Green Transformational Leadership and Green Innovative Work Behavior in Hotels and Travel Agencies: Roles of Green Knowledge Sharing and Green Commitment

Aya Ahmed Abdel Majeed[1], Mohammed Ezzat Hashad[2], Esraa Ahmed Ahmed Abd El-majeed[3], and Howida Ahmed Hassanin Mahmoud[4]

[1, 3] Tourism Studies Department, Faculty of Tourism and Hotels, Mansoura University, Egypt.

[2] Hotel Management Department, Faculty of Tourism and Hotels, University of Sadat City, Egypt.

[4] Hotel Studies Department, Al_Alson Higher Institute for Tourism, Hotels and Computers, Egypt.

Abstract

The growing urgency of environmental issues compels businesses in the hospitality and tourism sectors to embrace green practices. To achieve this, fostering employee engagement in green innovation is crucial. Drawing on Social Exchange Theory (SET), the study investigated the impacts of green transformational leadership (GTL) on employees' green innovative work behavior (GIWB) and examined green knowledge sharing (GKS) and green commitment (GC) as potential mediating and moderating factors. The study used a Partial Least Squares Structural Equation Modeling (PLS-SEM) approach to analyze data collected from 447 employees working in five-star hotels and category-A travel agencies operated in Greater Cairo, Egypt. The findings reveal a positive and significant association between GTL and both GKS and GIWB. Furthermore, GKS is confirmed to exert a positive influence on employees' GIWBs, acting as a mediating factor in the relationship between GTL and GIWB. Interestingly, GC was not found to moderate the relationship between GTL and GIWB. The study offers a critical contribution to our understanding of the dynamic relationships between GTL, GKS, GIWB, and GC within the Egyptian hospitality and tourism sectors.

Keywords: Green transformational leadership, green innovative work behavior, green knowledge sharing, green commitment, hospitality and tourism industry.

Introduction

The hospitality and tourism industry faces growing pressure to address its environmental footprint because of high energy and water consumption, elevated waste rate, and its impact on biodiversity (Sharma et al., 2023; Peeters et al., 2024). Therefore, implementing environmentally sustainable practices has become a strategic necessity for tourism and hospitality organizations (Tanveer et al., 2024). Recent research highlighted the growing recognition of employees' green innovative work behavior (GIWB) as a crucial force behind organizational green innovation (Song et al., 2023; Chen & Zhang, 2024). GIWB was defined as employees' acts that involve the generation, introduction, and implementation of employees' novel and eco-friendly ideas or solutions within the

organization (Aboramadan et al., 2022; Alnaqbi et al., 2024). GIWB is voluntary behavior and not mandated by employment contracts. However, it serves as a critical resource for organizations (Kuo et al., 2022). By leveraging employee creativity, GIWB facilitates the identification of potential environmental issues and opportunities, contributing to the smooth functioning of organizations as intricate social systems (Afridi et al., 2023). Furthermore, GIWB empowers employees to actively contribute within their roles by exercising discretionary decision-making power in the environmental context (Chen & Zhang, 2024).

Scholars admitted green leadership, green knowledge sharing, and green commitment among the critical determinants of employees' GIWB (Zhu et al., 2022; Abbas & Khan, 2023; Tian et al., 2023; Alnaqbi et al., 2024). Green transformational leadership (GTL) manifests as a leadership style characterized by behaviors that develop a robust commitment to environmental sustainability within the organization (Singh et al., 2020). These leaders act as catalysts, motivating and inspiring employees not only to achieve established environmental objectives but also to transcend the anticipated levels of ecological performance (Ahmad et al., 2024). Niazi et al. (2023) suggested that green transformational leadership is a key driver in motivating employees to contribute to the organization's environmental management initiatives actively. Green transformational leaders promote a culture of environmental responsibility within the organization. Inspired by their leader's vision and commitment to sustainability, employees actively seek solutions to environmental challenges and contribute to the organization's overall environmental performance (Priyadarshini et al., 2023).

Current research underscored the critical role of green knowledge sharing (GKS) as a determinant of green innovation in hospitality and tourism organizations (Munawar et al., 2022; Rubel et al., 2023). GKS is a process characterized by the communication, sharing, and transfer of knowledge specifically focused on environmental sustainability practices (Song et al., 2020). By facilitating GKS, organizations can cultivate the development of innovative techniques and opportunities that demonstrably reduce their negative environmental footprint (Abbas & Khan, 2023). Moreover, effective GKS processes facilitate the organizational transformation of tacit environmental knowledge residing within individuals into explicit knowledge and dynamic capabilities, ultimately driving green innovation (Chen et al., 2023). However, the implementation of GKS is not done haphazardly. Previous research identified some factors that may promote GKS such as leadership style by cultivating an open and collaborative knowledge-sharing environment (Yin et al., 2020). While other factors such as benign organizational competition, limited compensation for knowledge-sharing activities, and a conservative organizational culture

can discourage both individuals and organizations from engaging in the process of knowledge-sharing or transferring (Lee & Lu, 2022).

Employee commitment refers to an employee's sense of attachment and identification with their company's goals, values, and objectives. It's not a contractual obligation but rather an internal motivation (Agus & Selvaraj, 2020). In a sustainability context, employees' green commitment (GC) or environmental commitment refers to an employee's personal drive to champion and implement environmentally friendly practices within the organization (Ansari et al., 2021). At the organizational level, GC encompasses the organization's established policies, procedures, and overall approach to minimizing its environmental impact. This includes fostering positive management and employee attitudes that actively support environmental conservation efforts (Elzek et al., 2021). GC goes beyond just policies and procedures. It embodies the positive attitude and proactive approach of both management and employees in supporting environmental conservation. Employees who feel a sense of ownership and closeness to their organization's environmental efforts are more likely to develop a strong environmental commitment (Khan et al., 2022; Setyaningrum & Muafi, 2023). Besides, equipping employees with comprehensive training in sustainable management practices empowers them to translate their commitment to environmental responsibility into innovative solutions that enhance the organization's green performance (Alnaqbi et al., 2024).

A substantial body of research has investigated the relationship between transformational leadership and innovative work behavior across diverse contexts, including service and manufacturing industries (Afsar & Umrani, 2020), public and private sectors (Tan et al., 2021), secondary education (Messmann et al., 2022), and the hospitality sector (Lin, 2023). In the green context, a few studies examined the impact of green transformational leadership on green innovation such as Begum et al. (2022) who studied the impact of green transformational leadership on green innovation (i.e., green product innovation, green process innovation, green technology innovation) while considering green thinking and creative process engagement as mediating factors. Elshaer et al. (2022) also examined the correlation between environmental transformational leadership and green innovation while considering organizational citizenship behavior for the environment as a mediating and green perceived organizational support and promotion focus as moderators. Chen et al. (2023) investigated the impact of green transformational leadership on green innovation (i.e., green product innovation, green process innovation) while considering green knowledge sharing as a mediator and innovation climate as a moderator. Zhu et al. (2022) examined the influence of environmentally specific transformational leadership (a concept different from GTL) on green innovation behavior while considering green organization identity and environmental commitment as mediators and the supervisor's organizational embodiment as a moderator. As Farrukh et

al., (2022) pointed out, research on GTL and its long-term effects on both employees and the organization is a growing field. Their observation underlines the need for further exploration in this area.

Despite the growing body of literature on green transformational leadership within the hospitality and tourism industry, a critical knowledge gap remains in the green context. No studies have yet investigated the direct influence of green transformational leadership on green innovative work behavior specifically within Egyptian hotels and travel agencies. Furthermore, the potential mediating and moderating roles of green knowledge sharing and green commitment in this relationship have not been examined. Through employing the social exchange theory (SET), this research aimed to address this gap by investigating the direct relationship between green transformational leadership and employees' GIWB in the Egyptian hospitality and tourism industry, while also exploring the potential mediating and moderating role of green knowledge sharing and green commitment in the GTL-IWB relationship.

Literature Review and Hypotheses Development
Green Transformational Leadership and Green Innovative Work Behavior

GTL represents a novel leadership style founded on the core principles of transformational leadership, specifically tailored to cultivate a culture of environmental responsibility within organizations (Singh et al., 2020). GTL leaders act as catalysts, inspiring and motivating their teams to transcend traditional performance expectations and actively embrace green initiatives and behaviors (Begum et al., 2022). GTL is based on four pillars namely environmentally inspirational motivation where GTL leaders articulate a compelling vision for a sustainable future. Environmentally idealized influence emphasizes the leader's role as a model for sustainable behavior within the organization and serves as a powerful motivator, influencing and inspiring others to emulate their green actions (Zhu et al., 2022). Environmentally individualized consideration indicates the leader's effort to ensure each team member has the necessary knowledge and skills to contribute effectively to environmental initiatives. Environmentally intellectual stimulation underscores the leader's encouragement of creative problem-solving approaches among employees to address environmental challenges (Tian et al., 2023). On the other hand, GIWB quantifies employee contributions to green innovation. It measures the extent to which employees participate in the development, application, and introduction of new ideas that contribute to achieving the organization's established sustainability goals (Aboramadan, 2022).

Drawing on SET (Blau, 1964, 2017), transformational leadership styles cultivate a reciprocal exchange relationship between leaders and followers. This promotes positive

psychological states within employees, including heightened intrinsic motivation and a stronger sense of organizational purpose (Afsar & Umrani, 2020). These positive psychological states subsequently translate into beneficial organizational behaviors, such as increased engagement in innovative work behaviors (Sharif et al., 2024). GTL, which prioritizes environmental sustainability, can raise employees' GIWB through the aforementioned four key pillars. GTL Leaders serve as role models, demonstrating their own commitment and passion for environmental protection. This enhances optimism within the team, creating a sense of shared purpose and motivating employees to overcome potential setbacks (Elshaer et al., 2022). Effective GTL leaders actively engage in environmentally responsible practices. Their commitment translates into concrete actions, encouraging employees to integrate green initiatives seamlessly into their work. (Begum et al., 2022) GTL leaders encourage employees to think independently and critically and challenge conventional environmental management practices. This nurtures a culture of innovation, allowing employees to develop creative solutions that address current environmental challenges (Awan et al., 2023). GTL Leaders value employee contributions to environmental protection and recognize the importance of skill development. By encouraging opportunities for enhancing environmental expertise and supporting innovative approaches to ecological problem-solving, they empower their teams to contribute meaningfully to sustainability goals (Janjua et al., 2024). Building on SET, the current study proposes that when GTL leaders inspire environmental commitment, stimulate eco-innovation initiatives, and promote employee competencies in environmental protection. This, in turn, motivates employees to reciprocate by exhibiting greater GIWBs. Accordingly, the following hypothesis was formulated:
H1: there is a positive relationship between GTL and GIWB.

Green Transformational Leadership and Green Knowledge Sharing

Knowledge sharing is the collaborative exchange of information, expertise, and problem-solving strategies to develop innovative solutions and implement effective strategies or practices (Chen et al., 2018). Within the sustainability context, green knowledge sharing has emerged as a critical determinant for influencing employees' eco-friendly behaviors and organizational environmental performance (Sahoo et al., 2023). In green knowledge management, employees actively contribute to green knowledge sharing by disseminating information on environmental challenges, fostering learning opportunities for colleagues, and motivating them to actively seek and create new knowledge related to sustainability practices (Rubel et al., 2021). Lin and Chen (2017) defined green knowledge sharing as the deliberate process of disseminating green information to support and enhance an organization's sustainability objectives. knowledge is often seen as a source of personal power and fear of losing this advantage can hinder knowledge sharing (Asada et al., 2021). Previous literature has identified several facilitators of green knowledge sharing,

among them transformational leadership emerged as a prominent factor (Khan et al., 2023).

Chen et al. (2023) suggested that green transformational leadership plays a significant role in facilitating green knowledge sharing among employees. Leaders who effectively articulate a shared vision for environmental sustainability can inspire individuals to contribute their accumulated knowledge for the collective good (Farrukh et al., 2022). Furthermore, transformational leaders cultivate a work environment characterized by mutuality – boosting trust, respect, and reliance. This environment creates a sense of psychological safety, where employees feel comfortable sharing their ideas and expertise without fear of repercussion (Khan et al., 2023). This reciprocal trust reinforces a commitment to shared environmental goals, leading to increased knowledge exchange and collaborative efforts among employees (Idrees et al., 2023). According to SET, the present study suggests that GTL leaders who cultivate a work environment characterized by mutual trust, respect, and reliance encourage a reciprocal relationship with employees. This environment motivates employees to reciprocate the positive social exchange by engaging in greater green knowledge sharing. So, the study proposed that:
H2: GTL positively impacts employees' GKS.

Green Knowledge Sharing and Green Innovative Work Behavior

Innovative work behavior encompasses employee actions focused on generating, promoting, and implementing novel ideas (Thurlings et al., 2015). GIWB specifically translates this concept into the context of environmental sustainability. It manifests as employee-driven initiatives undertaken within their daily work routines. These initiatives involve the generation, advocacy for, and utilization of novel ideas related to environmentally friendly products, services, or processes (Rongbin et al., 2022). GIWB is characterized by its proactive nature. This means it is self-initiated, discretionary, and not a mandatory requirement of the job (Munawar et al., 2022). Knowledge sharing serves as a cornerstone for promoting innovative work behavior within an organization. It facilitates the critical exchange of knowledge, ideas, and expertise among employees. This cross-fertilization of intellectual capital stimulates creative thinking, ignites the development of novel problem-solving approaches, and ultimately empowers employees to cultivate new capabilities, propelling organizational innovation (Fatmawaty et al., 2023).

A robust body of research has established a positive correlation between knowledge-sharing and innovative work behavior (Islam et al., 2024). Phung et al. (2019) highlighted the significance of knowledge sharing in nurturing organizational innovation. This

collaborative exchange acts as a catalyst, enabling employees to access a broader spectrum of solutions, insights, and perspectives from colleagues. This enriched knowledge base empowers them to make more informed decisions and navigate challenges effectively. Furthermore, research underscores the critical role of employee participation in knowledge sharing. By actively contributing their expertise, employees not only facilitate the generation of novel ideas but also ensure the continuous development and refinement of existing ones, propelling the organization's innovation engine (Sudibjo & Prameswari, 2021). A study by Fatmawaty et al. (2023) further reinforced this correlation. Their findings reveal a positive correlation between knowledge sharing and innovative employee behavior. Notably, employees who actively share knowledge exhibit higher levels of innovation. Based on SET, the study suggests that organizations can cultivate a culture of green innovation by facilitating green knowledge-sharing practices among employees. By providing the necessary resources and facilitating knowledge exchange, organizations establish a positive social exchange. Employees, in turn, are more likely to reciprocate this investment by actively engaging in green innovative work behaviors. Therefore, it was hypothesized that:

H3: there is a positive correlation between GKS and GIWB.

The Mediating Role of Green Knowledge Sharing

Recent studies underscored the positive influence of GTL on employees' GIWB. However, GTL represents a specific leadership style, and its effectiveness hinges on additional strategies (Chen et al., 2023). Knowledge sharing, as demonstrated by Sharif et al. (2024), is a recognized driver of innovation. A critical research gap persists, however, regarding the specific mechanisms through which GTL translates into GIWB, particularly within the hospitality and tourism industry (Srivastava et al., 2024). GTL acts as a catalyst for GKS within organizations through four mechanisms. Firstly, GTL leaders serve as role models, demonstrating environmentally focused behaviors and encouraging the adoption of innovative green practices (Riva et al., 2021). Secondly, GTL leaders utilize inspirational motivation to instill a sense of shared purpose and encourage employees to embrace green innovation. This shift in attitude breeds a more collaborative environment conducive to knowledge sharing (Begum et al., 2022). Furthermore, GTL leaders promote intellectual stimulation, nurturing independent thinking and encouraging the exploration of novel green solutions (Farrukh et al., 2022). Finally, GTL raises a sense of belonging and trust through individual consideration, addressing employee needs, and acknowledging contributions (Chen et al., 2023).

GKS significantly influences employees' GIWB. Knowledge serves as a cornerstone for GIWB, as employees must integrate existing knowledge with novel approaches to develop sustainable solutions (Fatmawaty et al., 2023). In complex industries, frequent

knowledge sharing and integration are crucial, as individual knowledge sets may be insufficient to achieve organizational goals (Khan et al., 2022). Importantly, GKS cultivates a learning environment through iterative knowledge exchange. By actively participating in GKS, organizations develop core competencies necessary for GIWB, ultimately enhancing their overall innovation (Sharif et al., 2024). Based on SET, the current study proposes GKS as a potential mediating mechanism. By encouraging the exchange and integration of environmentally focused knowledge, GKS can bridge the gap between GTL and GIWB, ultimately contributing to enhanced sustainability within the hospitality and tourism sector. Hence, the study hypothesized that:

H4: GKS positively mediates the relationship between GTL and GIWB.

The Moderating Role of Green Commitment

A robust green commitment amongst employees serves as a powerful engine propelling organizations towards achieving their environmental sustainability objectives. This commitment translates into a heightened willingness to actively participate in improving the organization's environmental performance and tackling environmental challenges head-on (Afsar & Umrani, 2020). Green commitment is the passionate dedication and enthusiasm employees display toward environmental management in their workplaces, driving them to actively demonstrate eco-friendly behaviors (Khan et al., 2022). Employees who are committed to environmental issues become more invested in protecting the environment, both personally and at work. This focus on sustainability goes beyond just doing their jobs; it inspires them to find innovative ways to reduce the organization's environmental impact (Cop et al., 2020). Also, environmental training programs empower green committed employees to leverage their green knowledge and skills in tackling environmental challenges (Pham et al., 2020).

GTL leaders create a work environment where employees are not only more efficient but also deeply committed. This dedication fuels employees' innovation, leading to significant improvements in the organization's environmental performance and reputation (Singh et al., 2020). Khaskheli et al. (2020) noted that employees are more invested in their work when their organization is recognized for its positive environmental practices. Prior research had increasingly highlighted the moderating role of green commitment in achieving sustainability goals. For instance, Elzek et al. (2021) demonstrated a positive and direct relationship between green commitment and the sustainability performance of travel agencies. Furthermore, their study revealed that green commitment acts as a moderator, strengthening the positive association between green innovation and sustainability performance. Cesário et al. (2022) identified a two-fold impact of green commitment. Firstly, they found a direct positive relationship between green commitment and person-organization fit. Secondly, their study revealed that green commitment acts as

a moderator, strengthening the positive association between green human resources practices and person-organization fit. Building on SET, GTL supports a stimulating environment that encourages green innovation. When GTL is coupled with a strong GC among employees, a powerful synergy emerges which encourages them to engage in more green innovative work behaviors (Li et al., 2019; Chen et al., 2023). Based on above mentioned, the study proposed that:

H5: GC positively moderates the relationship between GTL and GIWB.

The conceptual framework of the study is illustrated in Figure 1 below.
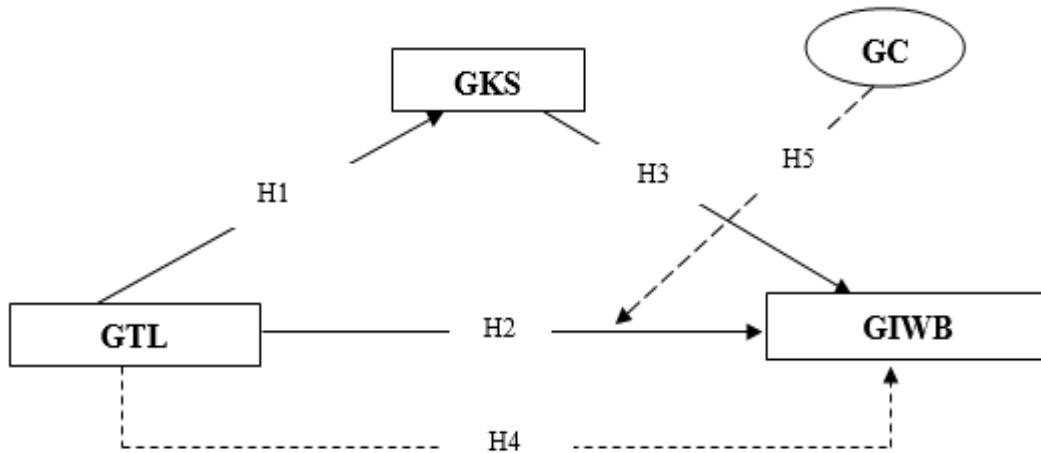

Figure (1): Conceptual framework of the study

Methodology
Study design and measures
To assess the hypothesized model, the study implemented standardized scales to measure the focal constructs. These scales employed a five-point Likert format, ranging from 1 (strongly disagree) to 5 (strongly agree), to capture participant responses. The research instrument included 20 items to measure the core constructs of the study. Additionally, demographic information was collected through questions about participants' gender, age, educational background, and work experience within the organization. Green transformational leadership (GTL): A six-item, validated scale adapted from Chen et al. (2023) assessed GTL. For instance, one item stated, *"The leader provides a clear environmental vision for subordinates to follow"*. Green innovative work behaviors (GIWB): GIWB was measured using Aboramadan et al. (2022)'s well-regarded six-item scale. An example item included *"I develop adequate plans and schedules for the implementation of new green ideas"*. Green knowledge sharing (GKS): A validated five-item scale from Rubel et al. (2021) assessed GKS. One example item read *"I enjoy educating my coworkers about environment-related information"*. Green commitment (GC): Three items from Rubel et al. (2023) measured GC. For example, *"I feel a sense of responsibility for the environmental issues at my organization"*.

Population, sample, and data collection

To test the theoretical model, researchers surveyed employees working at five-star hotels and category-A travel agencies in Greater Cairo, Egypt. As data from the Ministry of Tourism and Antiquities indicates, the Greater Cairo area encompasses 28 five-star hotels and 1235 Category-A travel agencies (Egyptian Ministry of Tourism and Antiquities, 2024). This specific focus was chosen for two key reasons. Firstly, these establishments are leaders within Egypt's hospitality and tourism industry, attracting a significant portion of international tourists. Secondly, they are recognized for their commitment to environmentally friendly practices (Wahba et al., 2024). The data collection process involved self-administered questionnaires distributed online to employees between March and July 2024.

To recruit participants, this study adopted a snowball sampling technique, a common method in social science research for reaching difficult-to-access populations (Elbaz et al., 2023). This cost-effective approach involved distributing the questionnaire link via social media platforms (e.g., WhatsApp, Facebook Messenger, LinkedIn) to a starting sample of 116 colleagues working in hotels and travel agencies. These initial participants were then asked to forward the link to their coworkers and connections within the industry. A total of 456 electronic questionnaires were collected. After eliminating invalid responses with irregular answer patterns, the final sample for analysis comprised 447 participants, yielding a remarkable response rate of 98%. This response rate significantly exceeded the minimum sample size of 385 determined using Cochran's formula (1963). The final sample composition reflects the industry distribution, with 52.7% (n=236) of participants employed by five-star hotels and 47.3% (n=211) working for travel agencies. Table 1 provides an overview of the participant demographics.

Table 1. Participants' demographics (N=447)

		Frequency	Percent
Gender	Male	260	58.2
	Female	187	41.8
Age	< 30	138	30.9
	30- < 40	191	42.7
	40–50	103	23
	>50	15	3.4
Educational level	High schools	74	16.6
	Bachelor	359	80.3
	Postgraduate degree	14	3.1
Tenure	< 5 years	108	24.2
	5-10 years	182	40.7
	>10 years	157	35.1

Data analysis

The study adopted partial least squares structural equation modeling (PLS-SEM) to analyze the postulated research hypotheses. PLS-SEM constitutes a well-established quantitative approach demonstrably suited for hospitality and tourism research, as exemplified by recent scholarly works from Hashad et al. (2023) and ElAdawi et al. (2024). WarpPLS version 7.0 served as the software platform for conducting the PLS-SEM analysis.

Results

Research model's reliability and validity

An assessment of the measurement model was conducted to ensure the reliability and validity of the latent variables. As shown in Table 2, factor loadings ranged from 0.613 to 0.863, exceeding the recommended threshold of 0.5 (Sarstedt et al., 2021), thus indicating strong convergent validity. Internal consistency was further established by Cronbach's Alpha (CA) and Composite Reliability (CR) values, all surpassing the benchmark of 0.7 (Kock, 2022). Furthermore, the Average Variance Extracted (AVE) values in Table 2 confirm convergent validity, as they all exceed the 0.5 threshold (Hair et al., 2021). The absence of multicollinearity and common method bias were also verified. Variance Inflation Factor (VIF) values, presented in Table 2, fall below the concerning level of 5 (Kock, 2022), indicating no significant collinearity issues between the latent variables. Collectively, these findings provide robust evidence for the reliability and convergent validity of the measurement model.

Table 2. Factor loadings, Cronbach alpha, CR, AVE, and VIF.

	Item Loading	CR	CA	AVE	VIF
Green Transformational Leadership (GTL)	-				
GTL.1	0.838				
GTL.2	0.698	0.873	0.824	0.537	1.858
GTL.3	0.836				
GTL.4	0.718				
GTL.5	0.613				
GTL.6	0.667				
Green Innovative work Behavior (GIWB)	-				
GIWB.1	0.846				
GIWB.2	0.636	0.876	0.829	0.543	2.322
GIWB.3	0.746				
GIWB.4	0.757				

GIWB.5	0.687				
GIWB.6	0.732				
Green Knowledge Sharing (GKS)	-				
GKS.1	0.822	0.852	0.780	0.537	1.704
GKS.2	0.649				
GKS.3	0.664				
GKS.4	0.690				
GKS.5	0.819				
Green Commitment (GC)	-				
GC.1	0.863	0.867	0.769	0.685	1.158
GC.2	0.840				
GC.3	0.778				

Discriminant validity, which assures that the constructs are conceptually distinct, was evaluated using the Fornell-Larcker criterion and the Heterotrait-Monotrait (HTMT) ratio. Data from Tables 3 and 4 were employed for this assessment. According to Franke and Sarstedt (2019), discriminant validity is established when the square root of the AVE for each construct exceeds the highest squared correlation between that construct and any other construct in the model. As shown in Table 3, all AVE values surpass the corresponding maximum squared correlations, thereby supporting discriminant validity. An additional assessment of discriminant validity was conducted using the HTMT ratio, which is presented in Table 4. Hair et al. (2017) suggested that an HTMT ratio below 0.85 indicates good discriminant validity. In this study, all HTMT ratios fall within the acceptable range, ranging from 0.161 to 0.812.

Table 3. Fornell– Larcker results

	GTL	GIWB	GKS	GC
GTL	*0.733*	0.674	0.475	-0.058
GIWB	0.674	*0.737*	0.612	-0.038
GKS	0.475	0.612	*0.733*	-0.170
GC	-0.058	-0.038	-0.170	*0.828*

Table 4. HTMT ratio

(good if < 0.90, best if < 0.85)	GTL	GIWB	GKS	GC
GTL				
GIWB	0.812			
GKS	0.584	0.763		
GC	0.218	0.161	0.248	

Research model' fit

An evaluation of the research model's fit was conducted using ten well-established model fit and quality indices as recommended by Kock (2022). The model successfully met the criteria for all ten indices, indicating a strong overall fit, as detailed in Table 5.

Table 5. Model fit results

	Assessment	Criterion	Supported/Rejected
Average path coefficient (APC)	0.384, P<0.001	P<0.05	Supported
Average R-squared (ARS)	0.476, P<0.001	P<0.05	Supported
Average adjusted R-squared (AARS)	0.464, P<0.001	P<0.05	Supported
Average block VIF (AVIF)	1.865	acceptable if <= 5, ideally <= 3.3	Supported
Average full collinearity VIF (AFVIF)	1.639	acceptable if <= 5, ideally <= 3.3	Supported
Tenenhaus GoF (GoF)	0.561	small >= 0.1, medium >= 0.25, large >= 0.36	Supported
Sympson's paradox ratio (SPR)	0.750	acceptable if >= 0.7, ideally = 1	Supported
R-squared contribution ratio (RSCR)	0.980	acceptable if >= 0.9, ideally = 1	Supported
Statistical suppression ratio (SSR)	1.000	acceptable if >= 0.7	Supported
Nonlinear bivariate causality direction ratio (NLBCDR)	1.000	acceptable if >= 0.7	Supported

Results of testing hypotheses

The results of the investigation of research hypotheses are presented in Figure 2 and Table 6. Figure 2 depicts a significant positive relationship between green transformational leadership (GTL) and employees' green innovative work behavior (GIWB) (β= 0.520, p< 0.01). This finding supports (H1). Furthermore, green transformational leadership (GTL) also exerts a positive influence on green knowledge sharing (GKS) (β= 0.604, p< 0.01). In other words, as GTL increases, GKS tends to increase as well. This result supports (H2). A significant positive relationship is also observed between green knowledge sharing (GKS) and green innovative work behavior (GIWB) (β= 0.351, p< 0.01). This indicates that employees with higher levels of green knowledge sharing tend to exhibit greater green innovative work behavior, thus supporting Hypothesis 3 (H3). Contrary to expectations, the moderating effect of green

commitment (GC) on the relationship between GTL and GIWB was not statistically significant (β= -0.062, p= 0.286). Therefore, H5 was rejected. The path coefficient analysis in Figure 2 reveals that GTL explains 36% (R^2= 0.36) of the variance in green knowledge sharing. While this falls within the range considered moderate by Kock's (2014) criteria, a stronger effect is observed when GTL and GKS are considered together. In this case, the combined influence on green innovative work behavior accounts for a substantial 59% (R^2= 0.59) of the variance, which is still considered moderate according to Kock's (2014) standards.
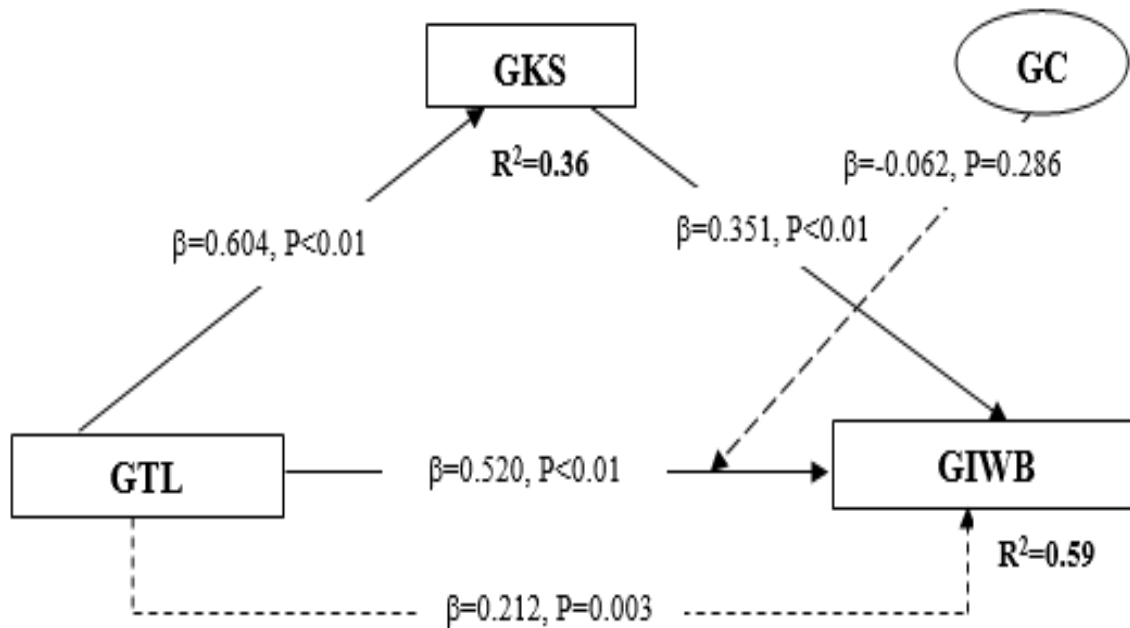

Figure 2: final model of the study

To further explore the mediating role of green knowledge sharing (GKS) in the relationship between GTL and GIWB, a bootstrapped confidence interval analysis was conducted (see Table 6). The analysis revealed a statistically significant indirect effect (β= 0.212, the outcome of the two path coefficients: 0.604 x 0.351) with a t-value of 2.865. Additionally, the 95% bootstrapped confidence interval (LL= 0.067, UL= 0.357) excludes zero, confirming mediation as per Kisbu-Sakarya et al. (2014). This finding supports H4. Therefore, we can conclude that GKS acts as a complementary partial mediator in the relationship between GTL and GIWB. This is because both the indirect and direct effects are significant and share the same direction (positive), as suggested by Hair et al. (2017).

Table 6. Mediation analysis results

H4	Path a GTL→ GKS	Path b GKS→ GIWB	Indirect Effect	SE	t-value	95% LL	95% UL	Decision
GTL→GKS→ GIWB	0.604	0.351	0.212	0.074	2.865	0.067	0.357	Mediation

Potential variations in employee responses due to workplace type (i.e., travel agencies vs. five-star hotels) were investigated using a multi-group analysis to ensure the generalizability of the findings. As shown in Table 7, no statistically significant differences were detected in the path coefficients between the two groups. This means employee responses from both travel agencies and five-star hotels yielded similar results.

Table 7. Multi-group analysis

Group pair results (Hotels=1 (N=236); Travel Agency=2 (N=211))						
Path coefficient	Path coeff. (Hotel)	Path coef. (Travel Agency)	Absolute path coeff. Diff.	p-values	T-statistic	Decision
GTL→GIWB	0.709	-0.225	0.180	0.450	1.696	Not significant
GTL → GKS	0.667	0.325	0.007	0.474	0.065	
GKS→GIWB	0.198	0.758	0.006	0.480	0.050	
GC*GTL	-0.089	-0.211	0.166	0.060	1.558	

Discussion

This study investigated the influence of green transformational leadership on employees' green innovative work behavior. It delved further by exploring the potential mediating role of green knowledge sharing and the moderating role of green commitment in this relationship. The research established and empirically validated a conceptual model to address these hypotheses. Initial findings revealed that green transformational leadership has a positive effect on employees' green innovative work behavior, thus supporting (H1). This result is in line with previous literature and the concept of social exchange theory, where employees reciprocate the positive environmental behaviors, they perceive from their leaders. Zhu et al. (2022) found that in manufacturing, leaders who prioritize environmental issues inspire their teams to think outside the box and develop innovative solutions. These leaders demonstrate idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration, all focused on environmental goals. This encourages a climate where employees feel empowered to tackle environmental problems creatively. Similar results were informed by Elshaer et al. (2022) in the hospitality industry. Here, transformational leadership that encourages intellectual

thinking, inspires employees and grants them autonomy leads to successful green innovation. Begum et al. (2022) further confirmed this notion in their study on the high-tech industry. They found that leaders with a clear vision for environmental responsibility motivate their teams to adopt eco-friendly practices and develop innovative solutions. This leadership style goes beyond just achieving goals; it emphasizes individual needs, provides training, and promotes a collaborative environment where employees can share green ideas to minimize environmental impact (Awan et al., 2023).

The study extended the understanding of green transformational leadership's positive influence by demonstrating a significant and positive impact on employee green knowledge sharing (H.2 supported). This finding aligns with prior research by Yin et al. (2020), who established that transformational leadership advances knowledge sharing through its ability to inspire change in followers' attitudes and behaviors. Green transformational leaders, by promoting a vision for a sustainable future, cultivate a value for change among employees. This motivates them to share knowledge with colleagues, fostering collaborative efforts towards achieving environmental goals. Similarly, Chen et al. (2023) demonstrated a direct link between green transformational leadership and increased employee green knowledge sharing. They propose that GTL serves as an indicator, signaling an organization's strong commitment to environmental responsibility. This commitment, in turn, encourages employees to share their green knowledge, ultimately enhancing the organization's environmental performance. Khan et al. (2023) further strengthened this association and concluded that green leadership has a statistically significant positive influence on environmental knowledge sharing. They emphasize the critical role strong green leaders play in facilitating knowledge exchange. As organizations increasingly prioritize green initiatives and sustainability goals, GTL's facilitation of knowledge sharing emerges as a crucial mechanism for employees to contribute to overall environmental innovation.

The positive association between green knowledge sharing and green innovative work behaviors highlights the critical role of knowledge sharing in stimulating green innovation (H.3 supported). Our findings resonate with Aydın and Erkılıç (2020), who investigated the effects of knowledge-sharing aspects on innovation. The researchers concluded that acquiring green knowledge from colleagues significantly contributes to the development of innovative work behaviors. Through knowledge sharing, employees collectively build upon new information, effectively replacing outdated knowledge and developing a more innovative mindset. On the other hand, they found that donating existing green knowledge may not directly translate to increased innovation for the individual employee. This reluctance to share can be attributed to employees perceiving knowledge as a source of power. They may harbor concerns about losing a competitive

edge or promotion opportunities by giving away valuable knowledge. These perceived costs can act as a barrier to knowledge sharing. While Kmieciak (2021) argued that donating knowledge is more conducive to idea generation than acquiring knowledge. This is because the act of giving knowledge often requires innovation and creative thinking to explain concepts effectively. Chen et al. (2023) and Islam et al. (2024) further reported a positive correlation between green knowledge sharing and employees' green innovative work behaviors. The researchers suggested that employees who actively share and implement environmentally friendly practices serve as role models for their colleagues. This knowledge-sharing creates a stage for colleagues to exchange information, ideas, and solutions, inspiring them to adopt similar green behaviors. This collaborative environment ultimately fuels green innovation. Mayastinasari and Suseno (2023) reported no significant impact of knowledge-sharing on innovative work behavior which contradicts our result. Knowledge sharing, while seemingly straightforward, can be hindered by employee reluctance to share and a lack of motivation to seek information from colleagues.

The study also revealed the positive mediating role of green knowledge sharing in the relationship between GTL and GIWB, thus H.4 supported. These findings resonate with Chaar & Easa (2021) who identified knowledge sharing as a key mediator for innovation. They suggest that a supportive leadership climate encourages risk-taking, exploration of new ideas, and knowledge exchange, all crucial for innovation. Transformational leaders, by encouraging experimentation, communication, and dialogue, challenge followers to find innovative solutions, ultimately fueling knowledge sharing. Chen et al. (2023) further supported this notion by demonstrating that GKS partially mediates the relationship between GTL and green innovation. This implies that GTL can directly and indirectly (through GKS) influence green innovation. Green innovation necessitates collaboration between managers and subordinates. Managers who effectively communicate organizational goals and empower knowledge sharing create an environment where employees can integrate their knowledge and develop innovative green solutions. GTL leaders prioritize environmental concerns and champion green initiatives to facilitate knowledge sharing, which translates into green innovation. Moreover, Sharif et al. (2024) demonstrated that knowledge-sharing behavior fully mediates the relationship between transformational leadership and innovative work behavior. This highlights the strategic importance of knowledge sharing within a workforce. When frontline workers actively share knowledge, they are more motivated to introduce new ideas and concepts, raising workplace innovation. They suggested that in three-star hotels, knowledge-sharing behavior emerged as the most effective mediating mechanism supporting the influence of transformational leadership on innovative work behavior.

The study presented a noteworthy finding regarding H5. Contrary to expectations, employees' green commitment was not found to moderate the relationship between GTL and GIWB (H.5 rejected). This result stands in contrast to previous research, which suggests green commitment plays a significant role in strengthening positive associations between various green initiatives and outcomes. Elzek et al. (2021) found that green commitment acts as a moderator, amplifying the positive link between green innovation and sustainability performance. Similarly, Cesário et al. (2022) demonstrated that green commitment moderates the positive relationship between green human resource practices and person-organization fit. Furthermore, Keles et al. (2023) showed that environmental commitment moderates the connection between environmental knowledge and environmentally responsible behavior. They propose that increased knowledge, enhanced by strong environmental commitment, leads to positive environmentally responsible behavior, ultimately enhancing service quality in hospitality businesses and contributing to a more sustainable future. The discrepancy between the study's findings and prior research warrants further investigation. It's possible that the specific way green commitment was measured here may not have fully captured its influence. Additionally, the study context or other factors not considered might play a role in moderating the GTL-GIWB relationship.

Theoretical and practical implications

This study contributes to the theoretical understanding of green leadership and employee green innovation within the hospitality and tourism industry. First, this study employed Social Exchange Theory to comprehend the factors influencing green innovative work behaviors (GIWB). The study explored the mechanisms by which GTL promotes employees' GIWB within the hospitality and tourism sector. Specifically, we examine how GTL utilizes SET principles, such as intellectual stimulation and motivating a sense of belonging and trust through social exchanges, to encourage employees' GIWB. Second, the study extended the understanding of the mediating mechanisms through which GTL influences employees' GIWB. A few prior studies (i.e., Chen et al., 2023) have explored the mediating role of GKS in the relationship between GTL and green innovation (product and process innovation). However, GKS's mediating role in the GTL-GIWB relationship within hotels and travel agencies remained unexamined. Our findings, grounded in SET, provide robust evidence for the mediating role of GKS. GTL fosters social interactions that enhance GKS, enabling employees to acquire new knowledge, concepts, and ideas. This, in turn, stimulates creative thinking and ultimately leads to GIWB. Third, this study sought to advance the theory by introducing green commitment as a potential moderating factor in the GTL-GIWB relationship. However, the findings did not support the hypothesized moderating effect of green commitment. Overall, this

study shed light on the significance of green knowledge sharing as a mechanism through which green transformational leadership increases green innovative work behavior within the hospitality and tourism sector. The unexpected finding regarding green commitment as a moderator opens doors for future research to refine our understanding of the complex interplay between leadership styles, employee behavior, and environmental commitment within organizations.

This study's findings offer valuable insights for managers, policymakers, and practitioners in the hospitality and tourism sectors, to assist them in developing employees' green innovative work behaviors within their organizations. First, the study demonstrated a significant link between GTL and GIWB. Hospitality and tourism businesses should actively promote GTL practices among their leadership teams. This can involve leadership development programs that emphasize environmental awareness, sustainability principles, and adopting a culture of innovation around green solutions. Furthermore, leaders should encourage employees to embrace green thinking by integrating environmental considerations into all aspects of their work. This could involve brainstorming sessions focused on developing green products, services, and operational strategies that enhance the organization's market image as an environmentally responsible business. Second, managers play a crucial role in establishing robust systems that facilitate the exchange of green knowledge among employees. This can involve creating platforms for knowledge sharing, such as online forums or internal knowledge-sharing sessions specifically focused on green best practices and innovative solutions. Moreover, implementing reward systems that recognize and incentivize knowledge sharing can further encourage employee participation. Leaders themselves can serve as role models by actively sharing their green knowledge and demonstrating the value they place on collaboration. Third, managers should encourage knowledge sharing across all levels of the organization, even when employees might perceive their expertise as a source of power. Adopting a culture of open communication and collaboration can lead to a richer exchange of ideas and the cross-pollination of knowledge that drives innovation. Fourth, hospitality and tourism businesses should prioritize employee development around green practices and sustainable tourism principles. Implementing personalized training programs that cater to the specific needs and roles of different employee groups can significantly enhance their capacity for green innovation.

Limitations and further research

This study shed light on the dynamics between GTL, GIWB, GKS, and GC within the Egyptian hospitality and tourism sector, specifically focusing on five-star hotels and category-A travel agencies. While the findings provide valuable insights, acknowledging limitations paves the way for future exploration. First, the study's emphasis on five-star

hotels and category-A travel agencies in Egypt limits generalizability. Replicating the study in diverse contexts, including different hotel star ratings and other hospitality and tourism sectors (i.e., restaurants and airlines) would enhance the applicability of the findings. Second, the study concentrated on GIWB as the primary outcome. To gain a more comprehensive understanding of GTL's effectiveness, future research could examine its influence on a broader range of green behaviors. Analyzing its impact on green in-role behaviors, green recycling, green extra-role behaviors, and green voice behavior would reveal how GTL translates into tangible green behaviors. Third, while the study examined the mediating role of GKS and the moderating role of GC, future research could explore the moderating effect of GKS in the GTL-GIWB relationship. Additionally, investigating the mediating/moderating role of other factors like green trust, green innovation climate, and green mindfulness could provide further insights. Finally, the study's quantitative approach using self-administered questionnaires was effective. However, incorporating qualitative methods, such as interviews or focus groups, would provide a richer understanding of employee experiences and perceptions regarding GTL and its impact on their GIWB.

References

- Abbas, J., & Khan, S. M. (2023). Green knowledge management and organizational green culture: An interaction for organizational green innovation and green performance. *Journal of Knowledge Management*, *27*(7), 1852-1870.
- Aboramadan, M. (2022). The effect of green HRM on employee green behaviors in higher education: The mediating mechanism of green work engagement. *International Journal of Organizational Analysis*, *30*(1), 7-23.
- Aboramadan, M., Crawford, J., Turkmenoglu, M. A., & Farao, C. (2022). Green inclusive leadership and employee green behaviors in the hotel industry: Does perceived green organizational support matter?. *International Journal of Hospitality Management*, *107*, 1-11.
- Afridi, S. A., Afsar, B., Shahjehan, A., Khan, W., Rehman, Z. U., & Khan, M. A. (2023). Impact of corporate social responsibility attributions on employee's extra-role behaviors: Moderating role of ethical corporate identity and interpersonal trust. *Corporate Social Responsibility and Environmental Management*, *30*(2), 991-1004.
- Afsar, B., & Umrani, W. A. (2020). Transformational leadership and innovative work behavior: The role of motivation to learn, task complexity and innovation climate. *European Journal of Innovation Management*, *23*(3), 402-428.
- Agus, A., & Selvaraj, R. (2020). The mediating role of employee commitment in the relationship between quality of work life and the intention to stay. *Employee Relations: The International Journal*, *42*(6), 1231-1248.

- Ahmad, B., Shafique, I., Qammar, A., Ercek, M., & Kalyar, M. N. (2024). Prompting green product and process innovation: Examining the effects of green transformational leadership and dynamic capabilities. *Technology Analysis & Strategic Management*, *36*(6), 1111-1123.

- Alnaqbi, E. J. A. A., Mohd-Shamsudin, F., & Alshurideh, M. (2024). Green HRM practices, green commitment, and green innovative work behavior in UAE higher education institutes. *Uncertain Supply Chain Management*, *12*(2), 723-736.

- Ansari, N. Y., Farrukh, M., & Raza, A. (2021). Green human resource management and employees pro-environmental behaviours: Examining the underlying mechanism. *Corporate Social Responsibility and Environmental Management*, *28*(1), 229-238.

- Asada, N., Hashmib, H. B. A., Nasirc, M., & Khalidd, A. (2021). Transformational leadership relationship with employee creativity: The moderating effect of knowledge sharing and mediating effect of creative self-efficacy. *Leadership*, *15*(8), 1005-1029.

- Awan, F. H., Dunnan, L., Jamil, K., & Gul, R. F. (2023). Stimulating environmental performance via green human resource management, green transformational leadership, and green innovation: A mediation-moderation model. *Environmental Science and Pollution Research*, *30*(2), 2958-2976.

- Aydın, E., & Erkılıç, E. (2020). Transformational leadership and innovative work behaviour: The mediating role of knowledge sharing. *Tourism and Recreation*, *2*(2), 106-117.

- Begum, S., Ashfaq, M., Xia, E., & Awan, U. (2022). Does green transformational leadership lead to green innovation? The role of green thinking and creative process engagement. *Business Strategy and the Environment*, *31*(1), 580-597.

- Blau, P. M. (1964). Exchange and power in social life. New York, USA: Wiley.

- Blau, P. M. (2017). Exchange and power in social life. London, UK: Routledge.

- Cesário, F., Sabino, A., Moreira, A., & Azevedo, T. (2022). Green human resources practices and person-organization fit: The moderating role of the personal environmental commitment. *Emerging Science Journal*, *6*(5), 938-951.

- Chaar, S. A., & Easa, N. F. (2021). Does transformational leadership matter for innovation in banks? The mediating role of knowledge sharing. *International Journal of Disruptive Innovation in Government*, *1*(1), 36-57.

- Chen, H., Nunes, M. B., Ragsdell, G., & An, X. (2018). Extrinsic and intrinsic motivation for experience grounded tacit knowledge sharing in Chinese software organisations. *Journal of Knowledge Management*, *22*(2), 478-498.

- Chen, J., & Zhang, A. (2024). Exploring how and when environmental corporate social responsibility impacts employees' green innovative work behavior: The mediating role of creative self-efficacy and environmental commitment. *Sustainability*, *16*(1), 1-20.

- Chen, X., Chen, Y., Zhang, X., & He, Q. (2023). Green transformational leadership and green innovation in megaprojects: Is green knowledge sharing a

missing link?. *Engineering, Construction and Architectural Management,* ahead-of-print.

- Cochran, W.G. (1963). Sampling Techniques (2nd ed.). New York: John Wiley and Sons, Inc.

- Cop, S., Alola, U. V., & Alola, A. A. (2020). Perceived behavioral control as a mediator of hotels' green training, environmental commitment, and organizational citizenship behavior: A sustainable environmental practice. *Business Strategy and the Environment*, *29*(8), 3495-3508.

- Egyptian Ministry of Tourism and Antiquities. (2024). Hotel and tourism companies and establishments: Directory of hotel establishments and tourism companies, the Ministry of Tourism: Egypt. Accessed in June 2024. Retrieved from: https://mota.gov.eg/ar/

- ElAdawi, F. M. I., Elnaggar, M. Kh., Hashad, M. E., Awad, A. H. I., & Abd El-Halim, A. A. Gh. (2024). Effect of green inclusive leadership on employees' green work engagement in hotels and travel agencies: The role of green intrinsic motivation. *Geojournal of Tourism and Geosites, 54*(2), 885-895.

- Elbaz, A. M., Soliman, M., Al-Alawi, A., Al-Romeedy, B. S., & Mekawy, M. (2023). Customer responses to airline companies' service failure and recovery strategies: The moderating role of service failure habit. *Tourism Review*, *78*(1), 1-17.

- Elshaer, I. A., Abdelrahman, M. A., Azazz, A. M., Alrawad, M., & Fayyad, S. (2022). Environmental transformational leadership and green innovation in the hotel industry: Two moderated mediation analyses. *International Journal of Environmental Research and Public Health*, *19*(24), 1-15.

- Elzek, Y., Gaafar, H., & Abdelsamie, H. (2021). The impact of green innovation on sustainability performance in travel agencies and hotels: The moderating role of environmental commitment. *International Journal of Hospitality and Tourism Systems*, *14*(2), 15-24.

- Farrukh, M., Ansari, N., Raza, A., Wu, Y., & Wang, H. (2022). Fostering employee's pro-environmental behavior through green transformational leadership, green human resource management and environmental knowledge. *Technological Forecasting and Social Change*, *179*, 1-9.

- Fatmawaty, A. S., Widigdo, A. M. N., Ie, M., Karlinah, L., Julitasari, E. N., Hairani, E., & Muttaqiyathun, A. (2023). Improving SMEs innovative work behavior: How the role of transformational leadership and knowledge sharing in the digital era. *Journal of Law and Sustainable Development*, *11*(3), e735-e735.

- Franke, G., & Sarstedt, M. (2019). Heuristics versus statistics in discriminant validity testing: A comparison of four procedures. *Internet Research*, *29*(3), 430-447.

- Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *Partial least squares structural equation modeling (PLS-SEM) using R: A workbook* (p. 197). Springer Nature.

- Hair, Jr, J. F., Matthews, L. M., Matthews, R. L., & Sarstedt, M. (2017). PLS-SEM or CB-SEM: Updated guidelines on which method to use. *International Journal of Multivariate Data Analysis*, *1*(2), 107-123.
- Hashad, M. E., Hussien, I. M., Abd-Elhady, M. H., & Abouelenien, R. E. I. (2023). The effect of internal marketing on job performance in hotels and travel agencies: The mediating role of knowledge sharing. *Journal of the Faculty of Tourism and Hotels-University of Sadat City*, *7*(2/2), 144-163.
- Idrees, H., Xu, J., Ralison, N. A., & Kadyrova, M. (2023). Does leadership and management support facilitate green knowledge acquisition and green innovation: A moderated mediation approach. *Business Process Management Journal*, *29*(4), 1249-1276.
- Islam, T., Zahra, I., Rehman, S. U., & Jamil, S. (2024). How knowledge sharing encourages innovative work behavior through occupational self-efficacy? The moderating role of entrepreneurial leadership. *Global Knowledge, Memory and Communication*, *73*(1/2), 67-83.
- Janjua, N. A., SHI, D., & Sahibzada, U. F. (2024). Harnessing green innovation via green transformational leadership in Italian luxury hotels: Key strategic takeaways. *International Journal of Hospitality Management*, *120*, 1-17.
- Keles, H., Yayla, O., Tarinc, A., & Keles, A. (2023). The effect of environmental management practices and knowledge in strengthening responsible behavior: The moderator role of environmental commitment. *Sustainability*, *15*(2), 1-18.
- Khan, K., Shams, M. S., Khan, Q., Akbar, S., & Niazi, M. M. (2022). Relationship among green human resource management, green knowledge sharing, green commitment, and green behavior: A moderated mediation model. *Frontiers in Psychology*, *13*, 1-11.
- Khan, R. U., Saqib, A., Abbasi, M. A., Mikhaylov, A., & Pinter, G. (2023). Green leadership, environmental knowledge sharing, and sustainable performance in manufacturing industry: Application from upper echelon theory. *Sustainable Energy Technologies and Assessments*, *60*, 1-11.
- Khaskheli, A., Jiang, Y., Raza, S. A., Qureshi, M. A., Khan, K. A., & Salam, J. (2020). Do CSR activities increase organizational citizenship behavior among employees? Mediating role of affective commitment and job satisfaction. *Corporate social responsibility and Environmental Management*, *27*(6), 2941-2955.
- Kisbu-Sakarya, Y., MacKinnon, D. P., & Miočević, M. (2014). The distribution of the product explains normal theory mediation confidence interval estimation. *Multivariate Behavioral Research*, *49*(3), 261-268.
- Kmieciak, R. (2021). Trust, knowledge sharing, and innovative work behavior: Empirical evidence from Poland. *European Journal of Innovation Management*, *24*(5), 1832-1859.

- Kock, N. (2014). Advanced mediating effects tests, multi-group analyses, and measurement model assessments in PLS-based SEM. *International Journal of e-Collaboration (ijec)*, *10*(1), 1-13.
- Kock, N. (2022). WarpPLS user manual: Version 8.0. *ScriptWarp Systems: Laredo, TX, USA*, *141*, 47-60.
- Kuo, C. C., Ni, Y. L., Wu, C. H., Duh, R. R., Chen, M. Y., & Chang, C. (2022). When can felt accountability promote innovative work behavior? The role of transformational leadership. *Personnel Review*, *51*(7), 1807-1822.
- Lee, H. I., & Lu, H. (2022). Promoting knowledge sharing with effective leadership-a case study from socio-organisational perspective. *Knowledge Management Research & Practice*, *20*(4), 528-541.
- Li, H., Sajjad, N., Wang, Q., Muhammad Ali, A., Khaqan, Z., & Amina, S. (2019). Influence of transformational leadership on employees' innovative work behavior in sustainable organizations: Test of mediation and moderation processes. *Sustainability*, *11*(6), 1-21.
- Lin, Q. (2023). Transformational leadership and innovative work behavior: The role of identification, voice and innovation climate. *International Journal of Hospitality Management*, *113*, 1-14.
- Lin, Y. H., & Chen, Y. S. (2017). Determinants of green competitive advantage: The roles of green knowledge sharing, green dynamic capabilities, and green service innovation. *Quality & Quantity*, *51*(4), 1663-1685.
- Mayastinasari, V., & Suseno, B. (2023). The role of transformational leadership, and knowledge sharing on innovative work behavior of public organization in the digital Era. *International Journal of Professional Business Review*, *8*(7), e02977-e02977.
- Messmann, G., Evers, A., & Kreijns, K. (2022). The role of basic psychological needs satisfaction in the relationship between transformational leadership and innovative work behavior. *Human Resource Development Quarterly*, *33*(1), 29-45.
- Munawar, S., Yousaf, H. Q., Ahmed, M., & Rehman, S. (2022). Effects of green human resource management on green innovation through green human capital, environmental knowledge, and managerial environmental concern. *Journal of Hospitality and Tourism Management*, *52*, 141-150.
- Niazi, U. I., Nisar, Q. A., Nasir, N., Naz, S., Haider, S., & Khan, W. (2023). Green HRM, green innovation and environmental performance: The role of green transformational leadership and green corporate social responsibility. *Environmental Science and Pollution Research*, *30*(15), 45353-45368.
- Peeters, P., Çakmak, E., & Guiver, J. (2024). Current issues in tourism: Mitigating climate change in sustainable tourism research. *Tourism Management*, *100*, 104820.
- Pham, N. T., Thanh, T. V., Tučková, Z., & Thuy, V. T. N. (2020). The role of green human resource management in driving hotel's environmental performance:

Interaction and mediation analysis. *International Journal of Hospitality Management, 88*, 1-10.

- Phung, V. D., Hawryszkiewycz, I., & Chandran, D. (2019). How knowledge sharing leads to innovative work behaviour: A moderating role of transformational leadership. *Journal of Systems and Information Technology*, *21*(3), 277-303.
- Priyadarshini, C., Chatterjee, N., Srivastava, N. K., & Dubey, R. K. (2023). Achieving organizational environmental citizenship behavior through green transformational leadership: A moderated mediation study. *Journal of Asia Business Studies*, *17*(6), 1088-1109.
- Riva, F., Magrizos, S., & Rubel, M. R. B. (2021). Investigating the link between managers' green knowledge and leadership style, and their firms' environmental performance: The mediation role of green creativity. *Business Strategy and the Environment*, *30*(7), 3228-3240.
- Rongbin, R., Wan, C., & Zuping, Z. (2022). Research on the relationship between environmental corporate social responsibility and green innovative behavior: The moderating effect of moral identity. *Environmental Science and Pollution Research*, *29*(34), 52189-52203.
- Rubel, M. R. B., Kee, D. M. H., & Rimi, N. N. (2021). The influence of green HRM practices on green service behaviors: The mediating effect of green knowledge sharing. *Employee Relations: The International Journal*, *43*(5), 996-1015.
- Rubel, M. R. B., Kee, D. M. H., Yusliza, M. Y., & Rimi, N. N. (2023). Socially responsible HRM and hotel employees' environmental performance: The mediating roles of green knowledge sharing and environmental commitment. *International Journal of Contemporary Hospitality Management*, *35*(7), 2645-2664.
- Sahoo, S., Kumar, A., & Upadhyay, A. (2023). How do green knowledge management and green technology innovation impact corporate environmental performance? Understanding the role of green knowledge acquisition. *Business Strategy and the Environment*, *32*(1), 551-569.
- Sarstedt, M., Ringle, C. M., & Hair, J. F. (2021). Partial least squares structural equation modeling. In *Handbook of market research* (pp. 587-632). Cham: Springer International Publishing.
- Setyaningrum, R. P., & Muafi, M. (2023). Green human resources management on business performance: The mediating role of green product innovation and environmental commitment. *International Journal of Sustainable Development & Planning*, *18*(1), 209-220.
- Sharif, S., Tongkachok, K., Akbar, M., Iqbal, K., & Lodhi, R. N. (2024). Transformational leadership and innovative work behavior in three-star hotels: Mediating role of leader-member exchange, knowledge sharing and voice behavior. *VINE Journal of Information and Knowledge Management Systems*, *54*(1), 1-21.

- Sharma, G. D., Taheri, B., Chopra, R., & Parihar, J. S. (2023). Relationship between climate change and tourism: An integrative review. *The Service Industries Journal*, 1-28.
- Singh, S. K., Del Giudice, M., Chierici, R., & Graziano, D. (2020). Green innovation and environmental performance: The role of green transformational leadership and green human resource management. *Technological Forecasting and Social Change*, *150*, 1-12.
- Song, D., Bai, Y., Wu, H., & Wang, X. (2023). How does the perceived green human resource management impact employee's green innovative behavior?—From the perspective of theory of planned behavior. *Frontiers in Psychology*, *13*, 1106494.
- Song, M., Yang, M. X., Zeng, K. J., & Feng, W. (2020). Green knowledge sharing, stakeholder pressure, absorptive capacity, and green innovation: Evidence from Chinese manufacturing firms. *Business Strategy and the Environment*, *29*(3), 1517-1531.
- Srivastava, S., Pathak, D., Soni, S., & Dixit, A. (2024). Does green transformational leadership reinforce green creativity? The mediating roles of green organizational culture and green mindfulness. *Journal of Organizational Change Management*, *37*(3), 619-640.
- Sudibjo, N., & Prameswari, R. K. (2021). The effects of knowledge sharing and person–organization fit on the relationship between transformational leadership on innovative work behavior. *Heliyon*, *7*(6), 1-8.
- Tan, A. B., Van Dun, D. H., & Wilderom, C. P. (2021). Innovative work behavior in Singapore evoked by transformational leaders through innovation support and readiness. *Creativity and Innovation Management*, *30*(4), 697-712.
- Tanveer, M. I., Yusliza, M. Y., & Fawehinmi, O. (2024). Green HRM and hospitality industry: Challenges and barriers in adopting environmentally friendly practices. *Journal of Hospitality and Tourism Insights*, *7*(1), 121-141.
- Thurlings, M., Evers, A. T., & Vermeulen, M. (2015). Toward a model of explaining teachers' innovative behavior: A literature review. *Review of Educational Research*, *85*(3), 430-471.
- Tian, H., Siddik, A. B., Pertheban, T. R., & Rahman, M. N. (2023). Does fintech innovation and green transformational leadership improve green innovation and corporate environmental performance? A hybrid SEM–ANN approach. *Journal of Innovation & Knowledge*, *8*(3), 1-14.
- Wahba, S. A., Asrag, A., Ahmed, A. S., Hassan, A., & Abdel Majeed, A. A. (2024). Green dynamic capabilities and green creativity in hospitality and tourism industry: The moderating role of green transformational leadership. *Journal of Association of Arab Universities for Tourism and Hospitality*, *26*(1), 71-88.
- Yin, J., Ma, Z., Yu, H., Jia, M., & Liao, G. (2020). Transformational leadership and employee knowledge sharing: Explore the mediating roles of psychological safety and team efficacy. *Journal of Knowledge Management*, *24*(2), 150-171.

- Zhu, J., Tang, W., Zhang, B., & Wang, H. (2022). Influence of environmentally specific transformational leadership on employees' green innovation behavior—A moderated mediation model. *Sustainability*, *14*(3), 1-17.

القيادة التحويلية الخضراء وسلوك العمل الابتكاري الأخضر في الفنادق ووكالات السفر: أدوار مشاركة المعرفة الخضراء والالتزام الأخضر

آية أحمد عبد المجيد[1]، محمد عزت حشاد[2]، إسراء أحمد أحمد عبدالمجيد[3]، هويدا احمد حسنين محمود[4]

[1][3] قسم الدراسات السياحية، كلية السياحة والفنادق، جامعة المنصورة، مصر

[2] قسم إدارة الفنادق، كلية السياحة والفنادق، جامعة مدينة السادات، مصر

[4] قسم الدراسات الفندقية، معهد الألسن العالى للسياحة والفنادق والحاسب الآلى، مصر

الملخص

تُجبر الأهمية المتزايدة للقضايا البيئية الشركات في قطاع الضيافة والسياحة على تبني الممارسات الخضراء. ولتحقيق ذلك، يعد تعزيز مشاركة الموظفين في الابتكار الأخضر أمراً بالغ الأهمية. بالاعتماد على نظرية التبادل الاجتماعي، بحثت الدراسة في آثار القيادة التحويلية الخضراء على سلوك العمل الابتكاري الأخضر للموظفين، ودرست مشاركة المعرفة الخضراء والالتزام الأخضر كعوامل وسيطة ومعدلة. استخدمت الدراسة منهج نمذجة المعادلات الهيكلية بالمربعات الصغرى الجزئية (PLS-SEM) لتحليل البيانات التي تم جمعها من 447 موظفاً يعملون في فنادق الخمس نجوم ووكالات السفر من الفئة "أ" العاملة في القاهرة الكبرى بمصر. تكشف النتائج عن وجود علاقة إيجابية ومهمة بين القيادة التحويلية الخضراء وكل من مشاركة المعرفة الخضراء وسلوك العمل الابتكاري الأخضر للموظفين. علاوة على ذلك، تم تأكيد أن مشاركة المعرفة الخضراء لها تأثيراً إيجابياً على سلوك العمل الابتكاري الأخضر للموظفين، حيث تعمل كعامل وسيط في العلاقة بين القيادة التحويلية الخضراء وسلوك العمل الابتكاري الأخضر. ومن المثير للاهتمام أن الارتباط الأخضر لا يُعدل العلاقة بين القيادة التحويلية الخضراء وسلوك العمل الابتكاري الأخضر. تقدم الدراسة مساهمة هامة في فهمنا للعلاقات الديناميكية بين القيادة التحويلية الخضراء، وسلوك العمل الابتكاري الأخضر للموظفين، ومشاركة المعرفة الخضراء، والالتزام الأخضر داخل قطاعي الضيافة والسياحة المصريين.

الكلمات المفتاحية: القيادة التحويلية الخضراء، سلوك العمل الابتكاري الأخضر، مشاركة المعرفة الخضراء، والالتزام الأخضر، صناعة الضيافة والسياحة.