efforts to increase its quality has become an important challenge for organizational leaders (Turki et al., 2022).

The harmful impact of environmental pollutants have received significant global attention, underscoring the urgent need to address a variety of sustainable development goals set by the United Nations (Saqib et al., 2024). Therefore, sustainable growth has become the norm today, as environmental security has become a crucial issue for countries and organizations, and consequently, governments have increased their interest in enhancing organizations that have developed green services or products on the one hand. On the other hand, it has increased pressure on organizations to follow green practices and environmentally friendly activities to achieve a sustainable competitive advantage (Mittal & Dhar, 2016). Trying to understand how organizations can maintain their competitiveness while maintaining the principles of sustainability and environmental responsibility, researchers find that this may be done through a greater focus on sustainable use of resources and organizational sustainability (Begum et al., 2022; Channa et al., 2021; Kang et al., 2021).

Following and innovating sustainable green practices and eco-friendly activities are now on the rise (Appiah et al., 2023; Awan et al., 2023; Hall et al., 2023). Green management and leadership has gained popularity among scholars and industry in order to reduce the negative environmental impacts and risks produced by traditional organizations, as scholars and stakeholders have pressured organizations to develop policy strategies to achieve social, economic, and environmental outcomes (Li et al., 2020; Ojo et al., 2019). Organizations' environmental management systems depend on the sustainability and development of their internal capabilities and effectiveness (Biscotti et al., 2018), necessitating developing employee capabilities and motivation along with the organizational capabilities required to meet the complex challenges of environmental sustainability (Singh et al., 2020).

Leadership and human resource management represent critical factors in developing an organization's internal capabilities and competencies (Leroy et al., 2018). Environmental scholars expect all organizations to implement green and sustainable strategic practices, which in turn depend on organizational leaders due to their critical role in positively influencing employees, organizational outcomes, sustainability, and developing internal capabilities (Peng et al., 2021). Therefore, effective leadership is essential to shape the future direction of organizations in today's rapidly changing business environment (Janjua et al., 2024). Among many leadership models and theories, transformational leadership theory is closely related to understanding environmental management, as transformational leadership has emerged as a compelling and influential approach that goes beyond traditional concepts of management (Singh & Chaudhary, 2023). Transformational leaders are also more effective in enhancing environmental performance (Farrukh et al., 2022; Peng et al., 2021).

One of the most relevant aspects of transformational leadership is green transformational leadership, as an extension of transformational leadership (Fernet et al., 2015). Green transformational leadership has emerged as an interesting domain for researchers over the past decade (Li et al., 2020; Moin et al., 2021). Green transformational leadership, which combines green and transformational leadership, is a vital approach in today's rapidly changing world, as it emphasizes the need for organizations and leaders to adopt sustainable practices and enhance environmental management,

creating a positive impact on the environment and society (Zaid & Yaqub, 2023). The entire leadership content is focused on encouraging green environmentally friendly initiatives (Peng et al., 2021). In addition to organizational policies and employee characteristics, the leadership behavior of a green transformational leader is an important factor in determining employees' green attitudes and behavior (Khan & Khan, 2022).

The groundwork of transformational leadership theory is the definition of a transformational leader as someone who is able to separate followers from their trivial preoccupations and unite them around a common purpose to accomplish what they never thought possible. Transformational leadership assumes a leader who has the ability to separate followers from their individual preoccupations and rally them around a common goal (Zaid & Yaqub, 2024). According to Bass (1985), transformational leadership theory seeks to inspire and motivate followers to achieve their greatest potential. Therefore, transformational leaders can be identified by their ability to foresight, competence in communication, and ability to inspire followers to achieve their goals and objectives (Bakker et al., 2023). They provide their subordinates with encouragement and guidance, inspiring them to think creatively and fostering a culture that values working together. Guidance involves a variety of leader behaviors that have the ability to "transform" followers and positively influence their attitudes and actions.

In 1998, Bass and Avolio classified transformational leadership into four behaviors: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Avolio & Bass, 1988). Idealized influence represents the ethical and professional behaviors of leaders as role models for employees, where subordinates respect and trust their leaders, and thus the leader's ability lies in acting as a role model for his followers and gaining their respect and trust (Deinert et al., 2015). Inspirational motivation means the leader directing the subordinates and inspiring them to translate the vision into reality through the leader's explanation of the organization's future vision and its connection to its strategic goals, and thus it is the leader's ability to inspire and motivate his followers to achieve higher levels of performance ((Mittal & Dhar, 2016; Tepper et al., 2018). The leader, through intellectual stimulation, also encourages and supports the creativity of followers to generate creative and innovative solutions to improve organizational performance, thus including the leader's ability to encourage followers to think creatively and question assumptions (Casu et al., 2021).

Lastly, the leader, through individual consideration, enhances the loyalty and commitment of subordinates by resolving their concerns and improving their well-being through continuous and strong support at different organizational levels, which makes them more comfortable in proposing modern methods and ideas, and thus the leader's ability lies in providing individual support and advice to his followers (Mittal & Dhar, 2016). Hence, transformational leaders urge their followers to take charge of their work and develop a sense of responsibility toward their coworkers and the organization, encourage their followers to take initiative and be proactive, and participate in team activities (Casu et al., 2021). Therefore, transformational leadership theory has been considered an effective framework to explain the factors that drive organizations to achieve best practices and behaviors including corporate practices and behaviors to ensure their survival and sustainability during testing times (Zaid & Yaqub, 2024).

Hereafter, it would not be wrong to say that transformational leaders can develop an inspiring vision that helps their followers perform their tasks in sustainable ways to compete in the market. Transformational leadership behavior has received significant attention and widespread recognition in existing literature as being effective in positively influencing desired employee behaviors (Hoch et al., 2018). Transformational leaders motivate employees to achieve organizational goals because they have a clear vision of the organization's current and future goals, and thus they have the ability to create an innovative vision and implement this vision by inspiring employees (Asadi et al., 2020).

Farrukh et al. (2022) argue that these behaviors can be applied to promote pro-environmental behaviours. In terms of idealized influence, transformational leaders demonstrate concern for environmental and social issues, lead their organizations in responsible ways, and demonstrate a core set of green values, convictions, and commitment to the collective good, which will later be idealized and practiced by followers.

On the other hand, inspirational motivation represents the ability of leaders to motivate followers to perform green and environmentally friendly behavior, while environmental intellectual stimulation represents the ability of leaders and their commitment to motivating followers to challenge assumptions and generate the ideas necessary to overcome environmental issues in innovative ways. Finally, leaders with individual environmental consideration show compassion and concern for the well-being of their subordinates and meet their individual needs. Hence, leaders form strong relationships with their subordinates to convey their environmentally friendly values as green transformational leaders, through their exemplary charismatic personality, inspire and motivate their followers to undertake environmentally friendly actions.

Green transformational leadership is considered one of the most important effective administrative leaders concerned with environmental affairs, with a high ability to motivate subordinates and inspire them to achieve environmental performance that exceeds expected levels (Waer, 2021). It is distinguished by its focus on inspiring pro-environmental behaviors as a key focus in guiding organizations towards sustainable practices, where leaders play influential roles, not only in making strategic decisions but also in enhancing an organizational culture consistent with environmental responsibility (Nushrath, 2023). It focuses on green trends and environmental issues related to the organization's long-term goals. Therefore, if subordinates have environmental concerns, they will be more absorbent of the environmental information that the leader conveys to them (Xingdong et al., 2018). It also expresses the behavior of leaders who motivate their followers to achieve environmental goals and inspire them to perform beyond expected levels of environmental performance (Chen & Chang, 2013).

Green transformational leadership also represents a distinctive characteristic of leadership that motivates them to achieve organizational goals and encourages them to act beyond expected environmental performance (Chen et al., 2015). They perform a series of actions to encourage their subordinates to meet environmental protection requirements and achieve success in meeting environmental performance requirements (Wang et al., 2018). When a green transformational leader shows confidence and cares about his subordinates, this encourages these subordinates to feel proud and pushes them to commit (Dionne et al., 2010). A green transformational leader creates green work teams and provides them with guidance, support, and motivation to commit to the organization's environmental goals (Wang et al., 2018). As for universities, they are among the most prominent institutions that have borne the burden of contributing to the embodiment of sustainable development on the ground through their capabilities and energies. Hence, it receives great attention from theorists and researchers of sustainable development, whose structures are integrated by several parties, led by the university (Al-Barawi, 2021; Lakhdir & Nassima, 2019; Mujahid, 2020).

Universities have much to offer to achieve sustainable development, as they are stable institutions based on long-term planning and have university training and research as main aspects of their focal and vital operations, and therefore they represent ideal spaces for launching sustainable practices on a large scale (Al-Kurd, 2018). By 2030, according to the Plan for a Sustainable Development Strategy, it is expected that equal university education will be offered to all individuals and emphasizes the need to acquire the knowledge and skills necessary to promote sustainable development (Lane, 2017). Universities can also be engines of societal transformation by making more efforts to achieve sustainable development goals. Being locally rooted and globally connected, they offer significant opportunities to achieve the Sustainable Development Goals. Also, if sustainability is the goal of the

day, and the SDGs are a compass in a world defined by complex, ambiguous, volatile and uncertain conditions, then universities are critical agents of change, then universities act as a driver of transformative sustainability towards achieving the SDGs (Purcell et al., 2019).

Universities also help shape new ways for the world, and address the great challenges of our time as reflected in the Sustainable Development Goals (United Nations General Assembly, 2015). Also, being at the forefront of scientific and technological progress in conducting global research and educating future leaders and professionals, universities provide influential knowledge in every sector in all countries and act as anchors in the communities they serve at the national and international levels. Universities can help facilitate change towards a more equitable society and a better world by adopting the SDGs at a strategic level in the pursuit of sustainability (Findler et al., 2019). The university is also the primary means of instilling positive awareness and disseminating modern cultures among members of society and honing them with the various skills necessary to build an educated society replete with qualified human resources capable of keeping pace with the development process and participating in it effectively and efficiently on the one hand, and prevailing in economic and social stability and saturated with environmental awareness on the other hand (Boutura & Al-Wafi , 2020). With this detailed introduction, the related literature review is given in the following section.

LITERATURE REVIEW

Research has documented studies dealing with green transformational leadership and linked them to the domains or requirements of sustainable environmental development. Wahba et al. (2024) examined the effect of green dynamic capabilities on green innovation and the moderating role of green transformational leadership. The results found that green dynamic capabilities positively influence green creativity, and green transformational leadership positively influences green dynamic capabilities and green creativity. Moreover, green transformational leadership positively moderates the relationship between green dynamic capabilities and green creativity.

Since there are few previous studies that investigated that intrinsic and extrinsic green motivation influence green innovation, Wenjing et al. (2024) aimed to fill this research gap and introduce two new constructs: green intrinsic motivation and green extrinsic motivation. The results revealed that green transformational leadership has a significant impact on the green internal motivation and green creativity that employees need to produce clean and green products and services. In addition, green intrinsic motivation partially mediates the relationship between green transformational leadership and green creativity. On the contrary, green extrinsic motivation as a mediator slightly undermines green intrinsic motivation for green creative behaviour. Therefore, leadership in organizations must raise the green motivation of employees so that they can create environmentally friendly and sustainable products and services.

From a different lens, Ding et al. (2023) explored the green transformational leadership style to enhance the green performance of chemical company employees. It expands the domain of environmental protection through the use of two new constructs: participation in the creative process and green creativity. The results revealed that green transformational leadership positively affects individual green performance, creative process engagement and green creativity mediate the relationship between green transformational leadership and individual green performance, and individual environmental awareness positively moderates the relationship between green transformational leadership and green creativity.

Moreover, Al-Najjar (2023) investigated the impact of green human resource management practices on enhancing organizational sustainability and analyzing the relationship between green human resource management practices and enhancing organizational sustainability through green transformational leadership as an intermediary variable. The study found a statistically significant

effect of green human resources management practices in its various domainss and organizational sustainability. In addition, the entry of green transformational leadership into the relationship between green human resource management practices and organizational sustainability led to an increase in the impact of green human resource management practices on organizational sustainability.

Also, Niazi et al. (2023) examined the impact of green human resource management practices and green innovation on environmental performance. Besides, the study considered green CSR as a mediator to explain the impact of green HRM practices and green innovation on environmental performance. In addition, the current study evaluated the role of green transformational leadership by focusing on green HRM and green innovation over green CSR. The results revealed a non-significant relationship between green HRM practices and environmental performance, while the effect of green innovation on environmental performance was significant. Moreover, green CSR positively influenced environmental performance. The results supported the mediating mission of green CSR between the impact of green HRM and green innovation on environmental performance. Finally, the results indicated that green transformational leadership is an important mediator.

Besides, Noushrath et al. (2023) investigated the impact of green transformational leadership on green performance focusing on the mediating role of green awareness in the context of the banking sector. The results indicate a positive effect of green transformational leadership on both green awareness and green performance. The findings showed that the relationship between green transformational leadership and performance is partly mediated by green awareness. In practice, organizations are encouraged to prioritize developing green transformational leadership and awareness to enhance overall green performance. Also, Saif et al. (2023) investigated the dynamic relationship between green transformational leadership, green transactional leadership, and green creativity mediated by green intrinsic motivation. The results indicated that green intrinsic motivation significantly influences the relationship between green transformational leadership and green creativity, as well as green transactional leadership and green creativity. However, green transformational leadership is a stronger indicator compared to green transactional leadership in nurturing green creativity among students to provide viable solutions to existing products and processes. The R2 or contribution made by green transformational leadership and green transactional leadership to green creativity was 45.7% while the contribution made by green transformational leadership, green transformational leadership and green creativity to green intrinsic motivation was 57.7%.

Similarly, Suleiman et al. (2023) investigated the impact of green transformational leadership on employees' environmental performance and green work engagement in the hotel sector and examined the potential mediating effect of green work engagement on the relationship between green transformational leadership and employees' environmental performance in three- and four-star hotels in Egypt. The results revealed that green transformational leadership has a significant positive impact on green work engagement and environmental performance among hotel employees. Moreover, it was found that the association between green transformational leadership and hotel employees' environmental performance is positively and partially significantly influenced by green work engagement.

Additionally, Van et al. (2023) explored whether green mindfulness drives green innovation and whether this relationship is moderated by green transformational leadership and the indirect effect of green mindfulness on environmental performance through the mediation mechanism of green innovation. The results showed that green mindfulness directly affects green innovation, which in turn contributes positively to environmental performance. Green mindfulness also increases environmental performance through the mediating role of green innovation. Moreover, green transformational leadership moderates the effects of green mindfulness on green innovation.

Given the resource-based view theory, Younis and Hussain (2023) study explored the impact of green HRM on environmental performance and evaluated the mediating effect of green psychological climate between green HRM and environmental performance, as well as how green HRM and green transformational leadership together influenced the green psychological climate. The results confirmed that green HRM significantly influences environmental performance in the healthcare sector and supports the hypothesis that psychological green climate mediates the relationship between green HRM and environmental performance. The findings also did not find a significant moderating role of green transformational leadership in the relationship between green human resources management and green psychological climate.

In the same context, Al-Ghazali (2022) studied the impact of green transformational leadership on green innovation through mediators such as green thinking and creative organizational identity in SMEs. The results revealed that green transformational leadership had a significant impact on green organizational identity, which cultivated green creativity in SMEs. It is also found that green organizational identity played a mediating role in the relationship between green transformational leadership and green creativity, as green thinking mediates the link between green transformational leadership and green creativity. Noman (2022) explored the direct effect of green transformational leadership on green innovation and the indirect effect between them through green organizational culture as a mediating variable. The results indicated a positive and significant effect of green transformational leadership on green innovation and that green organizational culture significantly and completely mediates the relationship between green transformational leadership and green innovation.

Moreover, Farrukh et al. (2022) studied the role of green transformational leadership in enhancing pro-environmental behaviors through green HRM and the moderating role of environmental knowledge. The results revealed the importance of green transformational leadership in predicting employees' pro-environmental behaviors through the mediating role of green human resource management. Furthermore, the moderating role of environmental knowledge is also confirmed as this study provides a comprehensive understanding of the process through which pro-environmental behaviors can be enhanced. Also, Sun et al. (2022) the tested relationship between green transformational leadership and environmental performance, considering the mediating role of green human resource management and green innovation. The results confirm a positive and significant effect of green transformational leadership on environmental performance. Moreover, mediation analysis confirms that green HRM and green innovation positively mediate between green transformational leadership and environmental performance. Furthermore, it is also confirmed from structural equation modeling that environmental values play a moderating role between green transformational leadership and environmental performance.

Additionally, Tosun et al. (2022) examined the mediating effect of corporate social responsibility (CSR) on the relationship between green transformational leadership (GTL) and green performance (GP) in restaurant management in North Cyprus. The results showed that CSR had a mediating effect on the relationship between GTL and green performance, although there was no direct relationship between them. Based on the resource-based view and ability-motivation-opportunity theory, Singh et al. (2020) examined how green HRM interacts with the links between green transformational leadership, green innovation and environmental performance. The study results indicate that green HRM practices mediate the effect of green transformational leadership on green innovation, and that green HRM indirectly through green innovation influences a firm's environmental performance, which greatly strengthens the theory. It indicates that the HRM-performance relationship does not depend on the additive effect of green transformational leadership and green innovation as an antecedent and mediator, respectively, nor does it depend on their interactive effect but a combination of both combinatorial forms, i.e. additive and interactive, of influence on the company's

environmental performance. Given the related literature review and studies, the research problem is incorporated in the subsequent section.

Research Problem

Due to the global environmental, social and economic challenges threatening the planet, 193 countries came together to define and adopt the Sustainable Development Goals in 2015 - it is the first actionable agenda agreed by the global community for all citizens that included a set of goals and targets for sustainable development around the world by 2030 to end poverty, protect the planet and ensure that all people enjoy peace and prosperity (United Nations General Assembly, 2015). Consequently, recent years have witnessed increasing interest in the environment and climate changes and their repercussions on the economic and social domains with the emergence of many crises, which has led international communities to encourage increased investment in the environment as a basic necessity alongside the social and economic requirements for sustainable development and the transition to a sustainable economy that takes into account environmental aspects.

This new economy is called the green economy as a new model that aims to link the requirements for achieving development of all kinds with environmental protection, and thus aims to preserve the environment to achieve sustainable development goals which is the goal of establish it in a modern way and comparisons as a clean economy based on green development to make optimal use of resources and energies and thus achieve a sustainable global economy (Boutura et al., 2023). The RBV theory assumes that an organization's performance depends on its strategic resources, as these resources are characterized by their scarcity, difficulty in replicating them by competitors, and inherent value. Moreover, an organization can achieve superior results and create a competitive advantage by leveraging its distinctive resources. Consequently, these strategic resources are exceptional and lie outside the reach of competitors, making it difficult for them to replace or replicate them with alternative resources capable of performing similar functions (Bass, 2000).

There are many efforts to develop technologies aimed at preserving the environment, such as recycling waste and water, using energy from natural sources that do not harm the environment, developing renewable energy, environmental modernization, reducing carbon emissions, and increasing environmental efficiency/performance. In addition to these efforts, the department concerned with the implementation of environmental policies is being developed, including green transformational leadership that enhances the skills and capabilities of new leaders that can promote environmentally friendly environmental behaviors as they relate to the environmental performance of enterprises and participation in green work. It constitutes a very important element in the organizational context of institutions and is concerned with activating modern strategies concerned with increasing productivity and developing performance in addition to paying attention to environmental issues, and thus increasing the productivity of environmental factors in general (Suliman et al., 2023).

In light of the new vision for education, a new concept called Education for Sustainable Development was crystallized, as green university efforts around the world began. When universities apply the concept of sustainability in their various activities and practices, they can be considered a green university, and the university spreads and supports sustainable development in two different ways by reducing the negative impacts of its activities on the economy, society and environment on the one hand, and adopting and applying sustainability practices in its curricula, programs, practices, management, leadership and research (Ahmed, 2023). Aidoud (2022) believes that concern about climate and environmental disturbances in the world has led to the acceleration of sustainability initiatives and green trends in higher education, as universities are striving to deal with the environment and sustainability by enhancing green campus initiatives that aims to reduce carbon emissions, save energy, recycle waste, conserve water, follow green education, and more. As a result

of this trend, there are metrics and standards for evaluating the green trends of universities. Also, sustainability in higher education has become a major focus of the United Nations Sustainable Development Program (Elfert, 2019).

Initially, the program focused on ensuring lifelong learning, high-quality teaching and sustainability in higher education, shifting the focus from what is done in each area to how it is done (Altarawneh & Al-Ghammaz, 2023). Researchers have grown increasingly interested in "greening" employee behavior at universities, which is, motivating individuals to exhibit environmentally beneficial behavior. The process of "greening" represents a process of organizational change, which encourages employees to enhance employee well-being, work sustainably, influence others, conserve resources, take initiative and avoid harm (Srivastava et al., 2020). A successful sustainability program requires a focus on the soft side of organizational planning, and changes in leadership strategies and decision-making processes, strategic planning initiatives, collaborative efforts for the future, and changes in organizational structures require more focus from leaders in universities (Amui et al., 2017).

Despite the importance of achieving the Sustainable Development Goals, sustainability is often on the margins of mainstream topics in universities, with academic work in this area so largely disconnected from campus operations and community service that universities struggle to integrate sustainability into their governance and business models (Purcell et al., 2019). A green world requires green leadership as universities must match their leadership strategies with the globally changing environmental backdrop through environmentally conscious practices. To live in a green world, organizations, including universities, must rethink leadership and develop a new approach to dealing with environmental risks and ensuring sustainability (Al-Ghamdi, 2024; Taylor, 2022). Scientific attention and research has focused on various factors that influence employees' green behaviors, including leadership behaviors (Sobaih, 2022). Green leadership has become more important in motivating organizations to become more environmentally friendly and proactively resolving environmental concerns (Zhong et al., 2023). Hence, leaders, especially university leaders, must learn how to encourage green world programs and initiatives and integrate them into decision-making processes (Al-Ghamdi, 2024).

Literature and studies emphasize the importance of green transformational leadership in enhancing sustainable environmental development, as Ahmeda et al. (2020) argue that green transformational leadership contributes to environmental sustainability because it provides the necessary inspiration as well as motivation to employees to achieve set organizational and environmental goals. Therefore, green transformational leadership plays a major role in enhancing and harnessing green innovation, as these leaders have a clear green vision, and influence the values, beliefs, and ideas of their followers so that they have a strong conviction to achieve it (Janjua et al., 2024; Noman, 2022; Singh et al., 2020). The green transformational leader supports the innovative ideas of subordinates so that these actions become a role model and an enhancing force for green creativity and innovation (Mansoor et al., 2021). It also contributes to enhancing the performance and green entrepreneurial orientation of organizations (Majali et al., 2022), enhancing green creativity (Mittal & Dhar, 2016), enhancing green creativity, green internal motivation, and green external motivation (Li et al., 2020), and enhancing green performance for subordinates (Tosun et al., 2022).

Green transformational leadership also plays a main role in enhancing green orientation and behavior of employees (Iqbal et al., 2021; Waer, 2021), green mindfulness (Chen et al., 2014), individual green values (Tosun et al., 2022), green psychological climate and green development performance (Zhou et al., 2018), and green work engagement (Çop et al., 2021). Green transformational leadership is positively associated with employees' green behaviors in times of crisis (Zaid & Yaqub, 2024), unleashing employees' green creativity (Li et al., 2020), and developing green intellectual capital and enhancing green competitive advantage (Xin & Wang, 2023). The green transformational leader also motivates his subordinates to engage in activities that enhance the

environmental management of the organization (Priyadarshini et al., 2023), including encouraging sustainable development, finding solutions to environmental issues and the overall environmental performance of organizations (Priyadarshini et al., 2023) and as a critical factor in bridging the gap between green human management practices and environmental performance through green psychological climate (Younis & Hussain, 2023), and the positive impact on environmental performance and green process innovation (Hanif et al., 2023).

Green transformational leadership also inspires employees to participate in the green process as well as service and product innovation activities and acquire new knowledge, which enhances the environmental performance of organizations in reducing environmental pollution and achieving competitive advantage in the market (Apoi & Latip, 2019; Nguyen et al., 2021). Green transformational leadership is also related to team flexibility (Çop et al., 2021), awareness intelligence and motivation to achieve environmental goals (Chen & Chang, 2013) and enhancing environmental innovation (Al-Saidi, 2020). Transformational leaders also support a culture of innovative ideas, implement those ideas in terms of actions, and build a model of "creativity-enhancing forces" (Sun et al., 2022). Therefore, the role of transformational leaders is very vital in creating and building a vision that leads to proactive steps towards various tasks and realizing environmental concerns and green initiatives (Sun et al., 2022).

Employees' responsibility behavior is also enhanced through the mediating role of green organizational identity (Du & Yan, 2022), which is positively linked to organizational citizenship behavior (Kheir-El-Din & Samir, 2020), and organizational citizenship behavior for the environment (Gurmani et al., 2021; Mi et al., 2019), and the positive impact on green creativity, environmental innovation and energy efficiency in the higher education sector. It also bridges the gap between green human resource management practices and environmental performance through green psychological climate (Younis & Hussain, 2023). Transformational leadership behavior has also received significant attention and widespread recognition in existing literature as being effective in positively influencing desired employee behaviors (Hoch et al., 2018). As academics pay increasing attention to green transformational leadership, scholars are increasingly focusing on more specific transformational leadership styles, such as environment-related behaviors in predicting specific safety and environmental outcomes respectively (Cui et al., 2023).

In the context of environmental management, the focus on examining environment-specific transformational leadership is of great importance (Iqbal et al., 2023). Vargas-Hernandez (2022) argues that green transformational leadership is a key factor in achieving the goal of sustainable development in organizations and therefore requires adequate attention. However, the concept of green transformational leadership has not been investigated to date. Moreover, although higher education institutions in developing countries are making efforts to create awareness of a greener environment, existing literature is scarce regarding green transformational leadership (Srivastava et al., 2020). Therefore, research into green transformational leadership development will help organizations achieve environmental sustainability and higher levels of performance (Chen & Wu, 2022), push them in a greener and more sustainable direction and enhance employee engagement and awareness of environmental protection (Jia et al., 2018).

Contemporary development challenges have imposed on universities the responsibility of reconsidering their philosophy, plans, programs, patterns, and functional pillars to achieve the requirements of the sustainability of higher education in order to provide qualified cadres who participate in drawing and implementing societal ambitions, present and future, and making decisions related to developing the environment and improving the quality of life. As these challenges continue, it is imperative for universities to adopt a sustainability approach to the extent that they can meet the requirements of sustainable development and support the foundations of sustainability (Abdel Wahab, 2021). Since universities are global institutions, their global orientation towards the

sustainability of the common environment that the world faces has emerged, such as confronting risks, including environmental risks. As a result, this has led to universities assuming a fundamental and decisive role in confronting those risks and challenges and performing their developmental role in achieving the goals of sustainable development (UIGWURN, 2023).

In light of this, international universities have turned to green universities that employ the culture of the green economy in all their various operations and functions to achieve the best levels of progress in sustainability to build a sustainable university campus that adopts a dynamic, effective, sustainable system that includes university administration, planning and development, education and scientific research, community service and the design of environmentally friendly colleges and university laboratories in all domains (Sabeeh, 2022). The transition to a green economy contributes to moving the Arab world to a new direction in development and stability in development that ensures sustainability and stability in the environment along with the economy, as the basic principles of the green economy revolve around giving equal weight to economic development and social justice. Meeting these three goals provides a sound basis for addressing the weak points in the Arab economy, in order to achieve societal and security stability.

The optimal use of natural assets to diversify the green economy represents a mechanism and a basic pillar of the green economy. Options for transitioning to a green economy impose the necessity of following consistent policies aimed at restructuring and shaping the economic and service sectors to ensure the protection of natural resources and confront climate change to provide better returns on investment of natural, human and economic capital to ensure the achievement of sustainable development (Al-Turkustani, 2024; Bashir, 2022; Sachs, 2019). Therefore, some studies (see Atallah, 2023; Ahmed, 2023; Hamed & Hassan, 2023; Hashem, 2024) recommended the necessity of Arab universities adopting the content of the green university concept and applying it to an effective role in preserving the environment and natural resources and building sustainable infrastructure. Moreover, there is a need to establish cooperation between national universities and leading Arab and foreign universities in applying sustainability concepts, especially with regard to the mechanisms used to preserve the environment to build sustainable infrastructure that preserves natural resources and biodiversity.

In light of the common challenges facing Arab universities, the rapid changes surrounding them, and their continuous endeavor to reach a distinguished position in dealing with everything that is new and surprising, they are forced to search for new aspirations to confront these challenges. Since university leadership has an important role in the management of universities because of the experience and outstanding leadership skills it possesses that are capable of achieving the goals it seeks, but with sustainable human resources management, their results will be more effective in achieving the goals of sustainable environmental development. With the emergence of green transformational leadership and its prominent role in achieving sustainable environmental development goals, this type of leadership is necessary in Arab universities as a basis for working to raise efficiency and effectiveness in a way that contributes to achieving the university's goals.

More importantly, the university has positive solutions in the domain of business for organizations, as it relies on successful practices in its management of those human resources and the ability to sustain them and develop values and beliefs appropriate to its organizational culture through the emotional and mental capabilities it possesses, which helps build its practices and sustainability towards progress, growth and development and contributes to achieving the desired goals and developing them in the long term. With that, the research problem is reflected in answering the following questions:

- What is the degree of availability of green transformational leadership as an approach to achieving sustainable environmental development in Arab universities from the faculty members' perspective?

- What is the degree of requirement for enhancing green transformational leadership as an approach to achieving sustainable environmental development in Arab universities from the academic leaders' perspective?

Research Significance

The significance of the research is reflected in enriching Arab libraries with scientific material on green transformative leadership in universities and the requirements for strengthening it as an approach to achieving sustainable environmental development, especially given the scarcity of research and studies that have addressed this aspect in universities in general and Arab universities in particular. It is hoped that the research results will contribute to providing assistance to decision makers in Arab universities to work on improving green transformational leadership as an approach to achieving sustainable environmental development in universities, especially since the study provides a set of mechanisms in this regard. This article also helps officials in ministries of higher education and universities and those in charge of the career and professional development process for faculty members and university leaders in identifying mechanisms for enhancing green transformational leadership for universities to contribute to providing it in a way that increases the competitive capabilities of Arab universities in achieving their functions in light of the requirements of the sustainable development goals.

Hopefully, this study will be a starting point for other studies in which other variables are added and linked to green transformational leadership. It is hoped that this research study will employ the two study instruments in developing the necessary plans and strategies for developing green transformational leadership in universities as an approach to achieving sustainable environmental development and evaluating relevant university practices in light of them. The study presents proposed mechanisms for enhancing green transformational leadership as an approach to achieving sustainable environmental development in Arab universities that may benefit those in charge of them and decision makers in developing policies, plans, strategies, and programs and making the necessary decisions in this regard.

Research Limitations

The findings of this study can be generalized in light of the following limitations:

1. **Human Limitations:** This study is limited to a sample of faculty members and academic leaders in Arab universities.
2. **Spatial Limitations:** This study is conducted at universities in Arab countries.
3. **Temporal Limitations:** This study is conducted in the second semester of the academic year 2023/2024.
4. **Objective Limitations:** This study is limited to identifying the reality and requirements of enhancing green transformational leadership, green idealized influence, green inspirational motivation, green intellectual stimulation, and green individualized consideration as an approach to achieving sustainable environmental development in Arab universities.

METHOD

Research Approach

The descriptive approach is used to achieve the research objectives, as it is the most appropriate approach for such a study, along with using the questionnaire as an instrument for collecting data related to the study.

Research Population and Sample

The research sample consists of (713) faculty members from Arab universities randomly selected to answer the questionnaire on the reality of green transformational leadership as an approach to achieving sustainable environmental development in Arab universities from the faculty members' perspective. To develop the proposed requirements, a questionnaire regarding the requirements for enhancing green transformational leadership as an approach to achieving sustainable environmental development in Arab universities from the faculty members' perspective in Arab universities was applied to (75) academic leaders "faculty deans, faculty deputies, department heads" randomly selected from Arab universities.

Research Instruments

The first 20-item questionnaire with (5) items for each domains was developed as a closed questionnaire to measure green transformational leadership as an approach to achieving sustainable environmental development in Arab universities from the faculty members' point of view. The second 30-item questionnaire was also developed as a closed questionnaire to measure the requirements for enhancing green transformational leadership as an approach to achieving sustainable environmental development in Arab universities from the academic leaders' perspective in Arab universities. The two questionnaires were developed based on theoretical literature and previous studies (see Zaid & Yaqub, 2024; Ding et al., 2023; Lathabhavan & Kaurm, 2023, Chen & Chang, 2013; Robertson, 2018), as well as the suggestions of validators and educational specialists. A five-point Likert scale was adopted for both questionnaires, as five levels were specified for the first questionnaire, as follows: (5) always, (4) often, (3) sometimes, (2) rarely, (1) never, while five levels were specified for the second questionnaire to clarify the degree of agreement as follows: (5) very high, (4) high, (3) medium, (2) low, (1) very low. The sections are regular, and all the questions in the two questionnaires fall within a five-point Likert scale.

Green Transformational Leadership Reality Scale "Questionnaire" as an approach to achieving sustainable environmental development in Arab universities:

Research Instrument Validity

Face Validity

Face validity is used to check the research instrument validity by reviewing the questionnaire in its initial forms from (15) experienced and specialized faculty members in Arab universities. The comments, modifications, and recommendations proposed by the validators are taken into account, as the items have obtained an approval rating of (80%) or more. The necessary action is taken with the items suggested to be deleted, modified, or reformulated, and thus the questionnaire in its final form consists of (64). This method is suitable for checking the face validity of the questionnaire, that is, its items can measure what they are set to measure.

Internal Consistency Validity

By applying the questionnaire to a pilot sample of (35) faculty members, the correlation coefficient is calculated between each item score and its domain total score as shown in Table (1).

Table 1: Correlation Coefficients between Each Item Score and its Domain Total Score

Green Individualized Consideration		Green Intellectual Stimulation		Green Inspirational Motivation		Green Idealized Influence	
Correlation	Item	Correlation	Item	Correlation	Item	Correlation	Item
.827**	16	.723**	11	.797**	6	.864**	1
.791**	17	.739**	12	.862**	7	.812**	2
.812**	18	.831**	13	.739**	8	.856**	3
.719**	19	.793**	14	.895**	9	.627**	4
.900**	20	.723**	15	.878**	10	.853**	5

As shown in Table (1), the values of the correlation coefficients have ranged from (0.900) to (0.719), where they are all positive and statistically significant at the level (0.01), indicating the internal consistency between each item score and its domain total score.

Research Instrument Reliability

The research instrument reliability is checked by calculating the reliability coefficient by applying Cronbach's Alpha formula on all domains. The Cronbach's Alpha formula measures the extent of consistency in the respondents' answers to all questionnaire items as shown in Table (2).

Table 2: The Reliability Coefficients of the Green Transformational Leadership Instrument in Arab Universities

Domain	Internal Consistency
Green Idealized Influence	0.76
Green Intellectual Stimulation	0.81
Green Inspirational Motivation	0.78
Green Individualized Consideration	0.79
Overall Green Transformational Leadership	

As shown in Table (2), the reliability coefficients of the green transformational leadership instrument as an approach to achieving sustainable environmental development in Arab universities have ranged between (0.76) and (0.81), where the highest reliability coefficient is the green intellectual stimulation, while the lowest is green idealized influence.

The Green Transformational Leadership Requirements Scale "Questionnaire" as an approach to achieving sustainable environmental development in Arab universities:

Research Instrument Validity

Face Validity

Face validity is used to check the research instrument validity by reviewing the questionnaire in its initial forms from (15) experienced and specialized faculty members in Arab universities. The comments, modifications, and recommendations proposed by the validators are taken into account, as the items have obtained an approval rating of (80%) or more. The necessary action is taken with the items suggested to be deleted, modified, or reformulated, and thus the questionnaire in its final form consists of (64). This method is suitable for checking the face validity of the questionnaire, that is, its items can measure what they are set to measure.

Internal Consistency Validity

By applying the questionnaire to a pilot sample of (29) academic leaders, the correlation coefficient is calculated between each item score and its domain total score as shown in Table (3).

Table 3: Correlation Coefficients between Each Item Score and its Domain Total Score

Correlation	Item	Correlation	Item	Correlation	Item	Correlation	Item
.816**	25	.723**	17	.731**	9	.865**	1
.735**	26	.639**	18	.900**	10	.862**	2
.811**	27	.913**	19	.866**	11	.878**	3
.658**	28	.810**	20	.771**	12	.853**	4
.803**	29	.669**	21	.812**	13	.823**	5
.790**	30	.797**	22	.791**	14	.692**	6
.843**	31	.874**	23	.738**	15	.916**	7
.742**	32	.723**	24	.788**	16	.862**	8

The values of the correlation coefficients have ranged from (0.639) to (0.913), where they are all positive and statistically significant at the level (0.01), indicating the internal consistency between each item score and its domain total score.

Research Instrument Reliability

The research instrument reliability is checked by calculating the reliability coefficient by applying Cronbach's Alpha formula on all domains. The Cronbach's Alpha formula measures the extent of consistency in the respondents' answers to all questionnaire items as shown in Table (4).

Table 4: The Reliability Coefficients of the Green Transformational Leadership Instrument of Requirements for Enhancing Green Transformational Leadership as an Approach to Achieving Sustainable Environmental Development in Arab Universities

Internal Consistency	Item	Internal Consistency	Item	Internal Consistency	Item	Internal Consistency	Item
.687**	25	.644**	17	.703**	9	716**	1
.659**	26	.609**	18	.655**	10	.801**	2
.811**	27	.716**	19	.736**	11	.758**	3
.679**	28	.597**	20	.872**	12	.810**	4
.608**	29	.708**	21	.802**	13	.765**	5
.700**	30	.775**	22	.687**	14	.659**	6
.709**	31	.686**	23	.658**	15	.683**	7
.816**	32	.804**	24	.637**	16	.694**	8

As shown in Table (4), the reliability coefficients of requirements for enhancing green transformational leadership instrument as an approach to achieving sustainable environmental development in Arab universities have ranged between (0.597) and (0.872), where they are all positive and statistically significant at the level (0.01), indicating the reliability of the instrument.

Statistical Processing

The following statistical methods are used to answer the research questions and process the data statistically.

1. Means, standard deviations, ranks, and degrees are used to answer the first and second research questions.

2. Cronbach's Alpha coefficient is used to find the internal consistency coefficient of the research instrument.

The degree of availability of the requirements is also determined by applying the following equation:

Length of One Category = (the Highest Value of the Alternative - the Minimum Value of the Alternative) ÷ Number of Levels = (5-1) ÷ 3 = 1.3And by adding (1.33) to the Minimum Value of the alternative (the minimum); the criterion for expressing those levels is: the Mean ranging between (1-2.33) indicates a Low Degree, the Mean ranging between (2.34-3.67) indicates a Medium Degree, and the Mean ranging between (3.68-5) indicates a High Degree.

RESULTS AND DISCUSSION

First: Results related to the First Research Question

What is the degree of availability of green transformational leadership as an approach to achieving sustainable environmental development in Arab universities from the faculty members' perspective?

To answer this question, the means and standard deviations of responses of faculty members to the questionnaire on the degree of availability of green transformational leadership as an approach to achieving sustainable environmental development in Arab universities are calculated. Table (5) illustrates those results.

Table 5: Means, Standard Deviations, Degrees, and Rank of the Participants' Responses to the Degree of Availability of the Green Transformational Leadership as an Approach to Achieving Sustainable Environmental Development in Arab Universities Due to Means

No.	Domain	Mean	Standard Deviation	Degree of Availability	Rank
1	Green Individualized Consideration	3.61	0.695	Medium	1
2	Green Idealized Influence	3.45	0.831	Medium	3
3	Green Inspirational Motivation	3.32	0.843	Medium	4
4	Green Intellectual Stimulation	3.21	0.761	Medium	2
	The Overall Degree of the Availability of the Green Transformational Leadership	3.40	0.703	Medium	

As shown in Table (5), the means for members' agreement on the degree of availability of green transformational leadership in Arab universities ranged between (3.21) and (3.61), with a medium degree of availability for all domains. The order of the domains in terms of mean was as follows: green individualized consideration, green idealized influence, green inspirational motivation, and green intellectual stimulation. The overall mean for the degree of availability of green transformational leadership in Arab universities was (3.40), with a medium degree. This result indicates that despite the efforts made by Arab universities and their plans towards achieving sustainable development goals. This indicates that despite the efforts made by Arab universities and their plans towards achieving sustainable development goals, their leaders still have some shortcomings in inspiring subordinates with their environmental plans to add features related to the development of new green services, having a clear environmental vision, working as part of a team to achieve environmental goals, and encouraging work teams towards achieving environmental goals, and acting in accordance with environmental beliefs.

Other key is reflected in adding green ideas to transform the university into a green university in all its operations, directing people to think about environmental issues before designing any product or service, inspiring members to apply the latest technologies with minimal environmental risks, and failing to instilling common principles and vision to always focus on the group's goal behavior for a sustainable university environment. The leaders of Arab universities still need to be developed to show interest in environmental issues, work in responsible ways in this domain, possess green values and convictions and commitment to the collective good and subsequent generations, instill this ideal in followers, motivate work teams in Arab universities to perform environmentally friendly green behavior and challenge assumptions and generation of ideas needed to address environmental issues in innovative ways, show empathy and form strong relationships with subordinates to convey their environmentally friendly values, as leaders, through their exemplary charismatic personality, can inspire and motivate their followers to undertake environmentally friendly actions.

All of this indicates that these dimensions fell short of the expected high level in terms of their availability in accordance with the environmental challenges faced by Arab universities in light of the requirements of sustainable environmental development, especially in light of the tendency of Arab universities in the 22 member states of the League of Arab States to integrate the sustainable development goals of the United Nations. Among these goals and plans to achieve them in its educational and research programs is to produce graduates capable of enhancing sustainable economic and social development, requiring to work towards developing it and improving its aspects on the one hand. Environmental problems also represent a major challenge for developing countries, including Arab countries which are the most vulnerable countries to these challenges (Al-Dailami et al., 2022; Majali et al., 2022). This may be due to the novelty of the idea of transforming Arab universities into green universities, and the novelty of the concept of green transformational leadership as an approach to achieving sustainable environmental development in Arab universities as well.

Arab countries are still consuming countries and have a clear deficiency in taking into account environmental aspects and green technology in their practices, which has led to the low ranking of some Arab universities in classifications related to green universities. Al-Mahameed et al. (2023) stated that there are deficiencies in the sustainability practices of Arab universities and their leadership, as they ignore aspects of the broader concepts and core values of sustainability, and a great deal of lack of knowledge and awareness on issues related to sustainability, especially with regard to understanding its definition. As Daradkah et al. (2023a) noted that despite the efforts made to develop Arab university education, it still faces challenges related to management and organization, academics, employees, university tasks and goals, weak application of modern administrative and leadership methods in university management, and universities' adherence to their traditional administrative methods.

Also, some studies point out those academic leaders in Arab universities need a horizontal organizational structure to support innovative leadership practices and high levels of achievement (Abahussain & Alsubaie, 2020; Alrayes et al., 2021; Obeidat, 2020). They need to be stimulated with new leadership roles to give academics new responsibilities based on their expertise and the strength of accountability. Also, the challenge posed by this line of transformational leadership, especially in the Arab context, is that universities need to focus on enhancing and selecting individuals for senior academic positions with specific attributes, and not any other factors such as age or academic rank to align with the requirements of this type of leadership.

As Alraba'y et al. (2024) indicated that there is a deficiency in the organizational culture and leadership in the comprehensive vision and strategic view of the role of Arab universities in activating the future of development and investing resources, which leads to conflicting university functions, and weak mechanisms of the administrative, academic and educational work system with an increasing qualitative deterioration due to national aspirations. Arab universities also suffer from a clear deficiency in the management of employment capital in all its forms (Mahmoud et al., 2024; Alqudah et al. 2024; Daradkah, 2023c), and the integration between the university, government, and industry, which hinders the integration of roles in achieving sustainable environmental development (Daradkah, 2023b). Therefore, Alaraji's (2015) study believes that universities in Arab countries need to review current organizational structures, including leadership, in order to respond to renewable non-linear environmental needs and challenges.

Second: Results related to the Second Research Question

What is the degree of requirement for enhancing green transformational leadership as an approach to achieving sustainable environmental development in Arab universities from the academic leaders' perspective?

To answer this question, the means and standard deviations of responses of faculty members to the questionnaire on the degree of availability of requirements for enhancing green transformational leadership as an approach to achieving sustainable environmental development in Arab universities according to the leaders' perspective are calculated. Table (6) illustrates those results.

Table 6: Means, Standard Deviations, Degrees, and Rank of the Participants' Responses to the Degree of Availability of the Requirements for Enhancing the Green Transformational Leadership as an Approach to Achieving Sustainable Environmental Development in Arab Universities Due to Means

Item	Text of Item	AM	SD	Degree of Availability	Rank
29	Adopt the vision, mission and goals of the university to transform into a green university.	4.95	0.798	High	1
4	Establishing green regulations and rules in university administration and adhering to them.	4.95	0.821	High	1
30	Integrate green transformational leadership ideas into the university's long-term environmental plans.	4.95	0.841	High	1
2	Taking all necessary measures to ensure long-term sustainability of universities.	4.95	0.879	High	1
28	Focus on initiatives and efforts that will best protect the environment, improve sustainability, and enhance productivity and green services according to an established strategic plan.	4.94	0.865	High	5
21	Appoint transformational leaders passionate about environmental issues to turn potential crises into opportunities for innovation and organizational development.	4.93	0.706	High	6
8	Invest in nurturing the empowerment of green transformational leadership competencies through effective training and development programs at all levels.	4.93	0.754	High	6
20	Develop the competencies of green transformational leaders especially in addressing environmental challenges through policy support, education, training, green innovation incentives, and enhancing information exchange and cooperation.	4.93	0.801	High	6
18	Provide intellectual stimulation and appropriate individual and group training so that each leader has the ability and willingness to engage in take-charge behavior to the extent possible.	4.93	0.832	High	6
24	Establish a green code of ethics that includes the principles, values, and practices necessary to transform the university into a green university.	4.92	0.689	High	10
12	Promote leadership adoption of green behavioral practices and encourage others to do the same.	4.92	0.821	High	10
13	Be an example by demonstrating a strong personal commitment to environmentally conscious	4.92	0.834	High	10

Item	Text of Item	AM	SD	Degree of Availability	Rank
	practices to establish institutional citizenship behaviors.				
14	Promote green culture policies and programs in universities at all levels.	4.92	0.848	High	10
15	Create an environmentally friendly role model for employees within the university through their own influence, and take relevant responsibility.	4.92	0.854	High	10
31	Train leaders specifically in how to set a good example for employees and support them as they adopt green practices.	4.92	0.874	High	10
10	Create green teams or committees to encourage employee participation in sustainability initiatives.	4.91	0.731	High	16
3	Integrate green orientation into the decision-making process.	4.91	0.784	High	16
16	Establish green performance indicators and environmental training.	4.91	0.796	High	16
23	Localize green technology in all university operations and practices.	4.91	0.815	High	16
7	Involve university employees in decision-making processes related to the university's green initiatives to enhance their sense of ownership of such initiatives.	4.91	0.831	High	16
32	Organize green team building activities to develop a sense of responsibility and mission towards environmental issues and concern for society.	4.91	0.850	High	16
1	Focus and appreciate for the effectiveness of producing desirable green behaviors during normal times and times of crisis.	4.90	0.703	High	22
9	Inspire and motivate their employees to adopt and implement green behaviors through mentoring and organizing a strong social discourse.	4.90	0.758	High	22
11	Recognize and reward employees who demonstrate green awareness, behaviors and advocacy to contribute to the University's sustainability goals by recognizing and rewarding employees' green actions.	4.90	0.794	High	22
26	Provide laws and regulations that support the university's independence while providing the necessary resources to transform the university into a green university.	4.90	0.825	High	22
5	Maintain a positive reputation among stakeholders and the community in adopting a green university.	4.90	0.867	High	22
6	Make integration between the university and industry under the auspices of the state in achieving sustainable environmental development goals.	4.90	0.879	High	22
22	Advocate and establish an institutional culture of green transformational leadership, and creating	4.89	0.835	High	28

Item	Text of Item	AM	SD	Degree of Availability	Rank
	an atmosphere and environment for green transformational leadership.				
27	Guide its leaders to recognize the importance of the environment and practice green behavior.	4.86	0.750	High	29
19	Give meaning to green organizational change and integrating emotional connections into the green management model so that employees can identify and perceive green transformational leadership more effectively.	4.86	0.801	High	29
17	Enhance employees' internal and external motivation for responsible behavior and motivating them to conserve resources and protect the environment.	4.86	0.849	High	29
25	Focus on aligning the individual goals and values of all leaders and subordinates with the goals and values of the Green University.	4.85	0.897	High	29
The Overall Degree of the Availability of the Green Transformational Leadership Requirements		4.76	0.812	High	

As shown in Table (6), the means for the agreement of academic leaders in Arab universities on all requirements for enhancing green transformational leadership as an approach to achieving sustainable environmental development in Arab universities ranged between (4.85) and (4.95) with a high degree and with a high degree of (4.76) for the overall requirements. This is related to what has been recommended by many studies (see, Ding et al., 2023; Lathabhavan & Kaurm, 2023; Zaid & Yaqub, 2024), which indicates that academic leaders are aware of the importance of providing green transformational leadership in universities on the one hand, and their awareness of the importance of this requirements in promoting it on the other hand because the role of green transformational leadership is critical to both employee and organization outcomes (Javaid et al., 2023). This is confirmed by many studies previously presented, whether in the introduction to the study or theoretical literature. Therefore, green transformational leadership is a potential resource for the university that acts as a guardian to inculcate green aspects among employees in the organization and motivate them to achieve higher performance and noble values, thus achieving competitive advantage (Singh et al., 2021).

Given the results, the items (29, 4, 30, 2) stipulating "Adopt the vision, mission and goals of the university to transform into a green university", "Establishing green regulations and rules in university administration and adhering to them", "Integrate green transformational leadership ideas into the university's long-term environmental plans", and "Taking all necessary measures to ensure long-term sustainability of universities", are ranked first from the perspective of academic leaders, with a high degree with a mean of (4.95) and standard deviations of (0.798, 0.821, 0.841, 0.879), respectively. This is because green transformational leadership is of great importance for organizations that adopt green visions and are interested in convincing their subordinates to commit to the greening agenda (Lusiani et al., 2020). Greening the organization represents the main agenda of the green transformational leader in managing the organization's work (Mittal & Dhar, 2016). In addition, Habeeb and Eyupoglu (2024) emphasized that strategic planning helps higher education leaders articulate a compelling vision, engage academic and administrative staff, and foster innovation and adaptation.

Strategic planning also develops transformational leadership traits, including inspiration, intellectual stimulation, and individuality. Strategic planning in education involves evaluating internal and

external issues, setting clear goals, and allocating resources efficiently. This approach helps the organization achieve its long-term goals and allows leaders and executives to make informed and flexible decisions, as strategic planning is on the one hand linked to sustainable performance (Dwikat et al., 2022) and performance management (Biondi & Russo, 2022). Research work shows that there is a positive relationship between strategic planning and transformational leadership traits in many organizations, as these practices improve organizational effectiveness in the domain of university education (Aldhaen, 2019; Özgül & Zehir, 2023). According to theoretical frameworks such as the resource-based perspective of the organization, strategic planning, which is a vital asset for companies, may help leaders lead and implement revolutionary transformations, and this viewpoint suggests that strategic planning may improve leadership in complex educational environments (Mishra, 2017). Zaid and Yaqub (2024) also recommended the need to establish green rules in university administration and adhere to them in order to activate green transformational leadership in organizations.

Moreover, the results emphasized the importance of the university's investment and its interest in providing green transformational leaders at the university, whether through appointment or training, as the items (21, 8, 20) stipulating "Appoint transformational leaders passionate about environmental issues to turn potential crises into opportunities for innovation and organizational development", "Invest in nurturing the empowerment of green transformational leadership competencies through effective training and development programs at all levels", and "Develop the competencies of green transformational leaders especially in addressing environmental challenges through policy support, education, training, green innovation incentives, and enhancing information exchange and cooperation", are ranked in the immediately following ranks, which are ranks (6, 7, 8), with a mean of (4.93) and standard deviations of (0.706, 0.754, 0.801), respectively.

This has been confirmed by several studies (see Ali et al., 2023; Ding et al., 2023; Lathabhavan & Kaurm, 2023; Yaqub et al., 2023; Zaid & Yaqub, 2024). Green training places strong emphasis on nurturing the green capabilities of employees, thus enhancing their engagement with environmental values (Aggarwal & Agarwala, 2023). Using green performance and appraisal management methods, it becomes necessary to assess the green training needs of employees and evaluate their results in line with environmental management principles, as these results include actions such as communicating environmental concerns, reducing carbon emissions, and reducing waste that impact green compensation and reward structures (Younis & Hussain, 2023). Organizations are identified as the main human sources of climate change and there are increasing numbers of environmental sustainability initiatives to address this challenge. Their success depends on the active participation of employees by engaging in pro-environmental behaviors.

Leaders play a critical role in their responsibility to manage or influence employees, but research identifies issues of poor leadership, lack of support from leaders, and inability to motivate subordinates as significant barriers for employees. Green transformational leadership has been identified as the most appropriate leadership style, hence there are calls to enhance or enhance leaders' green transformational leadership competencies which grow through training through effective training and development programs that are put in place at all levels (Zaid & Yaqub, 2024). However, item (25) stipulating "Focus on aligning the individual goals and values of all leaders and subordinates with the goals and values of the green university" is ranked in the last place with a mean (4.85) and a standard deviation (0.897) with a high degree. This is consistent with what was recommended by Lathabhavan and Kaurm's study (2023), and supports the findings of Krishnan's study (2002) that the congruence of the follower's ultimate value system with the leader is positively related to transformational leadership.

Instrumental value system congruence between leader and organization is also positively associated with instrumental value system congruence between leader and followers. Green hiring strongly

emphasizes selecting candidates who demonstrate pro-environmental behavior and some (Guerci et al., 2016; Pham et al., 2019; Younis & Hussain, 2023) have suggested that the primary goal of this approach is alignment with the organizational goal of environmental sustainability by enhancing communication between employees, employers and the organization who share values related to environmental protection. Therefore, it helps the organization reduce environmental degradation, leading to improved environmental sustainability outcomes.

CONCLUSION

In a nutshell, this article identifies the reality of green transformational leadership as an approach for achieving sustainable environmental development in Arab universities and the requirements for enhancing green transformational leadership as an approach for achieving sustainable environmental development in Arab universities. Among the findings is that the degree of availability of green transformational leadership as an approach to achieving sustainable environmental development in Arab universities is medium, with a mean (3.40) and a standard deviation (0.703). Another key result is that ranking of the domains in terms of the mean is as follows: green individualized consideration, green idealized influence, green inspirational motivation, and green intellectual stimulation, while agreement regarding the proposed proposals is high with a mean (4.76) and a standard deviation (0.812).

Theoretical Contributions

Notably, this paper has combined organizational behavior research and environmental management research to consider green transformational leadership as a unique leadership style in achieving sustainable environmental development, as this contributes to gaining a deep understanding of how leaders' behavior affects the environmental performance of universities. Therefore, the results of this study contribute to advancing the scientific discourse on green transformational leadership as an approach to achieving sustainable environmental development in universities, as the study of this domain is still in its infancy in universities, and this topic has only been studied by a few studies so far, considering green transformational leadership as an approach to achieving sustainable environmental development in universities.

Note this empirical evidence that green transformational leadership in Arab universities is still in its infancy, and needs great attention from decision-makers in universities, this research makes an important contribution in initiating and/or fostering discussion and dialogue in this domain to enhance the capabilities of Arab universities towards enhancing their capabilities and competitive advantages and adds strength to the effectiveness of transformational leadership theory in explaining the dynamics of sustainable environmental development. This has not been comprehensively discussed in previous literature, making this study an agenda for future research on transformational leadership and relating it to many variables that have been studied outside of university settings.

Importantly, we can examine the specific behaviors of green transformation leaders, such as the degree to which leaders pay attention to environmental protection issues and the degree to which employees participate in environmental protection decision-making, set and promote environmental protection goals, the relationship between the organization's environmental goals and leaders' behaviors, and how leaders influence environmental awareness and employee behaviors. Another unique contribution of this study stems from its use of data from Arab universities, providing new insights into a unique socio-cultural environment. It can also increase the generalizability of ecological and transformational theories developed in the West to other cultural contexts.

Likewise, by combining studies of leaders' organizational behavior and environmental management, research can guide leaders and organizations to drive environmentally friendly behavior and sustainable development. This research can help organizations understand how to develop green transformational leadership, and provide guidance and suggestions to Arab universities to develop

green transformational leadership, which will help universities achieve environmental sustainability and higher levels of performance, and push Arab universities in a greener and more sustainable direction and enhances leaders' and employees' engagement and awareness of environmental protection.

Practical Implications

Given the crucial role that green transformational leaders play in achieving sustainable environmental development, this study contributes to greening Arab universities by proposing a set of administrative recommendations, whether relevant for leaders or universities resultant from the viewpoints of Arab university leaders, as follows:

Arab Universities Level Leaders of Arab universities

Arab universities must adopt the vision, mission and goals of the university to transform into a green university, establish green regulations and rules in university management and adhere to them, integrate green transformational leadership ideas into the university's long-term environmental plans, take all necessary measures to ensure long-term sustainability in universities, and focus on initiatives and efforts that will best protect the environment. Arab universities shall also improve sustainability, enhance productivity and green services according to a developed strategic plan, appoint transformational leaders who are passionate about environmental issues to transform potential crises into opportunities for innovation and organizational development, and invest in fostering the empowerment of green transformational leadership competencies through effective training and development programs at all levels. And develop the competencies of green transformational leaders, especially in addressing environmental challenges, through supporting policies, training, incentives for green innovation, and enhancing information exchange and cooperation.

Importantly, Arab universities must provide intellectual stimulation and appropriate individual and group training so that every leader has the ability and willingness to engage in take-charge behavior as much as possible, create a green ethical code that includes the principles, values and practices necessary to transform the university into a green university, promote leadership adoption of green behavioral practices and encourage others to do the same and coach leaders specifically in how to set a good example for employees and support them as they adopt green practices, create green teams or committees to encourage employee participation in sustainability initiatives, and strongly integrate a green orientation into the decision-making process. Additionally, Arab universities must establish green performance indicators and environmental training, localize green technology in all university operations and practices, organize green team building activities to develop a sense of responsibility and mission towards environmental issues and concern for society, as this approach helps in shaping employees' ideas and perceptions, which facilitates the university's green initiatives, focus on the effectiveness of producing desirable green behaviors during both normal and crisis times, and recognize and reward employees who demonstrate green awareness, behaviors and advocacy to contribute to the university's sustainability goals.

Moreover, Arab universities must provide laws and regulations that support university independence and the necessary resources to transform the university into a green university, maintain a positive reputation among stakeholders and society in adopting a green university, and integrate university and industry under the auspices of the state in achieving sustainable environmental development goals. The university must direct its leaders to recognize the importance of the environment and practice green behavior, advocate and establish an institutional culture of green transformational leadership, create an atmosphere and environment for green transformational leadership, as leaders are role models for their employees and enhance the environmentally friendly influence of their

followers, and focus on aligning the individual goals and values of all leaders and subordinates with the goals and values of the Green University.

Leaders of Arab Universities Level

University leaders must lead by example by demonstrating a strong personal commitment to environmentally conscious practices to establish institutional citizenship behaviors and promote green culture policies and programs at universities at all levels. Leaders can develop targeted training programs for employees based on existing environmental policies and implement a series of green culture development projects, create an environmentally friendly role model for employees within the university through their own influence, take relevant responsibility, and involve university staff in decision-making processes related to the university's green initiatives to enhance their sense of ownership of such initiatives. Leaders can inspire and motivate their employees to adopt and implement green behaviors through mentoring and organizing a strong social discourse, give meaning to green organizational change and integrating emotional connections into the green management model so that employees can more effectively identify and realize green transformational leadership, enhance employees' internal and external motivation for taking on responsible behavior., and motivate them to conserve resources and protect the environment.

Limitations and Recommendations

From a comprehensive perspective, this paper still has limitations, which may affect the representativeness of its results. Although this study makes some fundamental contributions to understanding the dynamics of green transformational leadership in achieving environmentally sustainable development, the limitations posed by the study underscore areas where future investigations can enhance our understanding of the topic and where it is important to acknowledge some limitations.

1. The generalizability of the findings may be limited by the specific sample and the context in which it is based. The sample used in this study consists exclusively of (713) faculty members and 75 academic leaders from (25) Arab universities in five Arab countries, which may limit the possibility of generalizing its results in light of the independence of universities and their different orientations, culture, and policies. This small sample increases the internal validity of the research. However, potential differences in reactions to the leadership behaviors of green transformation leaders in different university domains and sectors limit the external validity of the study.

2. A semi-homogeneous sample was taken for each measure, as subsequent investigations should replicate this study by using heterogeneous samples from different demographic, geographic, cultural, temporal contexts, academic degrees, and experiences, measuring differences between responses, and increasing the number of universities and the number of Arab countries in the study sample to enhance the generalizability of the results.

3. In determining the relationship between green transformational leadership and sustainable environmental development, this study used the analysis of relevant studies, theories, and literature. This study, thus, recommends conducting quantitative correlational research that clarifies the quantitative relationships between the two variables to confirm the validity of the results.

4. The research paper utilized only two scales: the Green Transformational Leadership Reality Scale and the Green Transformational Leadership Requirements Scale, which are susceptible to common methods and potential response biases. Subsequent investigations should consider including diverse data sources – such as an interview – to increase the validity of the findings. Integrating multiple data sources can lead to a more comprehensive understanding of the relationships being examined.

5. The research paper also recommends incorporating a multilevel perspective (e.g., holistic perspective, team perspective, etc.) in future research to capture a more comprehensive view.

6. The current study used considering Arab universities as a single entity, as exploring potential discrepancies in respondents' evaluations within varying sociocultural environments provides useful insights into the constraints and situational elements that influence these responses. Therefore, in subsequent studies, we recommend that researchers study the influence of the social, economic, technological, and political environments on the responses of the subjects. Since Arab culture follows a social hierarchy, respondents may be more influenced by their leaders and more inclined to consider them as role models due to inequalities in social rank, power, and authority. Individuals in Arab countries are also more affected by the atmosphere at work due to the collectivist culture in the country. Thus, future research should examine potential cultural differences.

7. The current study focused on considering green transformational leadership as an input to achieving sustainable environmental development goals in general. Subsequent studies can focus more precisely on addressing one or more of these aspects in more detail.

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