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## Impact of Green HR Development Practices on Sustainable Workplace Behavior in Bangladeshi Manufacturing Industries: The Moderating Role of Environmental Concern

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**Abstract:** This study examines the influence of green human resource development practices—specifically Green Orientation Training (GOT), Environmental Workshops and Seminars (EWS), and On-the-Job Eco-Skill Development (OJESD)—on employees' Sustainable Workplace Behavior (SWB), with Environmental Concern (EC) as a moderator. It focuses on key manufacturing industries in Bangladesh (i.e., garments, leather, and pharmaceuticals); data collection was conducted via a structured survey and analyzed using PLS-SEM. Findings reveal that GOT and OJESD have a stronger positive impact on SWB ( $\beta=0.360$ ,  $p<0.001$ , and  $\beta=0.305$ ,  $p=0.000$ ) while EWS shows a comparatively weaker effect. Notably, EC negatively moderates the GOT-SWB relationship ( $\beta=-0.111$ ,  $p=0.016$ ), indicating that basic orientation is less effective for highly concerned employees. Theoretically, this research extends training mechanisms by disintegrating them into three types (e.g., GOT, EWS, and OJESD). The major contribution of the study lies in its strong suggestions for green training initiatives for Bangladesh's manufacturing industries. It advises managers to prioritize foundational and practical training while customizing programs to avoid redundancy for highly environmentally conscious individuals. It also asserts that green training programs must focus on changing employees' hearts, not just organizing mundane sessions for external audit compliance.

**Keywords:** Bangladesh, environmental concern, green human resource development, manufacturing industries, PLS-SEM, sustainable workplace behavior.

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## INTRODUCTION

It is an open secret that humans are largely responsible for continuous ecological imbalance, depletion of natural resources, and environmental decline worldwide (Bangwal & Tiwari, 2019; Chu-Van et al., 2018). Sustainability has become an immensely important global issue. The essence of sustenance that comes from nature and acts as input to large corporations is getting depleted day by day (Chaudhary, 2020). This greater concern has led firms toward the adoption of sustainable mechanisms for doing their business. Governments, regulatory bodies, and international organizations expect that businesses become greener and more sustainable in their operations (Abdo & Edgar, 2025). As a result, many firms are expanding various eco-friendly initiatives so that their employees' daily activities are less detrimental to the environment (Bangwal, Chaudhary, Kumar, Oberoi, & Kumar, 2025). With the aim of resolving these issues, GHRM concerning sustainable workplace behavior has emerged.

GHRM refers to greening the regular HRM functions of staffing, training, appraising, compensating, and developing a green-minded workforce that prioritizes and lives by eco-friendly values, behaviors, and practices (Bangwal et al., 2025). It is a blueprint that warrants that environmental stewardship becomes an essential part of the company's culture (Abdo & Edgar, 2025). Previous studies suggest that green training plays the most crucial role among all other areas of GHRM (Amrutha & Geetha, 2021; Jabbour, 2013) since it helps disseminate environmental knowledge among employees easily and makes them aware of sustainability issues.

Green training contributes not only by building employees' organizational commitment (Kim, Kim, Choi, & Phetvaroon, 2019) but also by improving organizational financial performance environmental performance (Pham, Thanh, Tučková, & Thuy, 2020), and green innovation (Singh, Del Giudice, Chierici, & Graziano, 2020). There are very few studies that have assessed the role of green training in boosting up the morale of employees to exhibit sustainable workplace behavior with employees' environmental concern functioning as a moderator (Kim et al., 2019). Hence, this study aims to focus on how Green Orientation Training (GOT), Environmental Workshops and Seminars (EWS), and On-the-Job Eco-skill Development (OJESD) affect the Sustainable Workplace Behavior (SWB) of the employees. Moreover, there is a moderator in this relationship, Environmental Concern (EC), which is a novel addition to this framework. The central aim of this investigation is to empirically examine how the green initiatives (GOT, EWS, and OJESD) lead to employees' environmental actions (SWB) and how their individual values/philosophy (EC) come into play in this relationship.

The framework of the study is firmly based on two crucial theories, AMO (Ability-Motivation-Opportunity), and VBN (Value-Belief-Norm) Theory. AMO theory claims that employees' performance is the result of three combined factors: ability (they need to possess required skills and abilities), motivation (the inner urge to contribute), and proper opportunity at their workplace. In line with our study's framework, AMO theory explains the GOT, EWS, and OJESD (H1-H3) variables, since these factors act as critical enablers of employee ability building and instilling motivation. The GOT and OJESD are responsible for developing employee skills and knowledge base. EWS are particularly designed for motivating them so that they engage in sustainable workplace behavior (Renwick, Redman, & Maguire, 2013). The theory also emphasizes the importance of providing proper 'opportunity' to employees, which is manifested through ensuring various support from the top-level management of the organization.

The Value-Belief-Norm theory posits that employee sustainable behavior results from their personal moral norms, which are activated by their recognition of the aftermaths of their actions. The theory underpins the moderating mechanism of environmental concern between the relationships of GOT, EWS, and OJESD with SWB (H4-H6). Therefore, while green training, workshops, and eco-skill development programs aim to enhance employees' sustainable workplace behavior with the 'how to' approach, environmental concern, being the moderator, focuses on the 'willingness' to translate the learning from those training programs into consistent workplace action.

## LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

### **Green Orientation Training (GOT)**

Orientation programs, which may take the form of formal or informal sessions or a mix of both initiated by the management of the organization (Louis, Posner, & Powell, 1983) to orient the new employees towards their jobs, colleagues or staffs, and the overall culture of the organization (Klein & Weaver, 2000). The core purpose of orientation programs is to socialize the new hires and provide them with essential information on organizational practices (Anderson, Cunningham-Snell, & Haigh, 1996). Green orientation training is a form of foundational training initiative that aims to equip newcomers with the necessary green competencies so that they get a clear message on organizational sustainability concerns from day one at their office. This type of training helps the new or existing employees to internalize the firm's commitment towards green values and motivates them to shape their behavior accordingly (Dumont, Shen, & Deng, 2017). By clarifying sustainable goals and providing necessary guidelines, green orientation training equips the employees with a green mindset to do their routine operations in the organization (Norton, Parker, Zacher, & Ashkanasy, 2015; Paillé, Chen, Boiral, & Jin, 2014) and thereby directly affecting the sustainable workplace behavior of the employees.

Thus, we can hypothesize that,

*H<sub>1</sub>: Green Orientation Training (GOT) has a positive and significant effect on employees' sustainable workplace behavior.*

### **Environmental Workshops and Seminars (EWS)**

Environmental workshops and seminars provide an interactive, in-depth learning experience that goes beyond introductory training. These forums facilitate the dissemination of specialized knowledge, showcase practical case studies, and encourage peer discussion, collectively enhancing employees' perceived competence in performing green tasks (Mousa & Othman, 2020). Moreover, workshops provide a collaborative environment where employees can discuss environmental challenges, leading to greater environmental awareness. Frequent seminars reinforce the organization's 'green climate,' signaling to employees that sustainability is a persistent priority, not a one-time initiative. The participatory nature of workshops helps employees develop social norms and shared commitments toward sustainability within the organization; as a result, committed employees can transfer knowledge at their workplaces, manifesting through their green actions (Kim et al., 2019; Raineri & Paillé, 2016).

Thus, we can hypothesize that,

*H<sub>2</sub>: Environmental Workshops and Seminars (EWS) have a positive and significant effect on employees' sustainable workplace behavior.*

### **On-the-Job Eco-Skill Development (OJESD)**

On-the-Job Eco-skill Development is the method of acquiring and enhancing the knowledge, skills, abilities, and attitudes required to perform a task in an environmentally sustainable and resource-efficient manner. The concept of OJESD aligns with the theory of experiential learning, which posits that skills honed through direct practice and real-time application are more effectively internalized and translated into habitual behavior. On-the-Job Eco-Skill Development, involving hands-on coaching, job-specific green task assignments, and real-time feedback, directly enhances employees' practical capabilities and self-efficacy to perform sustainability-related actions (Daily, Bishop, & Govindarajulu, 2009). This experiential learning implants sustainable practices into core job routines, making them less of a separate initiative and more of an integrated, competent performance, thus having a direct effect on manifest sustainable workplace behavior (Ren, Tang, & Jackson, 2018; Yusliza et al., 2019).

Thus, we can hypothesize that:

*H<sub>3</sub>: On-the-Job Eco-Skill Development (OJESD) has a positive and significant effect on employees' sustainable workplace behavior.*

**Environmental Concern as a Moderator**

Environmental concern refers to an individual’s general affective and cognitive evaluation of the importance of environmental problems (Dunlap, Van Liere, Mertig, & Jones, 2000). It refers to the degree to which people are worried about environmental problems and show willingness to solve them (Paul, Modi, & Patel, 2016). Numerous studies confirm that employees’ environmental concern is the leading cause of employees’ environmentally friendly behavior (Aydin & Aydin, 2022; Ng, Ho, & Sia, 2021; Pierce, Dalton, & Zaitsev, 1999; Stern, Dietz, & Kalof, 1993). Two prominent theories, that is, the “Value-Belief-Norm (VBN) theory” (Stern, Dietz, Abel, Guagnano, & Kalof, 1999) and the “supplies-values fit theory” (Edwards, 1996; Edwards & Shipp, 2007), largely explain the ways in which individual values affect their behaviors. The VBN theory offers a framework for understanding the motivations of people towards their pro-environmental behaviors. The theory explains how the deeply rooted values of individuals affect their beliefs, norms and ultimately behavioral actions (Stern et al., 1999). A notable number of studies have confirmed that employees’ personal sustainability principles significantly affect their pro-environmental behaviors (Chou, 2014; Schultz et al., 2005).

According to the “supplies-values fit theory”, to ensure positive employee work attitudes and behaviors, there must be compatibility between their individual values and organizational values. From the context of our study, environmental concern serves as a moderating variable, and fits into the model in such a way that when employees having pre-existing environmental values are channeled similar values held by the organization via GOT, EWS, and OJESD, the green performance of employees tend to be high because of this congruence between individual values and organizational values (Edwards, 1996; Edwards & Shipp, 2007). Thus, high environmental concern serves as a catalyst that heightens the translation of green training initiatives into consistent behavioral outputs, whereas low environmental concern may weaken the effectiveness of such initiatives (Graves, Sarkis, & Zhu, 2013; Norton et al., 2015).

Hence, we can hypothesize that,

*H<sub>4</sub>: EC moderates the relationship between GOT and SWB; the positive effect is stronger with high EC.*

*H<sub>5</sub>: EC moderates the relationship between EWS and SWB; the positive effect is stronger with high EC.*

*H<sub>6</sub>: EC moderates the relationship between OJESD and SWB; the positive effect is stronger with high EC.*

Thus, based on the detailed literature discussed above and the subsequent formation of the hypotheses, the following conceptual framework (shown in Figure 1) has been developed and examined in this study.

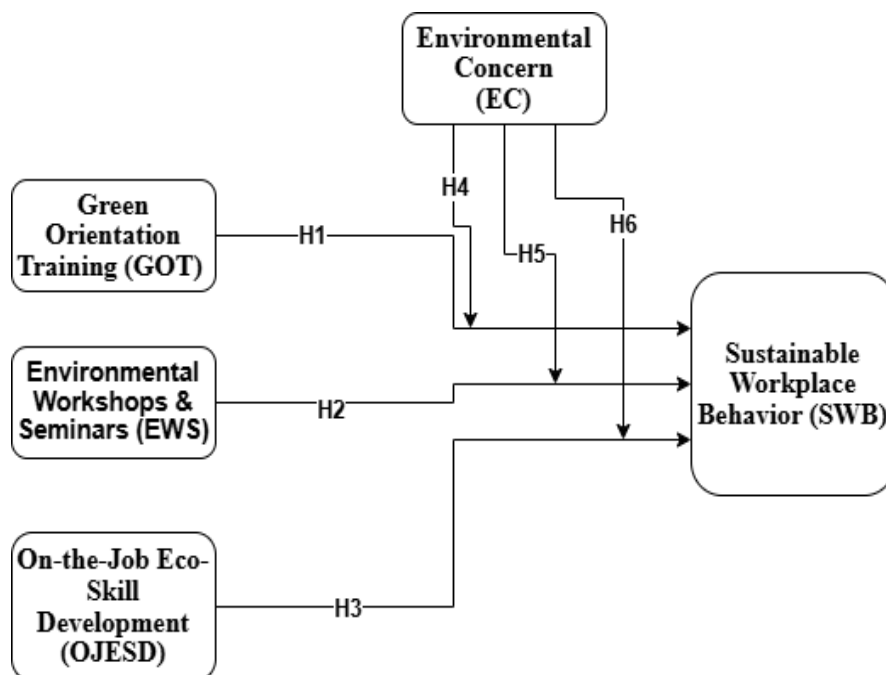


Figure 1: Conceptual framework of the study

## MATERIALS AND METHODS

### Data Collection and Sample

To conduct the study, data were gathered from employees working in three large manufacturing industries (e.g., Ready-made Garments, Leather, and Pharmaceuticals) in Bangladesh. The manufacturing sector is largely responsible for environmental degradation in developing economies; hence, they are being pressured to comply with environmental regulations in their activities (Yasir, Majid, & Qudratullah, 2020). Participants of the study were chosen based on convenience, a non-probability sampling technique. A total of 480 structured questionnaires were distributed via direct email, professional networks, and LinkedIn groups. The data collection period began on 15 September 2025 and ended on 15 November 2025. Out of 480 respondents, 300 completed responses were received and could be used for further analysis after being screened for completeness and consistency, yielding a usable response rate of 62.5%. In the questionnaire, all key construct items were rated using a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). Data confidentiality, voluntary participation, and other ethical considerations were strictly observed during the data collection period. Table 1 exhibits the complete demographic profile of the respondents.

**Table 1: Respondents' demographic information**

Demographic variables	Category	Frequency	Percent
Gender	Male	142	47.3
	Female	158	52.7
Age	18–24 years	54	18
	25–34 years	89	29.7
	35–44 years	83	27.7
	45–54 years	48	16
	55 years and above	26	8.7
	Below SSC/Equivalent	16	5.3
Education Level	SSC/Equivalent	41	13.7
	HSC/Equivalent	85	28.3
	Bachelor's Degree	100	33.3
	Master's Degree or higher	58	19.3
Job Position/Level	Operator/Worker (e.g., sewing machine operator in RMG)	56	18.7
	Supervisor/Line Chief	75	25
	Mid-level (Officer/Senior Officer)	82	27.3
	Managerial (Manager/Senior Manager)	56	18.7
	Executive/Top Management	31	10.3
Work Experience/Tenure in Current Organization	Less than 1 year	44	14.7
	1–5 years	110	36.7
	6–10 years	88	29.3
	11–15 years	37	12.3
	More than 15 years	21	7
Department/Functional Area	Production/Operations	42	14
	Human Resources/Administration	58	19.3
	Quality/Compliance	70	23.3
	Maintenance	64	21.3
	Other (please specify)	66	22

### Measurement of the Constructs

The measurement scales for the constructs were adapted from well-established prior studies. To ensure cultural and contextual relevance for respondents in Bangladeshi industrial sectors (e.g., RMG, Leather, and Pharmaceuticals), some small wording adjustments were made. The time and resource constraints associated

with large-scale data collection in industrial settings limited the feasibility of conducting a pilot study prior to the main survey. However, the adapted items were carefully reviewed by two academic experts in GHRM and sustainability (one from Bangladesh and one international) for content validity, clarity, and appropriateness.

To measure GOT, a five-item scale extracted from the work of Dumont et al. (2017) and Pham, Tučková, and Jabbour (2019) was employed. Sample item includes: “My organization arranges structured orientation training for new employees to educate about our environmental policies and sustainable goals.” The EWS was measured using a five-item scale extrapolated from the construct titled ‘Green Employee Involvement’ developed by Pham et al. (2019). Sample item includes: “The organization offers workshops and seminars to improve employees’ environmental behavior and exchange knowledge among them”. OJESD was measured using a five-item scale developed by Cabral and Dhar (2019). Sample item includes: “The organization provides skills in recycling”.

In order to measure the dependent variable, Sustainable Workplace Behavior (SWB), we got the idea from Kim et al. (2019) and Bissing-Olson, Iyer, Fielding, and Zacher (2013). Sample items include: “At office, I try to avoid unnecessary printing to save paper” and “I take initiative to act in environmentally-friendly ways at my job”.

Finally, to measure EC, the moderating variable in the study, we used a five-item scale under the construct of ‘Environmental belief’ developed by Kim et al. (2019). Sample items include: “Humans interfering with nature produces disastrous consequences”, “If things continue on their present course, we will soon experience a major ecological catastrophe”.

### **Analytical Approach**

Primary data processing and descriptive analyses were conducted using IBM SPSS Statistics (version 29). The software was used for data entry, coding, and cleaning. We screened the data for missing values, which were minimal (no more than 5 percent per item), and replaced them with the variable mean. Both skewness and kurtosis values were well within the acceptable range, and outliers were examined using Mahalanobis distance. Common method bias was checked using the Harman single-factor test; the variance explained by the first factor was only 38.4%, which is less than 50%, indicating it was not a matter of concern. Finally, descriptive statistics, correlation, and demographic profiles were generated in SPSS.

The analysis was conducted using PLS-SEM in SmartPLS 4 software. PLS-SEM is valuable for several reasons: its suitability for predictive research and theory development with complex models, its ability to handle non-normal data and moderation effectively, and its robustness with moderate sample sizes (Hair et al., 2021). Moreover, this approach is well established in the fields of GHRM and sustainability.

Moderation was assessed by introducing interaction terms into the structural model using the product indicator approach in SmartPLS 4, following established PLS-SEM procedures (Hair, 2014; Hair et al., 2021). Specifically, for each moderated relationship (EC × GOT, EC × EWS, EC × OJESD), all indicators of the predictor construct were multiplied by all indicators of the moderator (Environmental Concern) after mean-centering to reduce multicollinearity. The resulting product indicators were then modeled as a reflective higher-order construct representing the interaction term. This approach is appropriate for reflective constructs and provides unbiased estimates of moderation effects in PLS-SEM.

## **ANALYSIS AND RESULTS**

### **Evaluation of Measurement Model**

A comprehensive assessment of the reliability and validity of the study was carried out to ensure the robustness of the measurement model. While assessing the internal consistency of the indicators, most of the items were found to have crossed the recommended minimum of 0.70. However, three items (GOT1, OJESD1, and EC1) with lower loadings were removed following PLS-SEM guidelines to enhance model stability and interpretability. Subsequently, the values of both Cronbach’s alpha and composite reliability showed greater compliance, each exceeding the acceptable benchmark of 0.70. The Convergent validity of the model was very much fitting, showing the AVE of each construct surpassing the threshold value of 0.50. Two popular

approaches were used for assessing the discriminant validity. Table 3 presents the discriminant validity assessment based on the Fornell and Larcker criteria, while Table 4 reports the HTMT ratio results. Findings indicate that each construct shares more variance with its own indicators than with any other construct, satisfying the Fornell-Larcker condition. Additionally, the HTMT analysis further supports discriminant validity, as all ratio values are below the recommended threshold of 0.85.

Finally, to check for issues with multicollinearity, Variance Inflation Factors (VIF) were computed for all indicators, which showed that all VIF values were below 5, confirming that multicollinearity was not a concern. Table 2 presents the comprehensive results for factor loadings, reliability, convergent validity, and VIF analysis.

**Table 2: Factor loadings, reliability, convergent validity, and VIF analysis**

Constructs	Factor Loadings	Cronbach's Alpha	Composite Reliability	AVE	VIF
GOT		0.947	0.951	0.863	
GOT1	0.347				5.894
GOT2	0.924				3.894
GOT3	0.928				4.255
GOT4	0.937				4.380
GOT5	0.926				4.210
EWS		0.950	0.957	0.830	
EWS1	0.906				3.876
EWS2	0.905				3.933
EWS3	0.901				4.192
EWS4	0.931				3.590
EWS5	0.913				4.200
OJESD		0.948	0.951	0.864	
OJESD1	0.671				6.342
OJESD2	0.934				4.726
OJESD3	0.909				3.441
OJESD4	0.937				4.536
OJESD5	0.938				4.650
SWB		0.939	0.940	0.804	
SWB1	0.900				3.486
SWB2	0.908				3.779
SWB3	0.883				2.907
SWB4	0.888				3.164
SWB5	0.903				3.634
EC		0.946	0.957	0.859	
EC1	0.441				6.428
EC2	0.926				4.320
EC3	0.928				3.667
EC4	0.927				4.207
EC5	0.926				4.278
EC x GOT	1.000				1.000
EC x EWS	1.000				1.000
EC x OJESD	1.000				1.000

**Table 3: Discriminant validity analysis (Fornell and Larcker criteria)**

Constructs	EC	EWS	GOT	OJESD	SWB
EC	0.927				
EWS	-0.069	0.911			
GOT	-0.032	0.011	0.929		
OJESD	-0.054	-0.017	0.012	0.930	
SWB	0.190	0.110	0.348	0.291	0.897

**Table 4: Discriminant validity analysis (HTMT Ratio)**

Constructs	EC	EWS	GOT	OJESD	SWB	EC x GOT	EC x EWS	EC x OJESD
EC								
EWS	0.086							
GOT	0.035	0.029						
OJESD	0.060	0.037	0.027					
SWB	0.196	0.106	0.367	0.308				
EC x GOT	0.038	0.016	0.045	0.067	0.063			
EC x EWS	0.033	0.072	0.016	0.093	0.095	0.152		
EC x OJESD	0.198	0.102	0.074	0.037	0.038	0.089	0.094	

### Model Validation

To report the explanatory power of the model as shown in Table 6, we can see that the model explains 28.4% of the variance in sustainable workplace behavior (SWB) ( $R^2 = 0.284$ , adjusted  $Q^2 = 0.267$ ). While this might seem to be a moderate level of explanatory power, this is very much acceptable in behavioral research (Chin, 1998).

Predictive relevance was assessed using the PLSpredict procedure (Shmueli et al., 2019). As represented in Table 5, all  $Q^2$  predicted values for the SWB indicators were positive (ranging from 0.154 to 0.225). Since all values exceed zero, the model demonstrates predictive relevance at the item level.

**Table 5: Determining the predictive power of the model (Q Square)**

Items	SWB1	SWB2	SWB3	SWB4	SWB5
$Q^2$ predict	0.191	0.172	0.225	0.201	0.154

**Table 6: Coefficient of determination ( $R^2$ )**

Dependent Variable	R-square	R-square adjusted
SWB	0.284	0.267

### Assessing the Structural Model

This part of the study presents the evaluation of the structural model and the results of the direct effect hypothesis tests. To evaluate the statistical significance of the path coefficients, a bootstrapping procedure with 5,000 resamples was conducted. Figure 2 illustrates the final bootstrapping output model, displaying the standardized path coefficients and the specific interaction effects of the moderator, EC, on the relationships leading to SWB.

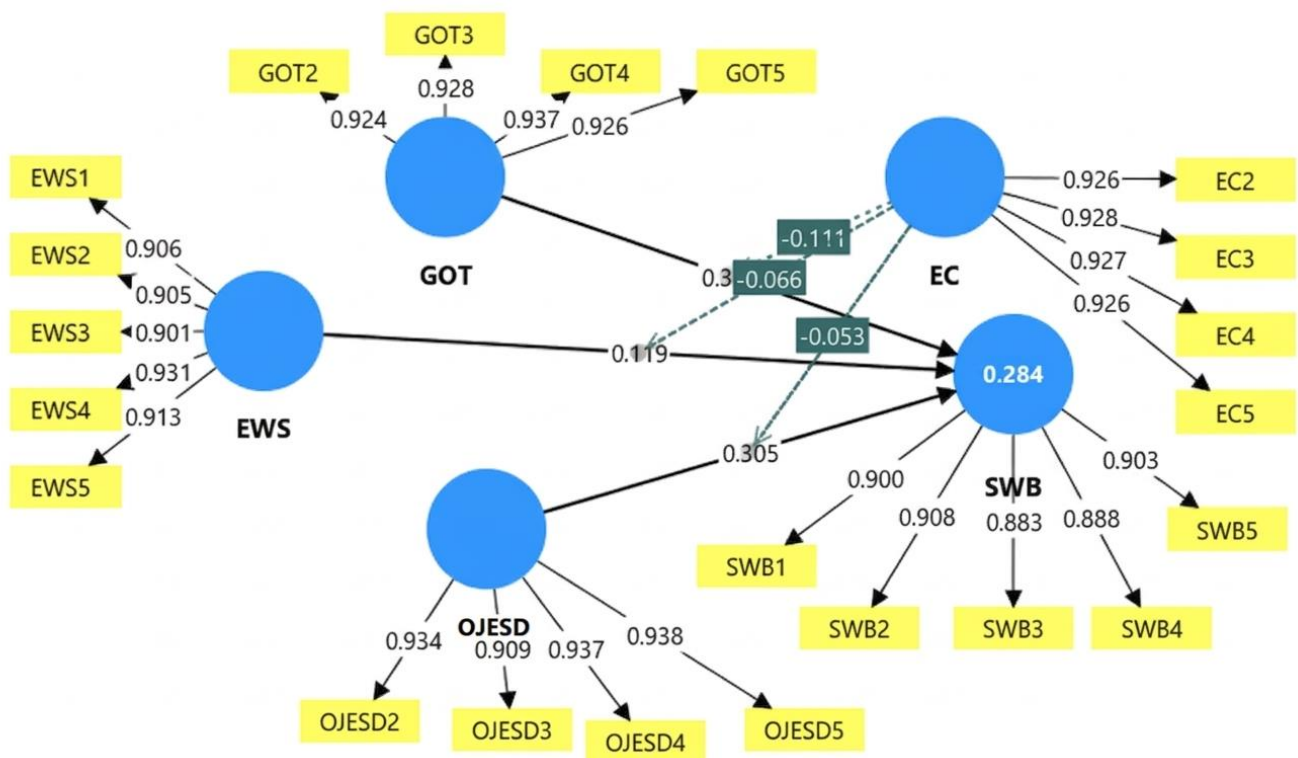
Table 7 presents the results of the direct path analysis conducted to test the proposed hypotheses. The findings indicate that all three direct hypotheses were statistically supported. Green orientation training (GOT) significantly positively affected sustainable workplace behavior (SWB) ( $\beta = 0.360$ ,  $t = 7.382$ ,  $p < 0.05$ ), supporting H1. Environmental workshops and seminars (EWS) also positively influenced SWB ( $\beta = 0.119$ ,  $t =$

2.163,  $p = 0.031$ ), supporting H2. On-the-job Eco-Skill Development (OJESD) showed a strong positive direct impact on SWB ( $\beta = 0.305$ ,  $t = 6.424$ ,  $p < 0.05$ ), thereby supporting H3.

**Table 7: Hypothesis testing**

Direct effect path	Original sample (O)	T statistics ( O/STDEV )	P values	Status
H1. GOT -> SWB	0.360	7.382	0.000	Accepted
H2. EWS -> SWB	0.119	2.163	0.031	Accepted
H3. OJESD -> SWB	0.305	6.424	0.000	Accepted

**Note:** significance based on a two-tailed test;  $p < 0.05$ .



**Figure 2: Final output model (bootstrapping)**

### Moderation Analysis

Table 8 details the assessment of the proposed moderating effects of environmental concern (EC) in the linkages between three green training practices- namely, green orientation training (GOT), environmental workshops/seminars (EWS), and on-the-job eco-skill development (OJESD)- and sustainable workplace behavior (SWB). Moderation was assessed by introducing interaction terms into the structural model, in accordance with established PLS-SEM procedures (Hair et al., 2021).

The results reveal a significant moderating effect of EC on the relationship between green orientation training and SWB. Specifically, the interaction term  $EC \times GOT \rightarrow SWB$  is negative and statistically significant ( $\beta = -0.111$ ,  $t = 2.410$ ,  $p = 0.016$ ). This finding indicates that employees with high environmental concern may already be intrinsically motivated to engage in sustainable behaviors, thereby reducing the marginal contribution of formal orientation-based green training. Consequently, H4 is supported, albeit in the opposite (negative) direction, confirming the presence of a significant moderation effect.

In contrast, the moderating effects of environmental concern on the relationships between environmental workshops/seminars and SWB, as well as on-the-job eco-skill development and SWB, were not

supported. The interaction terms  $EC \times EWS \rightarrow SWB$  ( $\beta = -0.066$ ,  $t = 1.222$ ,  $p = 0.222$ ) and  $EC \times OJESD \rightarrow SWB$  ( $\beta = -0.053$ ,  $t = 0.924$ ,  $p = 0.356$ ) were both statistically insignificant. These results suggest that the effectiveness of workshops/seminars and on-the-job eco-skill development in promoting sustainable workplace behavior does not depend on employees' level of environmental concern. Accordingly, H5 and H6 are rejected. Thus, we can claim that the influence of EWS and OJESD on sustainable behavior appears to be consistent regardless of an employee's pre-existing level of environmental concern.

**Table 8: Moderation Analysis**

Interaction path	Original sample (O)	T statistics ( O/STDEV )	P values	Status
H4. EC x GOT -> SWB	-0.111	2.410	0.016	Accepted
H5. EC x EWS -> SWB	-0.066	1.222	0.222	Rejected
H6. EC x OJESD -> SWB	-0.053	0.924	0.356	Rejected

## DISCUSSION

This study aimed to evaluate the influence of specific Green Human Resource Management (GHRM) practices namely Green Orientation Training (GOT), Environmental Workshops and Seminars (EWS), and On-the-Job Eco-Skill Development (OJESD), on Sustainable Workplace Behavior (SWB) in the context of Bangladesh's emerging economy. It also examined the moderating role of Environmental Concern (EC). The empirical results partially validate the proposed conceptual framework: while all direct relationships (H1-H3) were confirmed, the moderation hypotheses (H4-H6) provided unexpected insights, reflecting the unique socio-economic landscape of a developing nation.

The results strongly support H1, confirming that Green Orientation Training (GOT) significantly predicts SWB ( $\beta = 0.360$ ,  $p < 0.05$ ). This suggests that foundational programs communicating environmental policies are vital for establishing "Green Norms" among employees. In pollution-intensive sectors of Bangladesh, GOT serves as a crucial entry-level awareness, especially where environmental knowledge varies among the workforce.

H2 was also supported, though with a weaker path coefficient ( $\beta = 0.119$ ,  $p = 0.031$ ). This suggests that interactive workshops and seminars contribute to sustainable behaviors, consistent with findings that such initiatives also enhance organizational citizenship behavior (Alkhozaim, Alshiha, Alnasser, & Alshiha, 2024) and facilitate valuable knowledge exchange (Pham et al., 2019).

Conversely, On-the-Job Eco-Skill Development (OJESD) emerged as a robust predictor of SWB (H3;  $\beta = 0.305$ ,  $p = 0.000$ ). Experiential, on-the-job learning emerged as a powerful predictor, confirming studies that link practical skill development to green performance through enhanced autonomy and competencies. In Bangladesh's manufacturing and RMG sectors, the direct applicability of these skills allows for immediate behavioral alteration, making OJESD a powerful force for translating training into long-term action (Hossain, Ong, Heng, Mohd Said, & Siow, 2022).

H4 proposed that EC would strengthen the GOT-SWB relationship. Surprisingly, a significant negative moderation was found ( $\beta = -0.111$ ,  $p = 0.016$ ). Higher levels of EC weakened the positive effect of GOT on SWB. This contrasts with research suggesting EC amplifies pro-environmental attitudes and behavior through TPB's attitude-behavior channel (Omarova & Jo, 2022; Zeng, Zhong, & Naz, 2023). A plausible explanation lies in ceiling effects or motivational over-justification (Deci & Ryan, 2013; Ryan & Deci, 2020). Employees with high pre-existing environmental concern may perceive basic orientation as redundant or insufficiently challenging, reducing its motivational impact. In Bangladesh, where rising individual concern coexists with visible pollution and climate threats (Sarwar, Baig, Rahi, & Sattar, 2025), foundational training might even be perceived as superficial by those with high environmental anxiety, inadvertently diminishing engagement. This paradoxical finding introduces an important boundary condition to the assumed universal amplifying role of EC.

H5 and H6 suggested EC would positively moderate the EWS-SWB and OJESD-SWB relationships, respectively. Both were rejected ( $*P* = 0.222$  and  $0.356$ ). EC did not significantly alter these pathways, indicating that the efficacy of interactive and experiential training formats operates independently of individual concern levels. This is true from the Bangladeshi industrial context, since most firms have a rigid outlook on training initiatives, which are primarily focused on meeting external audit standards, not on changing the true individual environmental values of employees.

## CONCLUSION

The study focused on some major manufacturing sectors of Bangladesh (e.g., Garments, Leather, and Pharmaceuticals) to evaluate the influence of green training initiatives on employee workplace green behavior. Bangladesh, being an environmentally vulnerable country in South Asia, is going to pay a high toll for environmental degradation. While employees in Bangladeshi manufacturing industries are generally aware of their green workplace commitments (Saifulina & Carballo-Penela, 2017), most organizations only focus on developing green policies and frameworks (Xin & Senin, 2022), which may not help employees' green workplace behavior (Foster et al., 2022). This study used the AMO and VBN theories to investigate the role of green training initiatives on employee green workplace behavior. It also used environmental concern as a moderator to test if employees with prior environmental values have strong green behavior motives once they are provided with these green educations by the organization. Data were collected from 300 respondents ranging from operational employees to managerial employees and were analyzed using PLS-SEM. Results of the study suggest that green human resource development initiatives such as GOT, EWS, and OJESD play a significant role in enhancing employees' green behavior. However, the unexpected moderation findings add a crucial layer of understanding, indicating that the effectiveness of training interventions is not uniformly amplified by pre-existing employee attitudes and can, in specific cases, be weakened. In the case of highly environmentally conscious people, these superficial, redundant trainings might be counterproductive. So, as the findings suggest, the role of environmental values has little to do with the relationships between green HR initiatives and employee green behaviors. This might be true in the Bangladeshi manufacturing industrial context where green training is less about changing the hearts and minds of employees but more about teaching procedures to meet external standards. The findings of the study offer an organization a blueprint for prioritizing and tailoring their green human resource development investments to maximize behavioral outcomes, not just for the mere compliance of external standards.

## THEORETICAL AND MANAGERIAL IMPLICATIONS

The key theoretical implication of this study is that it disaggregates the concept of green training, which was formerly thought to be a holistic practice. This study empirically distinguishes among GOT, EWS, OJESD, showing their independent and varied effects on SWB. Another key implication is that the negative moderating effect of EC on the GOT-SWB relationship challenges the existing notion suggested by the "Theory of Planned Behavior" (TPB), which posits that people's behavior results from their ultimate intentions.

Moreover, the study provides several managerial implications for Bangladeshi manufacturing industries: firstly, the importance of green educational programs such as GOT, EWS, and OJESD is essential for ensuring employees' green behaviors in organizations. Top-level management must ensure proper support, both financial and logistical, to arrange regular green training initiatives, not merely for compliance purposes but also to green the minds of employees. Secondly, for highly environmentally conscious employees, they need agency, not just information. Organizations need to establish green leadership roles with clear authority for them. Giving them formal roles might convert their frustration into constructive advocacy.

## LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

Despite its several contributions, there are some limitations of the study: The use of a single-point-in-time survey limits the ability to establish definitive causal relationships. Longitudinal data could be used by interested researchers in the future. Moreover, the sampling technique applied to collect data from the selected industries in Bangladesh may not fully represent all industrial sectors, firms, or other emerging economies with different cultural and regulatory contexts. The unexpected negative moderation effect of EC may be influenced by the unique context of Bangladesh, where high baseline environmental concern due to climate vulnerabilities is common.

Future research should adopt a longitudinal design to trace the evolution of training impacts on SWB over time. Enthusiastic academicians should test and compare this model in other emerging and developed economies, as well as different industrial sectors, to determine the generalizability of the findings.

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**TRANSPARENCY:** The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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