GREEN KNOWLEDGE SHARING AND WORKPLACE ENVIRONMENTALLY FRIENDLY BEHAVIOURS IN THE HOTEL INDUSTRY: GREEN AUTONOMY AS MEDIATOR AND GREEN REWARD AND COMPENSATION AS MODERATOR

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Abstract

Purpose – This study uses hotel employees to examine how green knowledge sharing (GKS), mediated by green autonomy (GA) and moderated by green rewards and compensation (GRC), influences pro-environmental workplace behaviours (WEFB).

Methodology/Design/Approach – In this study, cross-sectional data from 415 hotel employees in Ghana were analysed using PLS-SEM. Bootstrapping with 10,000 subsamples was conducted to determine the significance of the hypotheses.

Findings – This study established that both GKS and GA influenced WEFB. GKS also influenced GA which in turn played a mediating role in the influence of GKS on WEFB.

Practical implications – Organisations are encouraged to enhance the acquisition of green knowledge of their employees and follow it up by encouraging the sharing of acquired green knowledge with their co-workers to boost the adoption of environmentally friendly behaviours.

Originality of the research – A rare statistical method in green hospitality research was used to uncover the relationships between GKS, GA, GRC, and WEFB.

Keywords Pro-environmental behaviour, Knowledge sharing, Hospitality industry, Corporate environmental sustainability, Environmental management

INTRODUCTION

Human activities are rapidly depleting natural resources, polluting, and causing biodiversity loss, which is increasingly threatening the long-term survival of biological life (Zacher et al., 2023). Globally, more and more industries are realising how important sustainable practices are because organisations are responsible for protecting the natural environment, which is essential for human life and future economic activities (Smith & Johnson, 2021; Zacher et al., 2023). The hotel sector is one of the major sources of environmental operation, which is why it is imperative that measures be implemented to promote ecologically friendly behaviours. Through air-conditioning, heating and the provision of other guest facilities, the accommodation industry produces 1% of the carbon dioxide emitted globally and 20% of that is emitted in the tourism sector (United Nations World Tourism Organization, 2018). Juvan et al. (2023) also reported that through tourism, more than 35 million tons of solid waste is generated yearly across the globe. In Ghana, licensed tourism accommodation facilities have increased by 21.3% from 2018 to 2022 and the occupancy of these facilities have jumped from 18% in 2020 to 36% in 2022 (Ghana Tourism Report, 2022). These statistics have implications for carbon dioxide emission and waste generation and the subsequent concerns by customers about the environmental impact of the tourism and hospitality industry which make them favour green hotels (Majeed et al., 2023; Mensah, 2006; Raza & Farrukh, 2023).

Embracing sustainability offers accommodation businesses a chance to improve their competitiveness, brand image, and operational efficiency in addition to being in line with societal expectations (Filimonau et al., 2023; Font et al., 2023; Hays & Ozretić-Došen, 2014; Majeed et al., 2023). More specifically, sustainability drive in the hotel industry addresses SDGs 11, 12 and 13. Workplace environmentally friendly behaviours (WEFB) by hotel employees is critical to the sustainability efforts within the tourism and hospitality industry. Organisational initiatives play a critical role in encouraging environmentally friendly behaviour among employees at the workplace. WEFB also referred to as pro-environmental or green behaviours according to Chang and Hung (2021), are employee decisions and activities that support a more environmentally friendly and sustainable workplace. Thus, WEFB involve employee actions that enhance the sustainability of the work environment and the world at large. According to Asante (2023), these actions could be voluntary or involuntary where it is enforceable within the organisation. They include innovative suggestions, policy informance, open communication, and frequent revisions to work

practices that border on water, energy, transport, waste, recycling, product design and purchasing to improve environmental performance while achieving organisational goals (Davis & Challenger, 2013; Jahanshahi et al., 2021; Zacher et al., 2023). With WEFB, organisations could have a positive environmental performance rating, which would greatly enhance their image and subsequent patronage.

Sustainability has gained prominence in academic research and organisational practice, particularly in corporate environmental sustainability because of its focus on addressing sustainability issues (Davis & Challenger, 2013; Garrod et al., 2023). Managers and employees are becoming more aware of their organisation's environmental impacts, enhancing corporate image and meeting regulatory requirements. However, current literature primarily focuses on top-level CSR strategies and environmental management systems (e.g., Kraus et al., 2020; Latif et al., 2022) which has led to the underrepresentation of individual workers' impact on improving environmental performance (Davis & Challenger, 2013). Norton et al. (2015) also indicated that studies on the mechanisms and conditions under which personal and contextual factors affect the green behaviours of employees are lacking in the literature. Furthermore, Rezapouraghdam et al. (2018) observed that WEFB is less studied. Moreover, Rubel et al. (2021) noted that the impact of green knowledge management on organisations, of which green knowledge sharing is a core element, is less studied. Given that effective green knowledge management leads to enhanced knowledge infrastructure and transmission capabilities for environmental issues among organisational members (Rubel et al., 2021), this study aimed to empirically consider the direct influence of green knowledge sharing on WEFB.

Additionally, Li et al. (2021) revealed green autonomy as a mediating factor in the association between information sharing and eco-friendly workplace practices. Ahmed et al. (2023) also brought forth that GRC serves as a mechanism that motivates staff members to put information that they have gained through GKS into practice which culminates in eco-friendly behaviours. However, in the context of hotels there is a dearth of evidence regarding the mediating role of green autonomy and moderating role of GRC in the influence of GKS on WEFB. To promote sustainable transformation in the hotel industry, it is essential to comprehend how incentives, autonomy, and knowledge distribution affect hotel employees' adoption of eco-friendly behaviours. Furthermore, the sustainability situation in hotels in Africa is kept from the limelight. For instance, Bota-Avram (2023) revealed that Africa is the only continent with no representation in the top 15 countries to contribute to sustainability publications. Shereni et al. (2022) also highlighted that sustainability practices of the major hotels in Zimbabwe are not publicised enough. The foregoing gaps in the literature was the motivation for this study. The aim of this study is to investigate the roles of GA as a mediator and GRC as a moderator in the influence of GKS on WEFB of employees in the hotel industry in Ghana using a partial least square structural equation modelling (PLS-SEM) means of analysis which according to Loureiro et al. (2022), is not prominent in the pro-environmental literature. By investigating the roles of GA as a mediator and GRC as a moderator, the current study seeks to offer a more comprehensive understanding of how green variables such as knowledge sharing, autonomy and rewards and compensation contribute to WEFB of hotel employees using advanced and robust statistical techniques.

1. THEORETICAL BACKING AND HYPOTHESES

1.1. Self-Determination Theory

The self-determination theory (SDT) serves as the foundation for this research. It is a well-known psychological framework that studies human behaviour and motivation. SDT consists of three underlying factors that are essential for providing the motivation (intrinsic and extrinsic) which drives employee behaviour. These are autonomy, competence, and relatedness of the employees. When employees' needs for autonomy, competence and relatedness are fulfilled, they get the motivation to perform optimally (Deci et al., 2017; Ryan & Deci, 2000). This study investigates how GKS, GA and GRC influence employees' WEFB using the lens of SDT because GKS such as information exchange to reduce carbon footprint in the organisation meets hotel employees' competence needs by giving them the knowledge and skills they need to engage in eco-friendly behaviours. Such knowledge gained enables them to make autonomous decisions about environmentally friendly actions. GKS also fulfils employees' sense of belongingness as well as relatedness due to the common interest observed among the employees about environmentally friendly behaviours. In addition, GA focuses on employees' feelings of empowerment regarding the knowledge and freedom to make environmentally friendly decisions. Moreover, GRC provides employees with the requisite motivation to engage in eco-friendly behaviours. Thus, the green constructs in this study individually and collectively enhance actions that are in line with pro-environmental behaviours. By investigating these green constructs from the perspective of SDT, this study contributes to the underutilised application of SDT in understanding environmentally friendly behaviours in the workplace despite its relevance (Loureiro et al., 2022).

1.2. Green knowledge sharing and workplace environmentally friendly behaviours

Knowledge management which has knowledge sharing as a core element plays a crucial role in workplaces, influencing performance outcomes like improved customer relationships, service quality, and innovation performance (Rubel et al., 2021). Employee knowledge sharing, including both explicit and implicit knowledge, is crucial for organisations to maintain a sustainable competitive advantage. Evidence of this is provided by Meira et al. (2023) as being among the best performing human resource practices. According to Ahmad et al. (2023), knowledge sharing in a green context refers to the sharing of ideas, experiences, and best practices pertaining to sustainability and environmental preservation among members of an organisation. Through GKS, employees' awareness and understanding of green practices increase which lead to more positive attitudes towards the environment. These positive attitudes toward the environment have the potential to influence the employees to exhibit workplace environmentally friendly behaviours. Numerous studies have demonstrated the beneficial relationship between knowledge sharing programmes and the adoption of eco-friendly practices in the workplace (Chen & Chang, 2019; Park et al., 2020). For instance, Zhang et al. (2021) evinced that environmental knowledge sharing impacted the green behaviours of employees. Moreover, according to Khan et al. (2023), the sustainable performance of organisations is impacted by environmental knowledge sharing. In the hotel setting, Smith and Johnson (2021) showed that staff members' engagement in sustainable actions improved dramatically when eco-friendly methods were effectively communicated to them. These suggest that employees are more likely to adopt ecologically friendly behaviours in the workplace when they have access to green information. As a result, we postulate that:

H1: GKS influences WEFB in a positive way.

1.3. Green Knowledge Sharing and Green Autonomy

The idea behind green autonomy (GA) is that workers should have the freedom to decide for themselves when it comes to adopting eco-friendly workplace behaviours (Robinson & Garcia, 2021). The authors claim that employees with GA are more inclined to embrace ecologically beneficial behaviours and take responsibility for their impact on the environment. Employees' comprehension of the significance and advantages of adopting eco-conscious behaviours is improved when they have access to thorough and current information regarding sustainability programmes (Chen et al., 2019). People are empowered by this greater understanding, which gives them the self-assurance and capacity to decide on sustainability-related matters with knowledge and competence (Rahman & Ali, 2020). Employees are better able to exert autonomy in implementing green practices within their work environment as they become more knowledgeable about various green activities and their effects. Employees who have access to green knowledge feel more equipped to make independent decisions and carry out eco-friendly actions as evidenced by Rahman and Ali (2020). According to Rahman and Ali, information exchange programmes increase workers' autonomy by making them feel competent and knowledgeable about environmental issues. As a result, GKS is essential in creating an atmosphere where workers are encouraged to take initiative and support eco-friendly behaviours during their work. This leads to the following hypothesis:

H2: GKS influences GA in a positive way.

1.4. Green Autonomy and Workplace Environmentally Friendly Behaviours

Green autonomy (GA), according to Kim and Lee (2022), has a substantial impact on WEFB. It encourages employees to participate in sustainable practices by giving them a sense of empowerment and intrinsic motivation. This is because GA allows employees to make decisions about their work that can benefit the environment. Research by Smith and Johnson (2021) showed that when workers have decision-making authority over environmental projects, they are more committed and aggressive in implementing eco-friendly practices. People's intrinsic drive to engage in environmentally friendly activities is fuelled by their autonomy, which enables them to match organisational sustainability goals with their personal values. GA acts as a catalyst, inspiring staff members to adopt responsibility and initiative in putting sustainable practices into their work roles. Furthermore, according to a study by Robinson and Garcia (2021), GA fosters in the workforce, a sense of ownership and responsibility for sustainability initiatives. Thus, people are more likely to demonstrate a stronger feeling of responsibility for upholding and advocating environmentally friendly practices in the workplace when they feel empowered to make their own judgments about eco-conscious behaviours. A more environmentally conscious organisational ethos is subsequently driven by employees who actively participate in sustainable practices by starting, supporting, and campaigning for WEFB, attributable to this sense of ownership fostered by autonomy (Robinson & Garcia, 2021). Empirically, Banwo and Du (2019) showed that workplace environmental behaviour was affected by perceived behaviour control (i.e., the ability to engage in pro-environment behaviour within the workplace). Consequently, we hypothesise that:

H3: GA influences WEFB in a positive way.

1.5. Intervening role of green autonomy between green knowledge sharing and workplace environmentally friendly behaviours

When employees have access to information about eco-friendly practices and are free to choose how they want to handle their own job, they are more likely to use these practices. A study conducted by Chen et al. (2019) demonstrated that GKS improves workers' access to sustainability-related information and best practices, which in turn supports their decision-making authority on environmentally responsible behaviours. Employee autonomy, thus, increases because of this knowledge-based empowerment, as reported by Jin and Guo (2018). This empowers individuals to make decisions that are in line with environmental sustainability. Moreover, when employees have access to green knowledge, they feel more empowered to make independent decisions regarding environmentally friendly practices within the workplace. This autonomy encourages voluntary participation in WEFB, which include acts like reducing trash, conserving energy, and acquiring environmentally friendly products (Rahman & Ali, 2020). Accordingly, autonomy was suggested by Li et al. (2021) as a mediating factor in the association between information sharing and eco-friendly workplace practices. According to their findings, employees' eco-friendly behaviours are indirectly influenced by the spread of green knowledge since it gives them the freedom to make and follow their own judgments. Thus, the following hypothesis is put forth:

> H4: GA mediates the positive influence GKS has on WEFB.

1.6. Moderating role of green reward and compensation between green knowledge sharing and workplace environmentally friendly behaviours

The term green reward and compensation (GRC) describes the benefits and incentives given to staff members in exchange for embracing and advancing environmentally friendly workplace policies and procedures (Jehan et al., 2020). Khan et al. (2022) asserted that GKS has a major impact on WEFB in businesses nonetheless, by offering incentives and prizes for adopting eco-friendly practices, GRC may strengthen this relationship even further. Research conducted by Rubel et al. (2021) indicated that green human resource management practices including reward and compensation linked to eco-friendly actions by organisations increases the impact of GKS on workers' involvement in sustainable practices. By providing benefits like bonuses, recognition, or other incentives, GRC acts as an external motivator to promote and strengthen the adoption of WEFB (Chen et al., 2019). In other words, GRC can enhance the relationship between GKS and WEFB by reinforcing the importance of environmentally friendly behaviours within an organisation.

Rewarding and compensating employees for their WEFB communicates to them that the company appreciates and places a high priority on sustainability, which in turn encourages them to continue these behaviours. By offering a structured reward programme that supports and recognises employees' efforts toward sustainability, GRC serves as a mechanism that motivates staff members to put the information they have gained through GKS into practice (Ahmed et al., 2023). The moderating role of reward systems in the relationship between environmentally friendly behaviours and knowledge sharing was also brought to light by Kraus et al. (2020). They discovered that although information sharing had a favourable impact on green behaviours, this link was increased with the presence of green reward systems, suggesting that incentives can increase the effectiveness of knowledge sharing programmes on WEFB. Considering the above, we hypothesise that:

> H5: GRC moderates the positive influence GKS has on WEFB.

The hypotheses that have been formulated are presented pictorially in the conceptual framework in Figure 1.

Figure 1: **Conceptual Model**
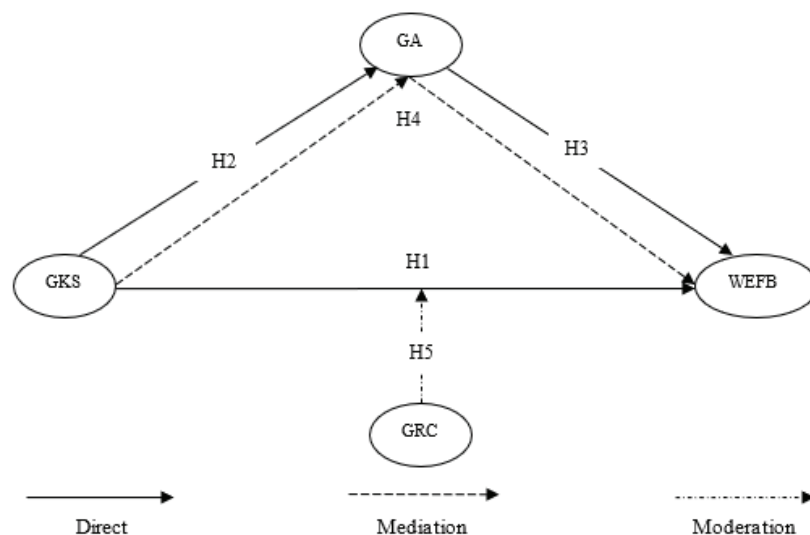
2. METHODS

2.1. Procedures and participants

Over four months, data was gathered from employees of 85 hospitality facilities in the Central Region of Ghana that offer lodging services. The general managers of these facilities were contacted at their convenience about the study to seek access to their operational level employees and they duly granted access for the data to be collected. They nominated supervisors or other managers to assist in the data collection exercise. All employees in the facilities were eligible to participate in the survey because they had the information that were needed to achieve the purpose of the study. Thus, a convenience sampling technique was used to collect the data. In this regard, operational level employees who were available in their facility during the data collection period were the targeted respondents. However, participation was voluntary and subject to providing consent. Responding was at the convenience of the employees who had the right to withdraw their participation at any time without any consequences. There was no harm in participating and anonymity as well as confidentiality were ensured. Four hundred and fifteen employees provided usable data for the study.

Two hundred and five (49.4%) of them were males and 135 (32.5%) had tertiary education. Employees who were between 30 – 39 years were 101; 75 (18.1%) were 30 – 34 years and 26 (6.3%) were 35 – 39 years. Employees who had less than five years' experience were 260 (62.7%). Considering the facility rating, 43 (10.2%) worked in guest houses, 177 (42.7%) were employees of budget facilities. Also, employees in star rated hotels were as follows; 135 (32.5%), 33 (8%) and 27 (6.5%) in 1-star, 2-star and 3-star hotels respectively. In terms of the type of work they did 108 (26.0%) were in the bar and restaurant, 82 (19.8%) worked in the kitchen, 94 (22.7%) were housekeeping staff, and 45 (10.8%) were engineering, security and support staff. Again, sales, marketing and accounts staff were 52 (12.5%) while other office staff were 34 (8.2%).

2.2. Instrument and measures

The study made use of a questionnaire that contained the variables of the study. They were measured using a Likert-type scale from 1 to 7. One (1) represented strongly disagree and 7 represented strongly agree. To procedurally control common method bias, the questionnaire had an introduction where statements about the purpose of the study, anonymity and confidentiality of the responses and guidance on filling in the questionnaire were provided (Chang et al., 2010; Podsakoff et al., 2012). The contents of the variables included the following:

- GKS: A six-item scale sourced from Yu et al. (2022) with "People within our organization regularly interact with each other to discuss different environmental developments and share knowledge" as an example.
- GA: This scale consisting of five items was obtained from Maitlo et al. (2022). An example of the items used was "I feel free to do my tasks in the greenway".
- GRC: The source of the three items such as "Employees suggestions for innovative environmental initiative are rewarded" was Masri and Jaaron (2017).
- WEFB: To measure this variable, the four measures developed by Robertson and Barling (2013) were used. An example is "I put recyclable material (e.g. cans, paper, bottles, batteries) in the recycling bins".

2.3. Data analyses

With the aid of the SmartPLS software, PLS-SEM was used in analysing the data because it is not usually used in pro-environmental studies (Loureiro et al., 2022) despite its statistical rigour and ability to deal adequately with measurement errors as well as its accuracy and ability to test complex theoretical models unlike other similar analytical procedures like regression (Hair et al., 2014, 2019a; Henseler et al., 2016). The three-stage procedure for data analyses using PLS SEM as recommended by Hair et al. (2014) was followed. The specification of the model as shown in Figure 1 was the first stage of the process. The second stage involved assessing the quality of the outer model (Hair et al., 2019b; Sarstedt et al., 2023). Lastly, assessment of the quality of the inner model and path significance using bootstrapping of 10,000 subsamples were carried out (Hair et al., 2019a; Shmueli et al. 2019; Sarstedt et al., 2023).

3. RESULTS

3.1. Outer model

It is observed from Figure 2 and Table 1 that the loadings were largely more than 0.707 except for the loading for GKS6 but as can be seen further from the table, the rho_a (which is a somewhat approximate estimate of construct reliability than Cronbach's alpha and composite reliability) is above 0.70 and average variance extracted (AVE) also above 0.5. This shows that retaining a loading lower than the recommended threshold did not have negative consequences for the reliability and validity of the outer model as the reliability and validity conditions were met (Benitez et al., 2020; Ringle et al., 2020).
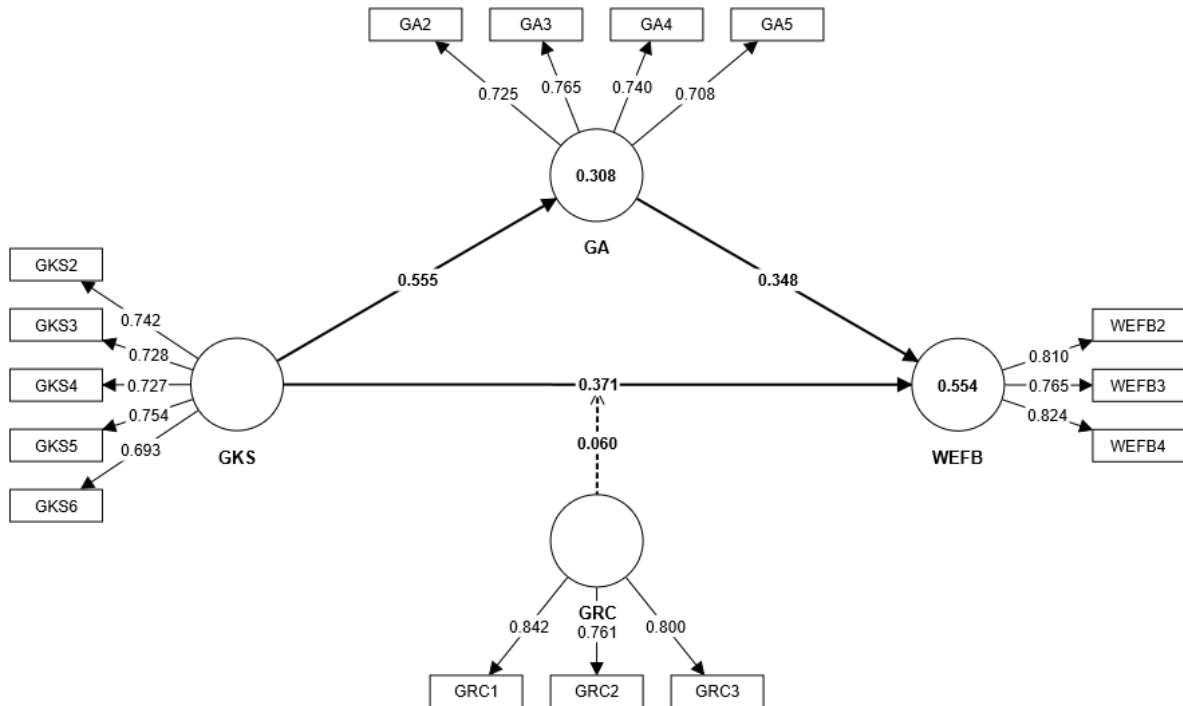
Figure 2: **Measurement loadings**

Table 1: **Measurement loadings, construct reliability and validity (convergent)**

Measure	Loading	rho_a	AVE
GA2	0.725	0.717	0.540
GA3	0.765		
GA4	0.740		
GA5	0.708		
GKS2	0.742	0.782	0.531
GKS3	0.728		
GKS4	0.727		
GKS5	0.754		
GKS6	0.693		
GRC1	0.842	0.729	0.643
GRC2	0.761		
GRC3	0.800		
WEFB2	0.810	0.718	0.640
WEFB3	0.765		
WEFB4	0.824		

The discriminant validity test, done through heterotrait-monotrait criteria recommended by Hair et al. (2019b) due to its power in detecting discriminant validity over the Fornell-Larcker method, is indicated in Table 2. According to the values in the table (< 0.9), the outer model had discriminant validity.

Table 2: **Validity (discriminant)**

	GA	GKS	GRC	WEFB	GRC x GKS
GA					
GKS	0.741				
GRC	0.662	0.707			
WEFB	0.881	0.874	0.721		
GRC x GKS	0.274	0.387	0.437	0.382	

3.2. Inner model

Variance inflation factors (VIF) was a statistical means to verify the absence of common method bias. According to Kock and Lynn (2012), VIF values of 3.3 or more in a model suggest that collinearity and for that matter common method bias is existent. From Table 3 which details the collinearity statistics via VIF, the model is devoid of collinearity issues.

Table 3: **Collinearity statistics (VIF)**

	GA	WEFB
GA		1.548
GKS	1.000	1.729
GRC		1.591
GRC x GKS		1.200

The model's out-of-sample predictive power and in-sample explanatory power are on display in Table 4. According to the table, the model has a medium out-of-sample predictive power. This is because in addition to the corresponding Q^2predict values being greater than zero, more than 50% of the PLS-SEM_RMSE values are less than the LM_RMSE values (Shmueli et al., 2019). Again, with an R-square value of 0.554, the explanatory power of the model is medium according to Hair et al. (2017). Thus, about 55% of the variance in WEFB is explained by the antecedent constructs in the model.

Table 4: **Model power**

Construct	Measure	Out-of-sample predictive power			In-sample explanatory power
		Q^2predict	PLS-SEM_ RMSE	LM_RMSE	R-square
GA	GA2	0.159	1.192	1.189	0.308
	GA3	0.186	1.104	1.100	
	GA4	0.145	*1.140*	1.150	
	GA5	0.159	1.162	1.133	
WEFB	WEFB2	0.259	*1.232*	1.241	0.554
	WEFB3	0.300	*1.135*	1.150	
	WEFB4	0.311	*1.108*	1.112	

Note: Boldened and italicized values show PLS-SEM values are less than LM values

It is realised from Table 5 that GKS has a positive influence on WEFB (β = 0.371***[0.276 – 0.459]) likewise GA (β = 0.555***[0.485 – 0.611]) which in turn positively influences WEFB (β = 0.348***[0.266 – 0.428]). These results are indications that null hypotheses 1, 2 and 3 could not be supported. The effect sizes associated with hypotheses 1 and 3 are medium (f-square < 0.350) whereas that of hypothesis 2 is large (> 0.350). Again, GA provided a complementary partial mediation (Hair et al., 2017; Matthews et al., 2018), in the influence GKS has on WEFB (β = 0.193*** [0.143 – 0.246]) making null hypothesis 4 unsupported. However, there was no moderating effect of GRC on the influence of GKS on WEFB. Thus, the null hypothesis 5 was supported. Figure 3 shows the beta and t values of the model.

Table 5: **Path significance and effect size**

Hypotheses: Path	Beta	SD	BCa CI	f-square
H1: GKS -> WEFB	0.371***	0.056	0.276 – 0.459	0.178
H2: GKS -> GA	0.555***	0.038	0.485 – 0.611	0.445
H3: GA -> WEFB	0.348***	0.049	0.266 – 0.428	0.176
H4: GKS -> GA -> WEFB	0.193***	0.031	0.143 – 0.246	-
H5: GRC x GKS -> WEFB	0.060^{ns}	0.039	-0.003 – 0.124	0.009

Note: SD=standard deviation; BCa CI=Bias-corrected and accelerated confidence intervals; ***$p<0.001$; ns=not significant

Figure 3: **Beta and t values**
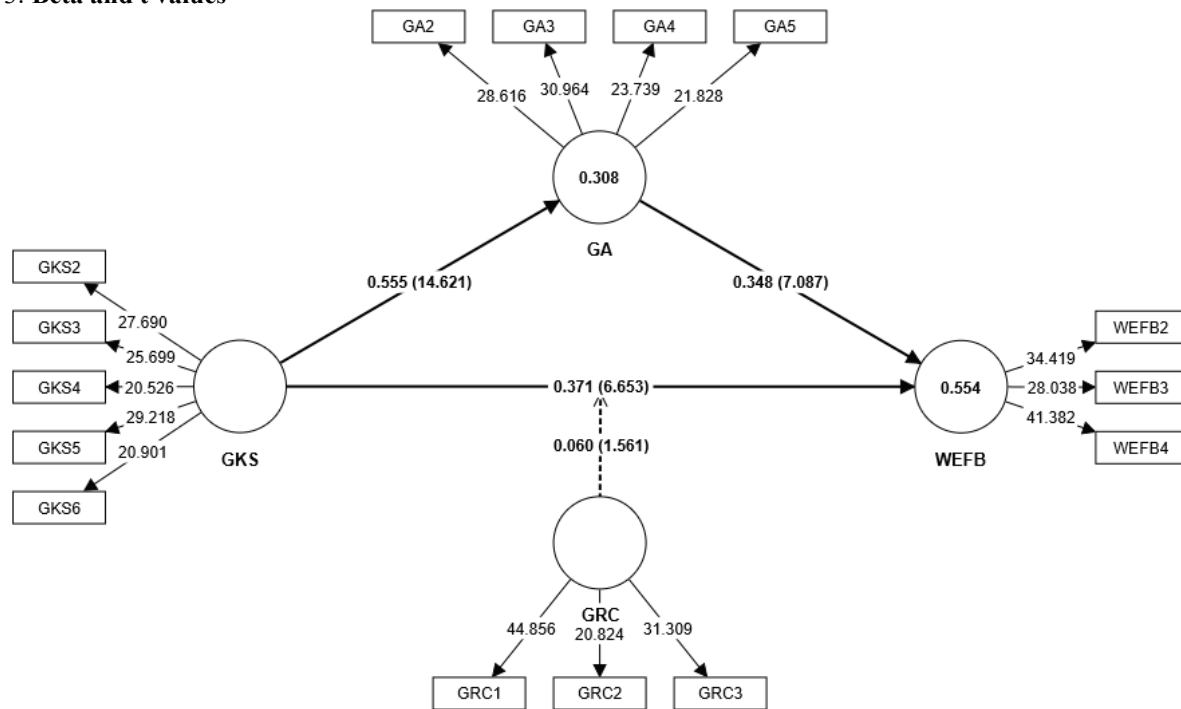
4. DISCUSSION AND IMPLICATIONS

In this study which utilised PLS-SEM analytical techniques, which is not often used in pro-environmental hospitality studies despite the advantages of its use, the roles of GA as a mediator and GRC as a moderator in the influence of GKS on WEFB of employees in the hotel industry in Ghana were investigated. Subsequently, five hypotheses were formulated. The findings made in the study were largely in agreement with what was available in the literature. For instance, in line with our expectations for hypothesis 1, GKS positively influenced WEFB as had been similarly evinced in the studies carried out by Khan et al. (2023), Smith and Johnson (2021) and Zhang et al. (2021). Also, hypothesis 2, as established in Rahman and Ali's (2020) study showed that GKS increased the GA of employees. Again, in line with the third hypothesis, a confirmation was made to the effect that WEFB was influenced positively by GA which was backed by similar empirical results demonstrated by Banwo and Du (2019) and Robinson and Garcia (2021). Concerning hypothesis 4, it was revealed that a positive change in GKS caused a positive change in GA which in turn caused another positive change in WEFB. Thus, the GKS – WEFB link was mediated by GA just as was uncovered by Li et al. (2021) that employees' eco-friendly behaviours are indirectly influenced by the spread of green knowledge since it gives them the freedom to make and follow their judgments. However, contrary to our expectation regarding hypothesis 5, GRC did not significantly moderate the positive influence of GKS on WEFB which is surprising. However, it is probable that employees in the context of this study are passionate about sustainability issues and so do not require extrinsic motivation through green rewards and compensation to engage in pro-environmental practices in the workplace.

The revelations in this study portend that GKS is crucial in the adoption of WEFB (Chen & Chang, 2019; Park et al., 2020; Rubel et al., 2021). Thus, organisations should enhance the acquisition of green knowledge of their employees. This is the foremost step on the part of organisations because green knowledge can only be shared when available. The acquisition should then be followed by encouragement of employees to share the knowledge with their co-workers to boost the adoption of environmentally friendly behaviours in the workplace. Additionally, the sharing of green knowledge is also shown to have an impact on the autonomy of employees regarding green matters. What this means is that with the green knowledge shared

among co-workers, their comprehension of the significance and advantages of adopting eco-conscious behaviours is improved (Chen et al., 2019). This makes them feel empowered and competent to make independent decisions and carry out eco-friendly actions (Rahman & Ali, 2020). Sharing of green knowledge, therefore, ought not to be taken lightly in organisations because of its importance to green autonomy and WEFB. The importance of GKS is heightened because while it enhances GA, GA also enhances WEFB. GKS is, therefore, shown to be a factor that should not be treated lightly in the sustainability drive of leadership of hotels. Ways by which organisations could enhance the acquisition of green knowledge include informing employees of the green goals and progress made during meetings, using newsletters and other internal communication platforms while encouraging open discussions and sharing of green best practices. In addition, sustainability training, seminars and workshops could be regularly held in the hotels to provide more avenues for green knowledge acquisition and green knowledge exchange. More so, employees' sustainability efforts could be gamified using leaderboards and or point systems to motivate and show employees that they can take more green initiatives on their own volition. Regarding the insignificant role of GRC as a moderator, it could be deduced that when people are enthused about sustainability of the environment, they may not require rewards and compensation to act as such.

Regarding theory, it has been observed that GKS and GA align with autonomy, competence and relatedness as emphasised in SDT. GKS improves employees' competency by giving them the know-how and information they need to carry out eco-friendly actions successfully. Additionally, it fulfils employees' sense of belongingness and feelings of being cared for and valued in their organisation which further enhances intrinsic motivation as well as feelings of autonomy and competence for WEFB. Moreover, GA makes employees inclined to behave in an environmentally responsible manner since they feel empowered and competent to make such decisions following shared knowledge. The study has demonstrated that SDT is in sync with pro-environmental behaviours in the workplace hence, it must be paid attention to by sustainability scholars in studies that seek to address sustainability especially, in hotel environments. Again, it could be argued that extrinsic motivation may not be necessary to execute actions because as reported by Deci et al. (2017) they may have no effects. This could be the case especially when there is intrinsic motivation.

This study extends SDT as earlier studies have not considered how knowledge sharing leads to autonomy in the context of employees' eco-friendly behaviours. Although autonomy is deemed central to the motivation of individuals in the SDT framework (Deci et al., 2017), this study emphasises how GKS fosters employees' autonomy for eco-friendly behaviours at work. The finding indicates that when employees' green autonomy need is fulfilled, they feel empowered to make environmentally friendly decisions because of the green knowledge they gain through sharing. This study further contributes to the theoretical understanding of SDT within the WEFB context especially by emphasising the crucial role played by GA as an intervening variable between GKS and WEFB. It also highlights the importance of SDT in employees' eco-friendly behaviour while adding to the literature on the utilisation of SDT in eco-friendly behaviour research which is largely ignored by scholars (Loureiro et al., 2022). Through the demonstration of SDT's relevance in the influence GKS and GA have on WEFB, this study paves the way for extending sustainability-related SDT or green SDT research by examining the motivational mechanisms that underlie employees' sustainable behaviours.

5. LIMITATIONS AND FURTHER RESEARCH

One of the limitations of this study is the use of cross-sectional data. Even though PLS-SEM is robust and powerful enough to overcome challenges with this data type, further research should be conducted via longitudinal data to bring to bear changes in dynamics of the phenomena studied over time. Also, the study was conducted in a single country, a cross-country study should be conducted in future studies to verify how the phenomena compare across countries to enable generalisation. Moreover, with the non-significant moderating effect of GRC, scholars should explore more to determine whether it is because of cultural factors, industry-specific norms, or the nature of the environmental initiatives in the hotels studied. Again, this study was concerned with employee level green behaviours. For future theoretical development, multi-level factors (Norton et al., 2015) such as employee level green factors (e.g., environmental self-efficacy and relatedness), leader level factors, and organisational level factors like HRM practices should be studied to reveal their interaction effects.

REFERENCES

Ahmad, F., Hossain, M. B., Mustafa, K., Ejaz, F., Khawaja, K. F., & Dunay, A. (2023). Green HRM practices and knowledge sharing improve environmental performance by raising employee commitment to the environment. *Sustainability*, 15(6), 5040. http://dx.doi.org/10.3390/su15065040

Ahmed, I., Islam, T., & Umar, A. (2023). Bridging organisational and individual green actions through green knowledge sharing & individual values. *Knowledge Management Research & Practice*, 21(6), 1071-1083. https://doi.org/10.1080/14778238.2022.2139774

Asante, K. (2023). Hotels' green leadership and employee pro-environmental behaviour, the role of value congruence and moral consciousness: Evidence from symmetrical and asymmetrical approaches. *Journal of Sustainable Tourism*. https://doi.org/10.1080/09669582.2023.2229534

Banwo, A. O., & Du J. (2019). Workplace pro-environmental behaviors in small and medium-sized enterprises: an employee level analysis. *Journal of Global Entrepreneurship Research*, 9(34). 1-20 https://doi.org/10.1186/s40497-019-0156-4

Benitez, J., Henseler, J., Castillo, A., & Schuberth, F. (2020). How to perform and report an impactful analysis using partial least squares: Guidelines for confirmatory and explanatory IS research. *Information & Management*, 57(2), 103168. https://doi.org/10.1016/j.im.2019.05.003

Bota-Avram, C. (2023). Bibliometric analysis of sustainable business performance: Where are we going? A science map of the field. *Economic Research-Ekonomska Istrazivanja* 36(1), 2137–2176. https://doi.org/10.1080/1331677X.2022.2096094

Chang, S., Witteloostuijn, A. V., & Eden, L. (2010). From the editors: Common method variance in international business research. *Journal of International Business Studies*, 41, 178-184. https://doi.org/10.1057/jibs.2009.88

Chang, T.-W., & Hung, C.-Z. (2021). How to shape the employees' organization sustainable green knowledge sharing: cross-level effect of green organizational identity effect on green management behavior and performance of members. *Sustainability*, 13(2), 626. http://dx.doi.org/10.3390/su13020626

Chen, Y., & Chang, C. (2019). The impact of green knowledge sharing and green autonomy on employees' green performance: The mediating effects of green competence. *Sustainability*, 11(9), 2682.

Chen, Y., Chang, C., & Yeh, C. (2019). Green knowledge sharing, green capability, and green innovation: Empirical evidence from high-tech firms. *Sustainability,* 11(4), 1067.

Davis, M. C., & Challenger, R. (2013). Environmentally sustainable work behaviors. In P. C. Flood & Y. Freeney (Eds.), *Wiley Encyclopedia of Management: Organizational Behavior* (Vol. 11).

Deci, E. L., Olafsen, A. H., & Ryan, R. M. (2017). Self-determination theory in work organizations: The state of a science. *Annual Review of Organizational Psychology and Organizational Behavior*, 4, 19-43. https://doi.org/10.1146/annurev-orgpsych-032516-113108

Filimonau, V., Bai, L., Romanenko, A., Tarakanova, V., & Ermolaev, V. A. (2023). How employees perceive and (dis)engage with 'green' practices in luxury hotels. *International Journal of Hospitality Management,* 114, 103567. https://doi.org/10.1016/j.ijhm.2023.103567

Font, X., Torres-Delgado, A., Crabolu, G., Palomo Martinez, J., Kantenbacher, J., & Miller, G. (2023). The impact of sustainable tourism indicators on destination competitiveness: The European Tourism Indicator System. *Journal of Sustainable Tourism*, 31(7), 1608-1630. https://doi.org/10.1080/09669582.2021.1910281

Garrod, B., Zhao, A. L., & Koenig-Lewis, N. (2023). A greener way to stay: The role of perceived sustainability in generating loyalty to Airbnb. *International Journal of Hospitality Management*, 110, 103432. https://doi.org/10.1016/j.ijhm.2023.103432

Ghana Tourism Report (2022). Tourism report 2022. Retrieved March 11, 2024, from https://ghana.travel/wp-content/uploads/2023/04/TOURISM-REPORT-2022-Final.pdf

Hair Jr, J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. *European Business Review*, 26(2), 106-121. https://doi.org/10.1108/EBR-10-2013-0128

Hair, J. F., Hult, G. T. M., Ringle, C. M. & Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling (PLS-SEM)*, Thousand Oaks, CA: Sage.

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019a). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2-24. https://doi.org/10.1108/EBR-11-2018-0203

Hair, J. F., Sarstedt, M., & Ringle, C. M. (2019b). Rethinking some of the rethinking of partial least squares. *European Journal of Marketing,* 53(4), 566-584. https://doi.org/10.1108/EJM-10-2018-0665

Hays, D., & Ozretić-Došen, Đ. (2014). Greening hotels—Building green values into hotel services. *Tourism and Hospitality Management*, 20(1), 85–102. https://doi.org/10.20867/thm.20.1.7

Henseler, J., Hubona, G., & Ray, P. A. (2016). Using PLS path modeling in new technology research: Updated guidelines. *Industrial Management & Data Systems*, 116(1), 2-20. https://doi.org/10.1108/IMDS-09-2015-0382

Jahanshahi, A. A., Maghsoudi, T., & Shafighi, N. (2021). Employees' environmentally responsible behavior: The critical role of environmental justice perception. *Sustainability: Science, Practice and Policy*, 17(1), 1-14. https://doi.org/10.1080/15487733.2020.1820701

Jehan, Y., Hussai, D., Batool, M., & Imran, M. (2020). Effect of green human resource management practices on environmental sustainability. *International Journal of Human Capital in Urban Management*, 5(2), 153-164.

Jin, Z., & Guo, S. (2018). How green knowledge sharing affects green creativity: A case from China. *Journal of Knowledge Management,* 22(2), 252-269.

Juvan, E., Grun, B. & Dolnicar, S. (2023). Waste production patterns in hotels and restaurants: An intra-sectoral segmentation approach. *Annals of Tourism Research Empirical Insights,* 4(1). https://doi.org/10.1016/j.annale.2023.100090

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. https://doi.org/10.3389/fpsyg.2022.924492

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, 103540. https://doi.org/10.1016/j.seta.2023.103540

Kim, M., & Lee, S. M. (2022). Drivers and interrelationships of three types of pro-environmental behaviors in the workplace. *International Journal of Contemporary Hospitality Management*, 34(5), 1854-1881. https://doi.org/10.1108/IJCHM-09-2021-1094

Kock, N., & Lynn, G. S. (2012). Lateral collinearity and misleading results in variance-based SEM: An illustration and recommendations. *Journal of the Association for Information Systems*, 13(7) 546-580. https://doi.org/10.17705/1jais.00302

Kraus, S., Rehman, S. U., & García, F. J. S. (2020). Corporate social responsibility and environmental performance: The mediating role of environmental strategy and green innovation. *Technological Forecasting and Social Change*, 160, 120262. https://doi.org/10.1016/j.techfore.2020.120262

Latif, B., Gunarathne, N., Gaskin, J., San Ong, T., & Ali, M. (2022). Environmental corporate social responsibility and pro-environmental behavior: The effect of green shared vision and personal ties. *Resources, Conservation and Recycling*, 186, 106572. https://doi.org/10.1016/j.resconrec.2022.106572

Li, B., Fan, X., Álvarez-Otero, S., Sial, M. S., Comite, U., Cherian, J., & Vasa, L. (2021). CSR and workplace autonomy as enablers of workplace innovation in SMES through employees: Extending the boundary conditions of self-determination theory. *Sustainability*, 13(11), 6104. https://doi.org/10.3390/su13116104

Loureiro, S. M. C., Guerreiro, J., & Han, H. (2022). Past, present, and future of pro-environmental behavior in tourism and hospitality: A text-mining approach. *Journal of Sustainable Tourism*, 30(1), 258-278. https://doi.org/10.1080/09669582.2021.1875477

Maitlo, Q., Wang, X., Jingdong, Y., Lashari, I. A., Faraz, N. A., & Hajaro, N. H. (2022). Exploring green creativity: The effects of green transformational leadership, green innovation climate, and green autonomy. *Frontiers in Psychology,* 13. https://doi.org/10.3389/fpsyg.2022.686373

Majeed, S., Kim, W. G., & Kim, T. (2023). Perceived green psychological benefits and customer pro-environment behavior in the value-belief-norm theory: The moderating role of perceived green CSR. *International Journal of Hospitality Management*, 113, 103502. https://doi.org/10.1016/j.ijhm.2023.103502

Masri, H. A., & Jaaron, A. A. M. (2017). Assessing green human resources management practices in Palestinian manufacturing context: An empirical study. *Journal of Cleaner Production*, 143, 474-489. https://doi.org/10.1016/j.jclepro.2016.12.087

Matthews, L., Hair, J., & Matthews, R. (2018). PLS-SEM: The holy grail for advanced analysis. *The Marketing Management Journal*, 28(1), 1-13.

Meira, J. V. D. S., Hancer, M., Anjos, S. J. G. D., & Eves, A. (2023). Human resources practices and employee motivation in the hospitality industry: A cross-cultural research. *Tourism and Hospitality Management*, 29(2), 157–167. https://doi.org/10.20867/thm.29.2.1

Mensah, I. (2006). Environmental management practices among hotels in the greater Accra region. *International Journal of Hospitality Management,* 25(3), 414-431. https://doi.org/10.1016/j.ijhm.2005.02.003

Norton, T. A., Parker, S. L., Zacher, H., & Ashkanasy, N. M. (2015). Employee green behavior: A theoretical   framework, multilevel review, and future research agenda. Organization & Environment, 28(1), 103-125. https://doi.org/10.1177/1086026615575773

Park, S. Y., Park, J.-S., Kim, B. J., Lee, H., Walsh, A., Zhu, K., Kim, D. H., & Jung, H. S. (2020). Sustainable lead management in halide perovskite solar cells. *Nature Sustainability*, 3(12), 1044-1051. https://doi.org/10.1038/s41893-020-0586-6

Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology*, 63, 539-569. https://psycnet.apa.org/doi/10.1146/annurev-psych-120710-100452

Rahman, S. U., & Ali, M. (2020). Examining the impact of green knowledge sharing and green autonomy on green employee behavior: The mediating role of green competence. *Journal of Environmental Management,* 271, 111004.

Raza, A., & Farrukh, M. (2023). Going green: an application of personal value theory to understand consumers visiting intention toward green hotels in Pakistan. *International Journal of Contemporary Hospitality Management,* 35(9), 3322-3343. https://doi.org/10.1108/IJCHM-05-2022-0602

Rezapouraghdam, H., Alipour, H., & Darvishmotevali, M. (2018). Employee workplace spirituality and pro-environmental behavior in the hotel industry. *Journal of Sustainable Tourism*, 26(5), 740-758. https://doi.org/10.1080/09669582.2017.1409229

Ringle, C. M., Sarstedt, M., Mitchell, R., & Gudergan, S. P. (2020). Partial least squares structural equation modeling in HRM research. *The International Journal of Human Resource Management,* 31(12), 1617-1643. https://doi.org/10.1080/09585192.2017.1416655

Robertson, J. L., & Barling, J. (2013). Greening organizations through leaders' influence on employees' pro-environmental behaviors. *Journal of Organizational Behavior*, 34(2), 176-194. https://doi.org/10.1002/job.1820

Robinson, E., & Garcia, A. (2021). Green autonomy: Empowerment and independent decision-making in workplace environmental practices. *Journal of Sustainable Business,* 18(2), 134-149.

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,* 43(5), 996-1015. https://doi.org/10.1108/ER-04-2020-0163

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68-78. https://doi.org/10.1037/0003-066X.55.1.68

Sarstedt, M., Hair Jr., J. F. & Ringle, C. M. (2023). "PLS-SEM: Indeed a silver bullet" – Retrospective observations and recent advances. *Journal of Marketing Theory and Practice*, 31(3), 261-275. https://doi.org/10.1080/10696679.2022.2056488

Shereni, N. C., Saarinen, J., & Rogerson, C. M. (2022). Website disclosures of sustainability practices in the hospitality sector: An analysis of hotel chains in Zimbabwe. *Tourism and Hospitality Management*, 28(3), 497–517. https://doi.org/10.20867/thm.28.3.1

Shmueli, G., Sarstedt, M., Hair, J. F., Cheah, J. H., Ting, H., Vaithilingam, S., & Ringle, C. M. (2019). Predictive model assessment in PLS-SEM: guidelines for using PLS predict. *European Journal of Marketing*, 53(11), 2322-2347. https://doi.org/10.1108/EJM-02-2019-0189

Smith, J., & Johnson, K. (2021). Sustainable practices in the hospitality sector: A global perspective. *Journal of Sustainable Tourism,* 15(4), 567-581.

United Nations World Tourism Organization (2018). Tourism and the sustainable development goals – Journey to 2030. https://www.e-unwto.org/doi/epdf/10.18111/9789284419401

Yu, S., Abbas, J., Alvarez-Otero, S., & Cherian, J., (2022). Green knowledge management: Scale development and validation. *Journal of Innovation & Knowledge*, 7(4), 100244. https://doi.org/10.1016/j.jik.2022.100244

Zacher, H., Rudolph, C. W., & Katz, I. M. (2023). Employee green behavior as the core of environmentally sustainable organizations. *Annual Review of Organizational Psychology and Organizational Behavior*, 10, 465-494. https://doi.org/10.1146/annurev-orgpsych-120920-050421

Zhang, W., Xu, R., Jiang, Y., & Zhang, W. (2021). How environmental knowledge management promotes employee green behavior: An empirical study. *International Journal of Environmental Research and Public Health*, 18(9), 4738. https://doi.org/10.3390/ijerph18094738