

"GREEN PATHWAYS: INVESTIGATING EMPLOYEE GREEN BEHAVIOUR AS A MEDIATOR BETWEEN ENVIRONMENTAL KNOWLEDGE AND JOB PERFORMANCE"

Corresponding Author: *Nadia Daud*

PhD Scholar, Department of Management Sciences, SZABIST University, Islamabad, Pakistan
nadiadaud55@gmail.com

Dr. Muhammad Asif Khan

Professor, Department of Management Sciences, SZABIST University, Islamabad, Pakistan
dr.asif@szabist-isb.edu.pk

Abstract

Employee green behaviour is of huge importance because of its positive impact on individuals as well as on organizations. Therefore, the main aim of the present research study is to empirically investigate the effect of employee environmental knowledge on job performance while taking green behaviour as a mediating variable in the model under the lens of the theory of planned behaviour. The data for the present study have been collected through survey-based questionnaires from a sample of 407 employees in the hotel industry of Pakistan. SmartPLS and MPlus software techniques have been applied to analyze the data and test the hypotheses. The findings of the study show that employee environmental knowledge has very little impact on job performance, which is not supported by the results. Whereas, results show the significant positive impact of employee environmental knowledge on green behaviour. Besides, the findings also show the significant positive impact of employee green behaviour on job performance. Moreover, the result of the mediation hypothesis shows that employee green behaviour significantly mediates the relationship between employee environmental knowledge and job performance. The present study has enriched the existing literature on employee green behaviour in the hospitality industry. Further, the study also offers practical implications for industry policymakers and managers that help them in the implementation of green behaviour and enhance employee performance. The present research limitations and future directions are also given at the end of the study.

Keywords: Employee environmental knowledge, employee green behaviour, job performance.

Introduction

Pro-environmental behaviour of employees plays an important role in the workplace (Khalid et al., 2022); therefore, employee green behaviour (EGB) has been introduced in organizations (Ones & Dilchert, 2012). This type of behaviour is supposed to be an effective approach to dealing with environmental issues (Elshaer et al., 2023; Li et al., 2023; Mirahsani et al., 2023) such as natural environmental degradation, waste, climate change, and pollution (Maqsoom et al., 2023). The growing concerns about the impending threat of climate change have prompted organizational and work psychologists to look into employee green behaviour, which tends to protect the environment from negative individual influences (Meyers & Rutjens, 2022; Rashid et al., 2023). Understanding the elements that generate green behaviour is crucial for organizations seeking to promote sustainable practices. Researchers have concentrated on finding individual characteristics that promote green behaviour in employees, with a particular emphasis on its ability to contribute to larger environmental goals. Green behaviour is defined as “employee's actions and behaviours that direct environmental sustainability” (Ones & Dilchert, 2012).

The global rise in environmental concerns has pressured organizations to adopt pro-environmental activities and practices to make firms eco-friendly and competitive (Guijarro & Durendez, 2023), especially in the case of the hotel industry. The hotel industry is considered one of the main sectors that causes environmental issues worldwide, thus receiving huge attention at the international level (Li et al., 2021; Nejati & Shah, 2023; Raihan et al., 2023). Pakistan's Government Clean Green Pakistan Movement (CGPM) initiative also aims to tackle issues of solid and liquid waste management and safe drinking water (WaterAid, 2023) thus

stressing the significance of green behaviour for enhanced job performance and organizational sustainability (Kara et al., 2023).

Employee green behaviour includes actions such as recycling, making suggestions to enhance the sustainability of the environment, using water sparingly (Meyers & Rutjens, 2022), involving in environmental protection at work, and completing assigned duties and responsibilities in environmentally friendly manners (Bissing-Olson et al., 2013), saving electricity (Aroonsrimorakot et al., 2019), reusing disposable food products and paper, monitoring emissions from operations, and using modern garbage incinerators to heat buildings, etc. (Ones & Dilchert, 2012; Stafford & Graul, 2020). Despite the great importance of employees' green behaviour in the literature, it seems there is a need to determine further what drives employees' green behaviour (Baydeniz & Kart, 2024; Vanisri & Chandrapadhy, 2024).

Besides, previous studies have found that employees who are aware and enthusiastic about their organization's green practices and policies can boost customer satisfaction and loyalty, thereby indirectly enhancing their performance indicators (Ba & Cao, 2023). Thus, employee environmental knowledge is considered an important aspect of employee green behaviour. Environmental knowledge refers to people's understanding of environmental issues and solutions (Keles et al., 2023), demonstrating how they are accountable for environmental concerns and how their knowledge of the environment influences their behaviour in organizations. Employees' environmental knowledge is considered one of the most important determinants of their environmentally friendly behaviour (Maqsoom et al., 2023; Zhang et al., 2021).

The phenomenon of employee job performance is important for the high productivity of organizations and enables firms to achieve their goals and objectives efficiently and effectively (Alshemmari, 2023). It is defined as "something that individuals do and generate value for the organizations (Campbell & Wiernik, 2015). Employees who excel in their roles tend to provide higher-quality work, which can improve the organization's standards. Outstanding job performance frequently leads to superior customer service, which promotes higher customer satisfaction and loyalty (Sun et al., 2023). When employees perform well and feel valued, their job satisfaction rises, resulting in improved retention rates and lower turnover costs. They often experience reduced stress and clearer job responsibilities, leading to enhanced job performance (Farooq et al., 2024). Thus, employee green behaviour is considered the main determinant of enhanced job performance.

Whereas, most of the previous studies on the topic of green behaviour have examined green leadership, green culture, green human resource management (HRM), and corporate social responsibility (CSR) (Al-Sawy, 2023; Ansari & Irfan, 2023; Mirahsani et al., 2023; Perez et al., 2023; Rashid et al., 2023; Shah & Soomro, 2023; Suliman et al., 2023; Veerasamy et al., 2023) as the main factors that influence green behaviour. In contrast, studies have examined organizational environmental performance (Ngubdo & Ibrahim, 2023) and well-being (Zhang et al., 2021) as outcomes of green behaviour. Whereas to respond quickly to the rising issues and challenges of environmental sustainability in the hotel sector, specifically in the context of Pakistan, employee green behaviour is the main topic of concern. Thus, there have been calls from previous researchers to further explore the topic of employee green behaviour in depth (Vanisri & Chandrapadhy, 2024; Nuswanto et al., 2023). Therefore, the present study has advanced the literature in this aspect by uncovering the impact of employee environmental knowledge (Baydeniz & Kart, 2024; Li et al., 2023; Zacher et al., 2023) on employee green behaviour and the impact of green behaviour on job performance (Tang et al., 2023; Zacher et al., 2023) in the hotel industry of Pakistan.

Theory and Hypotheses Development

Theory of Planned Behaviour (TPB)

The theory of planned behaviour (TPB) is originally derived from a theory of reasoned action. It has been widely used in social sciences to explore the different types of individual behaviours (Erul & Woosnam, 2022). Ajzen (1985) proposed the theory, and the researchers have been using this theory to predict and explain an individual's behaviour. The theory has the attitude, subjective norm, and perceived behavioural control dimension separately, which leads to the intentions and then eventually to the behaviour (Hasan et al., 2019). The theory states that individual behaviour is controlled by intentions; thus, behavioural intentions are the core of the individual's behaviour. According to the application of the theory (Ajzen, 1991), the individual attitude dimension, such as employee environmental knowledge, develops employee intentions to engage in specific behaviour and eventually develops their actual behaviour, such as green behaviour, which in turn increases their job performance. Therefore, the theory has been used in the present research to determine the impact of attitude dimensions, i.e. employee environmental knowledge, on employee green behaviour, which further leads towards higher job performance.

Employee Environmental Knowledge and Job Performance

Maqsoom et al. (2023) defined knowledge as a person's comprehension of information depending on how closely it relates to personal experiences, skills, and capabilities. Ecological knowledge is the sum of a person's information and understanding of environmental problems and related factors (Zsoka et al., 2013). The most important elements affecting a person's ecological awareness are their environmental knowledge and their propensity for engaging in practical behaviours (Maqsoom et al., 2023; Zsoka et al., 2013), which in turn enhance their job performance. According to the study by Paracha et al. (2012), improving employee performance is a top priority for every organization. According to the researchers, the effectiveness of employees is crucial for any business. Employee motivation, contentment with their work, influence, support, and knowledge all have a direct impact on how well an organization performs (Jamali et al., 2022). Employee's knowledge related to their environment helps them enhance their job performance.

H1: Employee environmental knowledge has a significant positive impact on their job performance.

Employee Environmental Knowledge and Employee Green Behaviour

Employee environmental awareness has a significant impact on their green behaviour. Environmental knowledge utilization refers to the use of knowledge related to the environmental components gathered over time (Zhang et al., 2021). Employees will not make the best environmental decisions without inaccurate environmental information (Su & Swanson, 2019). Afsar et al. (2016) define environmental awareness as a person's "level of environmental knowledge, ability to change his or her attitude towards the environment, and awareness of environmental issues and their causes." Even when knowledge is no longer regarded as a reliable predictor of behaviour, it is still important to get beyond psychological obstacles like misrepresentation, fear, or unconsciousness (Levine & Strube, 2012). Research indicates that several environmental aspects, including knowledge, awareness, and concern, might affect an individual's green behaviour (Chan et al., 2014). The more a person knows about waste management, such as recycling, the more likely they are to exhibit green behaviours (Tudor et al., 2008). Thus, individuals with increased environmental knowledge tend to buy eco-friendly products, consume organic produce, and recycle more.

H2: Employee environmental knowledge has a significant positive impact on employee green behaviour.

Employee Green Behaviour and Job Performance

The term "performance," also known as "result," refers to what has been generated by individual workers and is frequently used in the notion of performance (Zhang et al., 2020). Performance is one of the most crucial components of every institution's organizational goal (Alkhasawneh, 2018). According to the study by Jamali et al. (2022), performance is the interaction between achievements, behaviour, or outcomes accomplished, and group behaviour with a tendency to focus on results attained. According to the study by Paracha et al. (2012), improving employee performance is a top priority for every organization. In recent years, businesses have placed a greater emphasis on integrating environmental objectives into their plans and directives (Olugu et al., 2022). Employees are expected to identify risks, plan innovative green initiatives, and take into account current environmental challenges in the course of their work to increase their performance (Ansari & Irfan, 2023). Extra-role behaviours could range from using unbleached paper and utilizing office lights sparingly to conducting self-guided energy audits and finding further ways to cut costs and conserve resources (Ansari & Irfan, 2023). The study by Melnyk et al. (2003) stated that organizations must modify and adapt their supply chains, suppliers, and internal operations to improve their environmental performance. Fostering environmentally friendly behaviour in employees is yet another crucial aspect of creating an environmentally conscious firm and improving employee performance (Bohlmann et al., 2018).

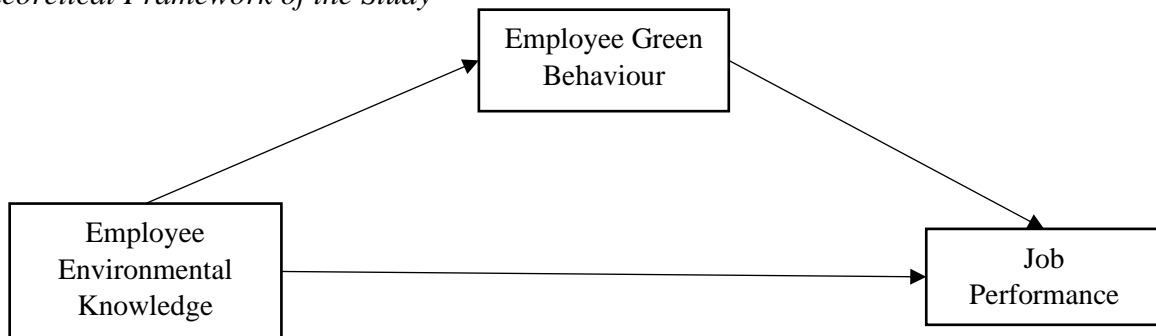
H3: Employee green behaviour has a significant positive impact on job performance.

Employee Green Behaviour as a Mediator between Employee Environmental Knowledge and Job Performance

Individual performance is a function of motivation and aptitude or a result of multiplication (Forster & Fenwick, 2015). It is difficult to balance the demands of employees' well-being, including access to essentials like water, transportation, and heating/cooling, with the needs of the natural environment which can present challenges for organizations (Malsha et al., 2020). Encouraging employees to engage in green practices enhances both their job performance and environmental stewardship (Farooq et al., 2021). There are several studies published in the last few years to examine the antecedents of employee green behaviour (e.g., Bissing-Olson et al., 2013; Kim et al., 2015; Norton et al., 2015), but the impact of green behaviour on job performance remains unclear (Bohlmann et al., 2018). Besides, the green behaviour exhibited by employees significantly influences how supervisors rate their overall job performance (Brio et al., 2007). The inclusion of environmental considerations in an organization's overall strategy is crucial, and management must be held responsible for achieving environmental performance targets and improving employee performance (Chinander, 2001).

H4: Employee green behaviour mediates the relationship between employee environmental knowledge and job performance.

Figure 1:
Theoretical Framework of the Study



Methodology

The present research method is explanatory (deductive reasoning), correlational, and quantitative, using a survey-based research design to test the proposed hypotheses. The population for the present research study were the professional individuals (i.e., operational-level employees) from the 3-star and above hotel industry of Pakistan who were the main focus of this particular inquiry. The questionnaire consisted of two sections; the first section was to capture data related to the demographics, while the second section was comprised of study-related variables, where every respondent provided a rating related to the study variables on a 5-point Likert scale. The present research used a purposive sampling technique, as it is an extensively used technique in organizational studies (Bryman, 2016). There are different formulas to calculate the sample size for known and unknown populations. For the present research, the population was unknown; thus, the study has distributed 450 questionnaires on a time-lag basis to collect the data from participants. The sample size was selected according to Krejcie and Morgan's (1970) sample size determination table and Cochran's formula (1963), which suggest the sample size of 384 is large enough for an infinite population. Therefore, 450 questionnaires were distributed to collect the data. Whereas 407 total valid responses were received after excluding improper questionnaires. The study variables were measured using different scales developed and used by the previous authors. The first variable of the study was employee environmental knowledge measured by using a 4-item scale developed and used by Gatersleben et al. (2002). The next variable of the study, employee green behaviour, was measured by utilizing a 6-item scale of Bissing-Olson et al. (2013). The last variable, job performance, was measured using a scale by Koopmans (2015), which has 13 items.

Results

The present research study has collected quantitative data to examine the relationship between the study variables. Initial tests were run using SmartPLS, whereas MPlus was used for further analysis and hypothesis testing. Before testing hypotheses, the demographics of the study respondents were analyzed. The results show that a total of 407 individuals participated in the survey, out of which 64.1% were male and 35.9% were female. Most of the respondents in this survey were between 20 and 30 years of age, whereas most of the participants had bachelor's degrees, which is 42.8%, and experience of 5 to 10 years, which was almost 37.8%.

Table 1

Demographics Analysis

Demographic Variables	Percentage (%)
Gender	
Male	64.1
Female	35.9

Age (in Years)	
20-30	53.1
30-40	35.1
40-50	7.9
Above 50	3.9
Qualification	
Intermediate	30.0
Bachelor's	42.8
Master's	23.6
MPhil	3.7
Work Experience (in Years)	
1-5	11.3
5-10	37.8
10-15	33.9
15-20	11.8
Above 20	5.2

N = 407

After the demographics analysis, a descriptive analysis of the study was conducted. Table 2 shows that all variables have mean values above 3.00, suggesting that respondents tend to "agree" based on the Likert scale used in the present research study.

Table 2

Descriptive Statistics of the Study Variables

Variables	Mean	Std. Deviation
EEK	3.745	0.939
EGB	3.809	0.807
JP	3.562	0.828

Note: EEK = Employee Environmental Knowledge, EGB = Employee Green Behaviour, JP = Job Performance

Further data analysis was carried out, and the present research study evaluated the loadings of each item against their constructs along with the reliability and validity analysis. Table 3 represents the item loading, alpha values, AVE, and composite reliability; all values were in the suggested threshold (Hair et al., 2014) and show the internal consistency and reliability of the scale.

Table 3

Validity and Reliability of Constructs

Variable	Items	Loadings	α	AVE	CR
EEK	EEK1	0.812	0.848	0.760	0.905
	EEK2	0.856			
	EEK3	0.943			
EGB	EGB1	0.783	0.902	0.720	0.927
	EGB2	0.882			

	EGB3	0.924			
	EGB5	0.736			
	EGB6	0.903			
JP	JP1	0.791	0.942	0.661	0.951
	JP2	0.789			
	JP3	0.820			
	JP6	0.582	0.848		
	JP7	0.866			
	JP8	0.899			
	JP9	0.837	0.902		
	JP10	0.677			
	JP11	0.919			
	JP12	0.886			

Note: EEK = Employee Environmental Knowledge, EGB = Employee Green Behaviour, JP = Job Performance

Table 4

Heterotrait-Monotrait (*HTMT*) Ratio 's

	EGB	EEK	JP
EGB	***		
EEK	0.311	***	
JP	0.725	0.303	***

Note: EEK = Employee Environmental Knowledge, EGB = Employee Green Behaviour, JP = Job Performance

Table 4 determined the discriminant validity of the scales used in the present study, and it shows that the HTMT ratio value for all study variables is less than 0.85, which is considered best. Thus, the present study concludes that this research has no significant discriminant validity issue.

Table 5

Hypotheses Testing

Hypotheses	Relationships	Estimates	SE	p-value	Decision
H1	EEK -> JP	0.023	0.045	> 0.05	Not Supported
H2	EEK -> EGB	0.110	0.045	< 0.05	Supported
H3	EGB -> JP	0.384	0.096	< 0.05	Supported
H4	EEK -> EGB -> JP	0.042	0.021	< 0.05	Supported

Note: EEK = Employee Environmental Knowledge, EGB = Employee Green Behaviour, JP = Job Performance

The hypotheses analysis found an insignificant relationship between employee environmental knowledge and job performance. Whereas, results show that employee environmental knowledge has a significant positive impact on employee green behaviour. Similarly, employee green behaviour was found to be positively and significantly related to job performance. The

results presented in Table 5 also revealed that employee green behaviour mediates between employee environmental knowledge and job performance.

Discussions

Contrary to the expectation of the proposed relationship, the study analysis found an insignificant relationship between employee environmental knowledge and job performance. These findings indicate that while individuals may have environmental knowledge, how they apply it to their jobs is determined by other factors such as resource availability, organizational support, and job role alignment. If environmental knowledge is not integrated into performance measures or job responsibilities, it may not have an impact on performance results (Jackson et al., 2011). Different factors may cause the non-acceptance of the hypothesis. The literature emphasizes that employee environmental knowledge may be theoretical and not directly applicable to specific duties or job requirements. Thus, without real application chances, information may become useless (Ones & Dilchert, 2012). Besides, knowledge alone may not be adequate without motivation and psychological ownership to act on it. Employees require intrinsic or extrinsic motivators to apply their environmental knowledge in ways that improve performance (Wang et al., 2020).

Further, the results of the data analysis significantly supported the hypothesis related to employee environmental knowledge and green behaviour while highlighting the role of environmental knowledge in the enhancement of employees' green behaviour at work. Employee environmental knowledge has been suggested as a driving force for green behaviour in the workplace (Li et al., 2023; Zacher et al., 2023). Research indicates that as knowledge related to the environment increases in an organization, employees' green behaviour also increases (Chan et al., 2014; Zsoka et al., 2013). This shows that employees with green knowledge influence other members and serve as a source of inspiration at the workplace. Therefore, environmental knowledge plays an important role in the enhancement of green behaviour in the hotel industry of Pakistan.

Moreover, the study analysis supported the postulation between employee green behaviour and job performance. The results found that employees who engage in environmentally friendly behaviours perform better on the job. Such behaviour demonstrates conscientiousness, initiative, and a dedication to organizational principles, which translate into increased productivity and effectiveness in their employment. Previous studies by Alsetoohy et al. (2022) and Kim et al. (2019) confirmed this association. Hence, hotels/organizations are required to focus on enhancing environmental performance by encouraging green behaviour.

This research makes several significant contributions. The study findings indicate that employee environmental knowledge is critical in encouraging green behaviour among hotel industry employees, thereby improving job performance. The study also makes a substantial theoretical contribution by revealing previously unknown correlations between employee green behaviour and job performance (Sivalingam & Arulrajah, 2023; Zacher et al., 2023). The specific link between these variables has received less attention. The unsupported hypothesis between employee environmental knowledge and job performance is another important contribution of the study that opens door for the future researchers to investigate this link. Finally, the present study has enhanced the topic of employee green behaviour by applying the theory of planned behaviour. This study provides valuable insights into how promoting green behaviour can yield both organizational and individual benefits.

The current study has significant practical implications for strengthening sustainability initiatives in the hotel industry. First, the findings show that adopting green behaviours improves employee performance significantly, emphasizing the need to incorporate sustainability into organizational processes. To do this, the hotel industry should prioritize comprehensive environmental education and training programs for staff to increase their

engagement in green practices (Tang et al., 2023). These programs could include workshops, awareness campaigns, and on-the-job training that are specifically designed to effectively encourage sustainable behaviours. Besides, organizations/hotels must also incorporate environmental sustainability into their fundamental human resource management procedures (Renwick et al., 2013). Hotels may foster a more profound and long-term commitment to sustainability among employees while also improving operational performance and organizational reputation by methodically connecting human resource strategy with environmental goals.

Limitations and Recommendations

The present research study found very little non-significant impact of employee environmental knowledge on job performance; it opens the door for future researchers to further examine this relationship. Besides, the present study was conducted in the hotel industry of Pakistan (3-star and above). Thus, the interpretation of the results may be carefully applied to developed countries, other industries, and cultures. Second, the present research study has collected quantitative data via self-administered survey-based questionnaires to examine the impact of employee environmental knowledge on employee green behaviour and job performance. Third, the study has neglected the impact of moderating variables in the model. Based on the identified limitations, future researchers recommended collecting data from other sources; they can also collect qualitative data to deepen the understanding of the topic. Future studies can also replicate the same model in different countries or industries. Future studies are also recommended to explore the impact of moderating or contextual variables. It would also be remarkable to explore other factors that can be used as a mediator in the current model.

Conclusions

The current research gives important insights into the dynamics of employee environmental knowledge, green behaviour, and job performance in the hotel industry. The findings show that employee environmental knowledge is critical in promoting green behaviour among employees. This emphasizes the necessity of providing employees with the knowledge and awareness required to engage in ecologically sustainable operations. Furthermore, the study found a strong positive correlation between employee's green behaviour and job effectiveness. This suggests that employees who actively adopt green practices not only help the organization's sustainability goals but also improve job performance, which benefits both the organization and its workforce.

These findings emphasize the importance of incorporating environmental education and sustainability activities into organizations' operating plans. Organizations can establish a workforce that is both environmentally sensitive and productive, ultimately contributing to the attainment of larger economic, social, and environmental goals. Besides, the present study is based on the theory of planned behaviour (Ajzen, 1991) and demonstrates how attitudinal dimensions, specifically environmental awareness, serve as critical predictors of employee green behaviour, showing how environmental attitudes significantly convert into green behaviour and enhance employee performance. The study highlights the importance of building sustainable behaviour, allowing people to combine their environmental ideals with practical workplace activities.

The findings contribute to the expanding discussion about sustainability by providing practical implications for businesses and organizations that want to incorporate environmental responsibility into their basic operations. Organizations can improve employee performance and overall organizational effectiveness by encouraging green behaviour. This dual focus on environmental and operational outcomes emphasizes the strategic importance of integrating sustainability into business processes.

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