

# Practicing Green Behaviors in the Manufacturing Sector: The Impact of Environmental Knowledge, Environmental Consciousness, Attitude, Motivation and Subjective Norm

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## Abstract

The availability of non-renewable resources has been steadily decreasing worldwide, while the demand for energy has been increasing at an exponential rate. To address this issue, firms globally have been making efforts to acquire knowledge and implement environmentally friendly practices to ensure their own sustainability and contribute to the well-being of society. The present study seeks to assess the influence of environmental knowledge, environmental consciousness, attitude, motivation, and subjective norm on the adoption of green behavior among persons employed in the manufacturing sector in Bangladesh, a developing nation. A questionnaire survey was conducted to collect data from a convenience sample of 262 people working in various manufacturing enterprises located around Bangladesh. The findings revealed a positive and substantial relationship between environmental knowledge, environmental consciousness, attitude, subjective norm, and employees' desire to engage in green activity. The findings also indicated that motivation did not have a statistically significant effect. The results of this study emphasize the crucial variables to consider while formulating forthcoming policies. Furthermore, this research serves as a foundation for future researchers to assess other industries and geographic locations in comparable circumstances, enabling them to make comparisons and pinpoint areas that may be enhanced.



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## Introduction

Public apprehension and consciousness regarding the environment and its security have experienced a substantial surge in the past decade, driven by the increasing preoccupation with tackling climate change (Afsar et al., 2020). Environmental pollution harms animals, humans, and the environment. It is agreed that humans cause most environmental difficulties (Winter & Koger, 2014). The increasing quantity of environmental regulations and market demands has stimulated the consciousness of firms and managers about environmental practices (DiPietro et al., 2013). Lawmakers and NGOs are advocating for pro-environmental behavior due to growing awareness of global and local environmental issues (Liobikiene & Poškus, 2019). Understanding environmental behavior can help enhance theories and inform policymakers, enabling them to encourage it (Sawitri et al., 2015). The environmental efficacy of businesses is heavily contingent upon the voluntary participation of employees in eco-friendly initiatives (Yuriev et al., 2020). According to Harvey et al., (2010), employees are believed to value working for organizations that prioritize environmental concerns. Chan & Hawkins (2010) observe that certain workers display insouciance towards adhering to green practices due to their skepticism over their management's genuine intentions behind implementing these environmentally friendly initiatives. According to Chan et al., (2014), the introduction of environmental initiatives may face opposition from employees who are hesitant to adopt new and unfamiliar practices.

According to Raza & Khan (2022), green human resource management (GHRM) in enterprises has raised employee confidence, morale, and performance. Firms use GHRM approaches to improve employee's environmental activities (Shen et al., 2018). Prior research found that green practices indirectly affect organizational environmental citizenship (Hameed et al., 2020). This effect is mediated by the empowerment of employees in green initiatives. According to Vahdati & Vahdati (2018), the implementation of effective GHRM practices results in various benefits such as encouraging environmentally friendly behavior among employees, enhancing the company's public appearance, improving operational efficiency, building an improved reputation, fostering a greener workforce, increasing product quality, gaining a competitive advantage, boosting productivity, fostering strong commitment and loyalty, and enhancing employee motivation. The challenge of modifying human action and establishing a harmonious interaction between nature and humanity remains unresolved across several academic fields (Liu et al., 2018). The underlying factors that drive an individual's inclination to engage in environmentally friendly behavior are complex and not yet comprehensively known (Coelho et al., 2017). It is essential to identify the elements that contribute to pro-environmental behavior to develop effective and well-founded regulations that guide the public's actions in conserving the environment (Li et al., 2019). The research has mostly overlooked the investigation of employees' intention to engage in environmentally friendly actions (Chen et al., 2023). There is a lack of research on the factors that influence workers' willingness to carry out the environmental initiatives of their organization (Chan & Hon, 2020). Norton et al., (2017) provide a definition for compulsory employee green behaviors as "green behavior that is carried out as part of employees' obligatory job responsibilities." This entails complying with corporate regulations, modifying work methodologies by selecting accountable alternatives, developing sustainable goods and processes. Researchers have studied what motivates employees to be environmentally friendly. These aspects include TRA, knowledge, awareness, and concern, psychological, and motivational factors (Yuriev et al., 2020). The theory of reasoned action (TRA) helps explain why people join coordinated environmental projects (Tam, 2020). According to the Theory of Reasoned Action (TRA), which was put out by Martin Fishbein and Icek Ajzen in 1967, a person's behavioral intention is impacted by two primary components in tandem: (1) their attitude toward their behavior, and (2) subjective norms. Social psychologists often use the TRA to study behavioral intentions.

According to Greaves et al., (2013) the TRA has been utilized on several behaviors to determine what motivates employees to practice green. The TRA explained 79% and 37.7% of employee intentions to use alternative transportation and provide workplace eco-suggestions (Yuriev et al., 2020).

Given the study void on industrial green behaviors, knowing what motivates Bangladeshi employees to undertake voluntary green behavior is vital. Thus, research of Chen et al., (2023) studying how environmental knowledge, consciousness, attitude, motivation, and subjective norm affect green actions is important for modern company. This study examined how environmental knowledge, consciousness, attitude, motivation, and subjective norm affect manufacturing employees' intentions to practice green behavior; developed and validated a framework that extends a TRA to include environmental consciousness, knowledge, and motivation; and responded to Chan & Hon (2020)'s call for hereafter studies to measure employee motives. This paper's organization continues below. Section 2 defines the paper's TRA, then reviews pertinent literature and theories. Methodology is explained in Section 3. The key results and debates are in Section 4. Section 5 closes, summarizes, and suggests further study.

### **Literature Review and Hypothesis Development**

The escalating and swift dissemination of environmental apprehensions linked to sustainability predicaments, together with the increasing consciousness of employees regarding environmental deterioration, have heightened deliberations about green consumption (Cheng et al., 2020). Nevertheless, with the growing importance of the sustainable movement, the emphasis on environmentally friendly consumption and preservation has been centered around behavioral factors in developing nations (Pham et al., 2019). The process of categorizing pertinent theories employed in studies on environmentally friendly behavior entails integrating many methodologies, prospective variables, and contextual analyses (Norton et al., 2017). Nevertheless, by amalgamating several pro-environmental ideologies, a more all-encompassing strategy may be devised to effectively encourage green behavior, considering the numerous contributing elements. The current research study utilizes the Theory of Reasoned Action (TRA) in conjunction with motivation, environmental knowledge, and environmental awareness to investigate the influence of these factors on the adoption of green behaviors in the industrial sector on a larger scale.

### **Theory of Reasoned Action (TRA)**

The theory of reasoned action (TRA) explains how attitudes affect human conduct. The expected repercussions of an action impact an individual's decision to engage in it (Ajzen & Fishbein, 1988). Martin Fishbein and Icek Ajzen conceptualized the notion in 1967, drawing from social psychology, persuasion models, and attitude theories. The main objective of the TRA is to comprehend an individual's voluntary behavior by analyzing the fundamental motive that drives their actions (Doswell et al., 2011). Furthermore, the influence of social norms on the individual's conduct also plays a significant role in determining whether they would engage in the specific action. As per the notion, the desire to carry out a specific conduct comes before the actual behavior (Colman, 2015). The Theory of Reasoned Action (TRA) posits that when individuals have stronger intentions to engage in an action, they are more likely to exert greater effort in doing that activity, hence increasing the possibility of its actual occurrence. Although the primary components of the TRA are well acknowledged, it has been highly recommended for its advantages due to its model's inclusion of additional constructs that enhance its explanatory quality (Norton et al., 2017). Out of the several constructs suggested, environmental knowledge has significant significance. Zsóka et al., (2013) verified that possessing information about the environment and its impact on actions plays a crucial role in

promoting pro-environmental behavior. In opinion of Kim et al., (2018), acquiring information about the environment enhances consciousness and fosters favorable dispositions towards environment. In addition, DiPietro et al., (2013) discovered that individuals with higher levels of knowledge had better awareness and concern for environmentally friendly actions. Therefore, we incorporate motivation, environmental knowledge, and environmental awareness into the TRA model to enhance its predictive capacity.

### **Employee green behavior (EGB)**

Due to the urgency of climate change and environmental sustainability, organizational scholars and practitioners are interested in "green behavior" at work. Chen et al., (2023) describe employee green behavior (EGB) as behavioral intention to decrease environmental effect. EGB is a workplace-specific kind of pro-environmental behavior among employees that can be compulsory or optional (Norton et al., 2017). Bissing-Olson et al. (2013) suggest two categories of EGB: task-related (e.g., effort connected to core duties) and proactive (e.g., workers' initiative to participate in environmentally friendly behaviors). Norton et al., (2017) define "green" as an individual who chooses activities that minimize damage and improve the natural environment. EGB in the workplace includes shutting off lights when leaving, using teleconference, producing drafts on scratch paper, and informing coworkers about environmental behavior.

The Five-Category "Green Taxonomy" by Ones and Dilchert (2013) assesses employee green behavior. Five criteria include conserving, working sustainably, avoiding damage, influencing others, and taking action. Green workplace behavior may aid the environment (Lamm et al., 2013). When pro-environmental behavior is related to employees' jobs, they are more likely to engage in it at work (Ones & Dilchert., 2013), which could lead to an organizational culture that prioritizes environmental awareness and encourages it (Sanyal et al., 2017). Recent research has stressed the necessity to study employee green behavior (EGB) and its individual and environmental variables at several levels (Norton et al., 2017). Cheng et al., (2020) found that individuals like green and that turning green can enhance health since the environment affects humans. EGB and OCB are not fundamental task performance, but they can improve the organization (Organ et al., 2006). The quick pace of climate change gives firms that manage their operations for environmental sustainability an edge. Green initiative activities include establishing company practices that save the environment and integrating a "green office concept" in everyday operations, which can encourage employees to recycle and conserve energy. Organizations use employee green behavior (EGB) to increase environmental sustainability (DuBois & Dubois, 2012).

### **Environmental Knowledge (EK)**

Environmental knowledge involves understanding natural environment and ecosystem facts, conceptual frameworks, and linkages (Farrukh et al., 2022). According to Michelsen and Fischer (2017), teaching people about the environment can encourage them to live more sustainably. A strong correlation between all-encompassing environmental education and students' actual knowledge of the environment was found by Zsóka et al., (2013). Environmental programs impose extra duties on company personnel. Due to their lack of environmental awareness, some employees may feel uneasy (Chan et al., 2014). Therefore, knowledge and other circumstances are essential for responsible ecological action. Bhakar et al., (2023) found substantial relationships between sharing information with employees, fostering teamwork, and advocating a proactive natural environmental approach. Managers' environmental knowledge and opinions are useless unless they can reduce their organization's environmental impact (Farrukh et al., 2022). Otto & Pensini (2017) advise people to know what to do to be more ecologically conscious. Chan et al., (2014) found a direct link between environmental knowledge, awareness, and concern and workers' ecological behavior. The

tendency to use ecologically friendly approaches was positively correlated with ecological behavior. Environmental attitudes are positively impacted by environmental knowledge, according to Liu et al., (2020). Munawar et al., (2022) found that people's knowledge and motivation to act were not consistently influenced by environmental information. This leads us to the following study hypothesis based on the criteria provided:

**H<sub>1</sub>:** *Workers' eco-conscious actions are greatly enhanced by knowledge about the environment.*

### **Environmental Consciousness (EC)**

The concept of environmental concern has traditionally been seen as a one-dimensional concept, spanning from a lack of care for the environment at the lower end to a high level of worry at the higher end. This is often tested using the new environmental paradigm, as developed by Milfont and Duckitt in 2004. In contrast, Schultz (2000) said that environmental concerns may be categorized into three interrelated factors: self-concern (egoistic), care for others (altruistic), and concern for the biosphere (biospheric). According to researchers, persons with more knowledge about ecological issues are more likely to allocate a larger portion of their budget towards purchasing environmentally friendly items (Chan et al., 2014). Furthermore, the dissemination of additional ecological knowledge has the potential to enhance persons' level of care and consciousness regarding environmental concerns (Zsóka et al., 2013; Bamberg & Möser, 2007; Inam et al., 2023). Ecological awareness is the recognition by researchers of the understanding of how a person's behavior affects the environment. The primary determinants of an individual's ecological awareness are their ecological knowledge and their attitude towards implementing environmentally friendly actions (Zsóka et al., 2013; Luthans & Doh, 2018). Academic research on environmental concern includes the study conducted by Fritzsche and Dueher (1982), which investigated the impact of environmental concern on the selection of deodorant containers. Another study by Kinnear and Taylor (1973) explored the influence of ecological concern on attitudes towards phosphates in laundry detergents. Additional research includes the investigation conducted by Prothero and McDonagh (1992) on environmentally friendly cosmetics and toiletries, as well as the study conducted by Barr et al., (2003) on the use of recycled packaging. According to Darvishmotevali & Altinay (2022), environmental concern can greatly influence individuals' motivation to modify their behavior to address the problem. Several studies have demonstrated that environmental concern has a significant role in influencing the decision to purchase organic food (Grunert, 1993). Nevertheless, it is important to acknowledge that evaluations of several research examining the direct empirical correlation between environmental concern and behavior unanimously support the finding that this association is characterized as being of low to moderate magnitude (Hines et al., 1987). Consequently, the aforementioned leads to the formulation of the subsequent study hypothesis:

**H<sub>2</sub>:** *When workers are environmentally conscious, they are more likely to act in an eco-friendly manner.*

### **Attitude (ATT)**

Attitude is the manifestation of a positive or negative evaluation of an individual, location, object, action, or occurrence. Ajzen (1991) defines attitudes as the extent to which an individual has a positive or negative opinion or appraisal of a certain conduct. Various research has examined the influence of attitude on the likelihood of engaging in environmentally friendly action. According to Polonsky et al., (2012), possessing favorable environmental views motivates individuals to engage in pro-environmental practices. Tan et al., (2022) discovered that increasing individuals' favorable impression of the consequences of global warming is also a factor that encourages them to engage in more environmentally friendly behavior. Employees' participation in ecologically beneficial practices, whether required or optional, was shown to be strongly predicted by employees' pro-environmental mindset, according to

research by Tian et al., (2020). The hotel staff's good views towards ecological behavior impacted their adoption of the hotel's environmentally friendly procedures, according to Chan & Hawkins (2010). Greaves et al., (2013) found that a person's attitude is a strong predictor of their professional environmental activity. Environmental attitude influences pro-environmental actions in the workplace, according to Banwo & Du (2019). A study conducted by Liu et al., (2020) found that individuals' environmental beliefs are significantly correlated with their intentions to take part in eco-friendly behavior and their actual actions that are green. Chan & Hon (2020) demonstrated a substantial correlation between employees' desire to engage in environmental practices and their attitude towards such conduct. In their 2014 study, Chen and Knight found that employees' energy conservation intentions are unaffected by energy-saving attitudes. We developed the following hypothesis for our study:

**H<sub>3</sub>:** *The attitude of an employer greatly influences the eco-friendliness of their staff.*

### **Motivation (MT)**

Green behavior has grown from old ways to a more sustainable approach to physical growth in any business. Changing to green behaviors is challenging due of hurdles. To expedite this transition, project participants must be motivated individually, not collectively or organizationally (Olanipekun, 2015). Individual motivations include environmental conservation and following government rules. Government incentives like green behavior prizes may also impact project participants. Government incentives can encourage green behavior despite this being an individual drive (Qalati et al., 2023). Studies show that project participants are motivated by green practices' functional advantages, such as energy and water efficiency and interior environmental quality. Understanding and addressing individual-level motives is crucial to encouraging green behavior (Ahn et al., 2013). Motives-based theory explains how extrinsic considerations like money can overshadow intrinsic motives (Bénabou et al., 2018). Motivation is a personal urge to do something. These internal motivators represent personal ideas and are tied to cognitive dissonance theory, which states that people need to harmonize their beliefs and behaviors. Discord, which individuals shun, results from incompatible beliefs. Beliefs drive motivation, not external incentives, or consequences (Chan & Hon, 2020). However, external variables can affect it. Individuals who embrace green practices must comprehend their effect on a better habitable planet, since this can lead to societal adoption. This led to the development of the following research hypothesis:

**H<sub>4</sub>:** *Employees' environmentally conscious actions are greatly improved by providing them with incentives.*

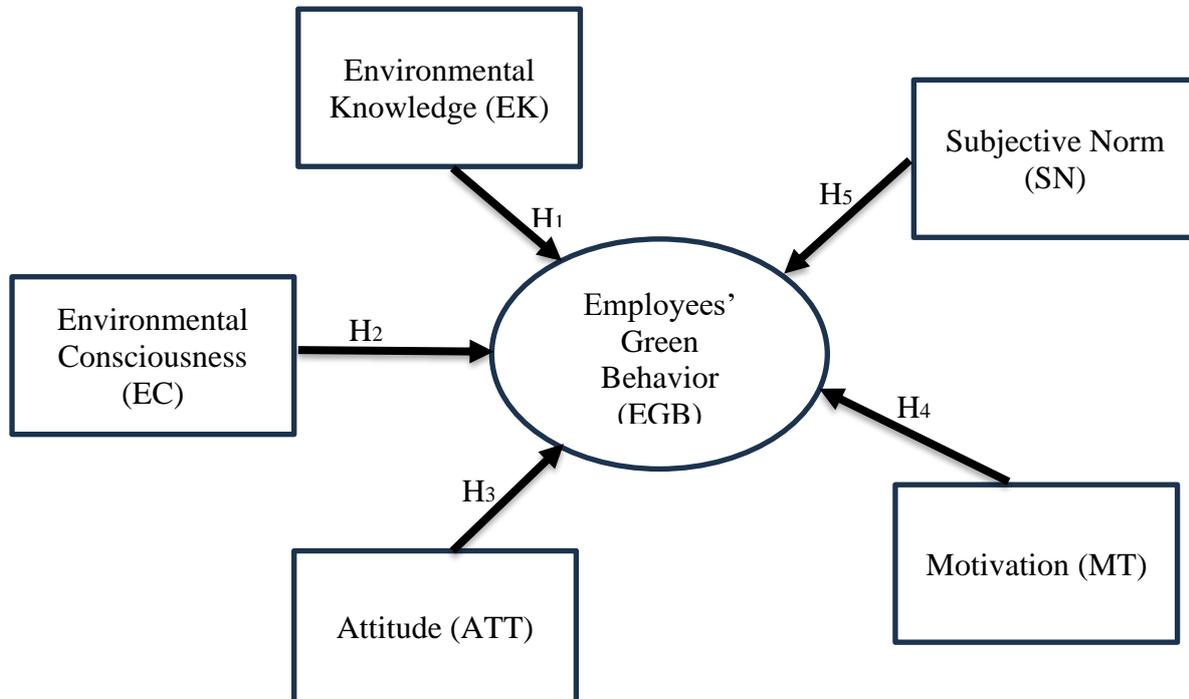
### **Subjective Norm (SN)**

The belief that a prominent individual or organization would endorse and encourage a particular conduct is known as a subjective norm (Ham et al., 2015). An individual's perception of the expectations of important individuals on a specific pattern of behavior is known as subjective norms (Gifford & Nilsson, 2014). Prior study by Buba et al., (2022) shown that guardians may set guidelines for recycling and reusing paper in kids who are young (aged 8-10). Additionally, it was shown that the actions and punishments imposed by parents influenced their children's recycling habits. The impact of workers' social environments on their intentions to participate in environmentally friendly actions is the focus of the subjective norm component in this research. This includes the beliefs, emotions, and thoughts of those around them regarding environmental practices, which can serve as motivation for employees to adopt such behavior. Furthermore, it can also shape employees' perceptions of the benefits associated with engaging in environmental action in the workstation. According to research by Banwo and Du (2019), environmentally conscious behaviors in the workplace were influenced by subjective norms. Subjective norms significantly impacted environmental commitment in the workplace, as shown by Greaves et al., (2013). workers' propensity to reduce power

consumption on the job was positively impacted by energy conservation strategies, subjective norms, and norms established by workers (Wang et al., 2019). According to Chan & Hon (2020), subjective norms positively influence employees' inclination to adopt environmental practices. Consequently, the subsequent study hypothesis has been formulated:

**H<sub>5</sub>:** *Employees' environmentally conscious actions are greatly enhanced by subjective norm.*

Figure 1 shows a list of all the possible hypothetical connections between the variables:



Source: Created by Author (based on TRA Model)

**Figure-1: The Study's Conceptual Framework**

### Methodology

Descriptive approach was taken to find out the impact of different variables on employees' green behavior. The respondents in this study were employees working in manufacturing industries in Bangladesh aged between twenty and sixty above years who had been involved in manufacturing goods which may be responsible for environmental degradation. Based on the researcher's exercising judgement and expertise judgmental sampling techniques which is a form of convenience sampling is used in this study. By guaranteeing that participants possessed a specific degree of environmentally conscious knowledge, attitudes, norms, and motivation concerning the production of that particular product category, this enhanced the efficacy of the self-report approach in forecasting real environmental behavior in the workplace. The research focuses on analyzing individual employees, as stated by Chen et al., (2014). The provided hypotheses were tested using a questionnaire survey approach. This study specifically examined personnel with prior experience in industrial industries characterized by high levels of pollution and visibility. This study makes use of both primary and secondary sources of information. The secondary data have been gathered from a variety of sources, including books, journals, daily newspapers, and websites, as well as the publications of ministry of environment, forest, and climate change. The participants were instructed to reply to a set of questionnaire items, mostly focused on previous research. The English version of the questionnaire was professionally translated into Bangla. The survey questionnaire was distributed to employees by research assistants and undergraduate students from a prestigious institution in Bangladesh, who possessed expertise and

enthusiasm in contributing to the topic of environmental sustainability. The researcher oversaw the distribution of research information and informed consent documents to the personnel. To achieve the research goals, a cohort of 300 eligible employees willingly consented to partake in this study. They were provided with a well-organized questionnaire and given the time to submit their replies. The poll had a total of 262 responses, resulting in a response rate of 87%. The questionnaire items were assessed using a five-point Likert scale ranging from 1 to 5, with responses ranging from 'strongly disagree' to 'strongly agree'. A two-round pre-test was done before collecting data. Academics and industrial professionals were asked to debate and analyze the survey instrument to guarantee that the items were representative and appropriate. Subsequently, comprehensive interviews were conducted with workers to identify and resolve any possible issues pertaining to the phrasing and structure of questions, the clarity of the survey instrument, and the time required for completion. Consequently, after receiving feedback from these first testing, we made some small adjustments to the language and style of the survey.

The questionnaire has two parts. Demographic factors including gender, age, and education were covered first. The second segment had a total of 23 items pertaining to the six study constructs. Scales developed from the work of Liu et al., (2020) were used to evaluate environmental knowledge. Four instruments for assessing environmental consciousness were created based on the contributions of Gärling et al., (2003). The measures developed by Wesselink et al., (2017) were used to measure attitude towards behavior. Four items were derived from the research conducted by Pelletier & Aitken (2014) to assess employee motivation. The measurement of subjective norm was conducted using scales that were derived from Tang et al., (2019). Chen & Knight's (2014) metrics assessed employees' eco-friendly working practices such double-sided printing, water saving, shutting off lights while leaving a workstation, putting computers to sleep, and moving to electronic files.

You can see the demographics of the participants in Table 1:

**Table -1: Participants' demographic information**

Characteristic	Variables	Frequency	Percentage
Gender	Male	177	67.6
	Female	85	32.4
Age (in years)	20-30	179	68.3
	31-40	46	17.6
	41-50	29	11.1
	50+	8	3.1
Education	Graduate	117	44.7
	Postgraduate	117	44.7
	Others	28	10.7
Occupation	Student	41	15.6
	Service Holder	158	60.3
	Business	35	13.4
	Others	28	10.7
Income Level	Low	85	32.4
	Mid	172	65.6
	High	5	1.9

*Source: Authors analysis from survey results.*

### Data analysis

Several exploratory factor analyses (EFA) were conducted using maximum likelihood (ML) estimation and oblique rotation. The goal was to identify the fewest number of relevant latent variables or factors, as several sources were used to gather items measuring certain constructs (Gorsuch, 1997). The ML estimation approach is advantageous compared to other estimate methods since it yields goodness of fit statistics. As a result, researchers often utilize this method (Conway & Huffcutt, 2003). Oblique rotation accounts for the possibility of elements

being connected and offers a more precise solution (Costello & Osborne, 2005). To prepare the dataset for the last step of analysis, a factor analysis was first performed. According to Kacmar and Carlson (1997), the item loading threshold is 0.60. Some items were removed from the hypothesis testing pool after they passed the multi-co-linearity and dis-engagement checks and factor analyses. According to Tabachnick and Fidell (2013), in exploratory factor analyses (EFAs), factors with eigenvalues less than 1.0 should be excluded. In addition, the EFAs confirmed that the data was suitable for factor analysis, as indicated by the statistically significant Bartlett's Test of Sphericity ( $p < 0.001$ ) and KMO values over 0.7 (Allen et al., 2014). The remaining elements included in this investigation are displayed in Table 1. The dependability of the construct measures' internal consistency was investigated by the application of Cronbach's alpha reliability analysis. The findings indicated that the Cronbach's alpha values varied between 0.727 and 0.846. Therefore, it is logical to infer that all the measures exhibited strong internal consistency in terms of reliability (Hair et al., 2010).

**Table -2: Factor loading, Factor AM Score, Cronbach Alpha, AVE, Eigen Value & CR**

Factor	Variables	Mean	SD	Factor Loading	AVE	$\alpha$	Eigen-Value	CR
<b>EK</b>	Follow who are close	5.7863	1.1210	.764	.512	.797	1.066	.507
	Follow my role model	5.7252	1.2475	.698				
	Follow friends	5.6221	1.3327	.683				
	<b>Average</b>	<b>5.7112</b>	<b>1.23379</b>					
<b>EC</b>	Seek recycled product	5.3359	1.3984	.671	.406	.735	1.249	.597
	Consider cause & effect	5.2863	1.4026	.636				
	Wait until the products is available	4.3626	1.7293	.631				
	Go to farther shop	5.0649	1.4515	.609				
	<b>Average</b>	<b>5.01242</b>	<b>1.49550</b>					
<b>ATT</b>	Reducing pollution	6.3015	1.0562	.738	.474	.846	8.678	.843
	Feelings	6.0878	1.0809	.732				
	Like the idea	6.1069	1.1090	.725				
	Reducing wasteful use	5.9885	1.1760	.663				
	Good idea	6.2863	.98169	.658				
	Favorable attitude	5.8092	1.1488	.606				
	<b>Average</b>	<b>6.0967</b>	<b>1.09212</b>					
<b>MT</b>	Desire for environmental protection	4.1794	1.7579	.799	.572	.823	3.532	.710
	Plenty of opportunities	4.4580	1.6621	.791				
	Adherence to government policies and regulations	4.4580	1.6621	.765				
	Functional benefits like, energy and water efficiency	4.5878	1.6015	.663				
	<b>Average</b>	<b>4.4208</b>	<b>1.67093</b>					
<b>SN</b>	Family expectation	5.3855	1.3674	.783	.567	.801	1.159	.542
	Society expectation	5.2710	1.4246	.770				
	Friends' expectation	5.1450	1.3930	.704				
	<b>Average</b>	<b>5.26716</b>	<b>1.39506</b>					
<b>EGB</b>	I do not purchase if potential damage exists	5.6718	1.3558	.779	.519	.727	1.031	.510
	Don't buy a product from a irresponsible	5.5458	1.5498	.756				
	Bring my shopping bag	5.3855	1.5162	.616				
	<b>Average</b>	<b>5.53436</b>	<b>1.47398</b>					

Source: Primary Data (2023)

The findings indicate that the average mean score for environmental knowledge is 5.7112. The Cronbach Alpha value is .797, the Eigen Value is 1.066, and the percentage of variance is 3.808. The second component, environmental consciousness, has an average mean score of 5.012425. It also has a Cronbach Alpha value of .735, an Eigen Value of 1.249, and a percentage

of variance of 4.460. The average mean score for attitude is 6.0967. The Cronbach Alpha value is .846. The Eigen Value is 8.678 and the proportion of variance is 30.994. The average mean score for motivation is 4.4208, with a Cronbach Alpha value of .823, an Eigen Value of 3.532, and a percentage of variation of 12.615. The subjective norm is the final independent variable with an average mean score of 5.267167. It has a Cronbach Alpha value of .801, an Eigen Value of 1.159, and accounts for 4.139% of the variance. The green behavior variable has a mean score of 5.534367, a Cronbach Alpha value of .727, an Eigen Value of 1.031, and accounts for 3.682% of the variation.

**Linearity test**

To assess linearity, the study conducted numerous regressions and examined the significance values to select variables with values mostly over 0.05. The correlation matrix table facilitated the identification of factors that were subsequently removed. To investigate the problem of linearity, the study then examined if there is any connection between the variables that exceeds 0.8. The analysis revealed a correlation coefficient of .558, which was the highest observed. Therefore, none of the items exhibit the issue of linearity.

**Table - 3: Correlations & Square Root of AVE**

	EK	EC	ATT	MT	SN	EGB
EK	<b>0.688</b>					
EC	.075**	<b>0.756</b>				
ATT	.229**	.531**	<b>0.637</b>			
MT	.388**	.435**	.482**	<b>0.753</b>		
SN	.558**	.325**	.381**	.432**	<b>0.716</b>	
EGB	.288**	.396**	.517**	.407**	.377**	<b>0.721</b>

\*\* Correlation is significant at the 0.01 level (2-tailed).

Source: Primary Data (2023)  
Discriminate Validity

The Pearson product-moment correlation coefficients indicated that there was a substantial link between five predictors and employees' green behavior at a significance level of 0.01. Furthermore, the correlations between constructs were all below 0.6, indicating that the measures were unlikely to be affected by multicollinearity (Grewal et al., 2004).

**Structural Equation Model**

The structural model was estimated using AMOS version 22.0. The model's overall fit was assessed using a CMIN value of 658.769, with 362 degrees of freedom. It was discovered that the model's p-value was less than 0.001. All the fit indices were within the acceptable range. The Goodness-of-fit index (GFI) has a value of 0.856, which is somewhat below than the recommended acceptable level of 0.90 (Hair et al., 2010). However, this value was considered satisfactory since it above 0.8 (Byrne, 2001). The value may be considered to be moderate, and the model can be classified into reasonable categories (Valle et al., 2005). The limited sample size may pose a challenge for the low Goodness of Fit Index (GFI) value. It is not appropriate to use a cutoff of 0.9 for GFI in the context of a short sample size, as indicated by Miles and Shevelin (1998). The Comparative Fit Index (CFI) had a value of 0.901, whilst the Tucker-Lewis Index (TLI) had a value of 0.900. Both indices were within the acceptable limit of 0.9 (Hair et al., 2011) and can be considered satisfactory. The Root Mean Square Error of Approximation (RMSEA), a metric that provides an absolute assessment of fit, yielded a result of 0.056. Thus, it remained within the acceptable limit of 0.08 (Hair et al., 2010). The chi-square ( $\chi^2$ ) to degree of freedom ratio was found to be 1.820, which is far below the suggested maximum cut-off value of 3 (Kline, 1998). Anderson and Gerbing (1992) have categorized CFI as a reliable fit index that exhibits a satisfactory level of robustness. By evaluating the fit indices and

comparing them to the recommended acceptable thresholds reported in previous research, it may be deduced that there is a robust correspondence between the study framework and the data.

**Table 4: Summary of Structural Equation Model**

Hypothesis	Path Description	Standardized regression weight	SE	CR	Result
H <sub>1</sub>	EK → EGB	1.021***	.123	8.061	Supported
H <sub>2</sub>	EC → EGB	.848***	.119	8.077	Supported
H <sub>3</sub>	ATT → EGB	.255***	.268	3.630	Supported
H <sub>4</sub>	MT → EGB	-.399	.130	-2.550	Rejected
H <sub>5</sub>	SN → EGB	1.364***	.222	5.450	Supported

CMIN=658.769, DF=362, NFI=.807, IFI=.903, TLI=.900, CFI=.901, RMSEA= .056,  
 \*\*\* p< 0.001

*Source: Primary Data (2023)*

The data shown in table 4 shows a strong and statistically significant positive relationship between EK and EGB, with a standardized regression weight of 1.021 and significance at the 0.001 level. The EC had a strong positive correlation with the EGB, as indicated by a standardized regression weight of .848, which was statistically significant at the 0.001 level. The ATT had a strong and statistically significant positive relationship with the EGB, as indicated by a standardized regression weight of .255, which was significant at the 0.001 level. MT was not positively and significantly related to the EGB (Standardized Regression Weight -.399). The SN had a strong and statistically significant positive relationship with EGB, as shown by a standardized regression weight of 1.364, which was found to be significant at the 0.001 level. Therefore, this investigation provided support for hypothesis H<sub>1</sub>, H<sub>2</sub>, H<sub>3</sub>, and H<sub>5</sub>. The study did not provide evidence for Hypothesis H<sub>4</sub>.

**Discussion**

This study investigated what motivates manufacturing workers to undertake green behaviors. We presented five hypotheses. Four hypotheses were significantly supported. The study also found that environmental knowledge and consciousness impacted employees' green behavior intentions. This supports H<sub>1</sub> and H<sub>2</sub>. These findings match earlier research. Bhakar et al., (2023) found that workers' ecological behavior and environmental awareness positively affect their motivation to practice green. Environmental awareness and education comprised 40% of the intents to take ecological action, according to Kaiser et al., (1999). This conclusion makes sense to us as it is well understood that those who possess knowledge are distinct from those who do not, and that knowledge is equivalent to darkness and light. Acquiring knowledge enables employees to differentiate and comprehend factual information, hence rectifying ignorance and dispelling misinformation. These findings support prior research indicating low-environmental consciousness personnel don't understand environmental concerns. However, environmentally conscientious personnel are more likely to practice green behavior.

Corroborating the findings of the study, there was evidence demonstrating that an employee's disposition towards green behavior has a direct impact on their inclination to embrace environmentally conscious practices in the workplace. This discovery is consistent with hypothesis H<sub>3</sub>. Furthermore, our findings align with the results of prior research conducted by Liu et al., (2020). Consequently, employees who recognize the significance of environmentally friendly behaviors will have a greater inclination to carry out green activities at their workplace. Examples of environmentally conscious practices include recycling, substituting videoconferencing for travel, utilizing sustainable means of transportation, practicing energy conservation, opting for green (renewable) power, and employing double-sided printing on

recycled paper. Put simply, employees who have favorable sentiments towards a certain pro-environmental conduct are more inclined to have the intention to carry out that behavior.

Conversely, the findings suggested that Motivation did not have a noteworthy impact on employees' inclination to carry out environmentally friendly behaviors. This outcome contradicts hypothesis H<sub>4</sub>. This finding contradicts the findings of Chan & Hon (2020), who discovered a substantial correlation between motivation and employees' desire to engage in environmentally friendly activities. Although the results regarding motivation for implementing green practices may differ from what was expected based on past studies Banwo & Du (2019), there is a plausible explanation for this finding. One plausible explanation is that employees possess enough self-assurance in their capabilities to engage in environmentally friendly actions, such as water and electricity conservation. They may regard these acts as simplistic and not necessitating advanced expertise. Consequently, they encounter no physical, ethical, or logistical barriers that would impede their capacity to adopt environmentally friendly activities.

In line with the study's results, there was evidence demonstrating that subjective norms have an impact on an employee's intention to carry out environmentally friendly behaviors. This discovery is consistent with H<sub>5</sub>. The subjective norm concerns the extent to which an individual's perception, emotions, preferences, judgments, attitude, purpose, and behavior may be influenced by the social constraints exerted by a reference group. Employees who had a strong influence from their peers, supervisors, or managers were more inclined to have positive intentions to adopt environmentally friendly activities and effectively translate those intentions into actions. This finding was corroborated by several prior investigations. According to Abd-Mutalib et al., (2023), injunctive laws increased workers' energy-saving goals at work. In view of Wang et al., (2019), a strong positive association between employees' personal, subjective, and descriptive norms and electricity conservation. Subjective norm is crucial since it has a significant impact on how employees perceive and interpret information, and it plays a key part in shaping their intention to engage in environmentally friendly activity.

## **Conclusion**

The effectiveness of company efforts to promote environmental sustainability depends on the active involvement of employees in adopting eco-friendly practices. EGB is a dynamic occurrence that exhibits variations among individual workers as well as within employees themselves, occurring over a period. Environmental awareness, environmental consciousness, attitude, and subjective norm towards workers' green conduct positively influenced the intention to engage in green activity. Contrary to expectations, motivation does not have a substantial impact on employees' inclination to adopt environmentally friendly behaviors. Despite the potential for employees to actively contribute to promoting environmentally responsible behavior in the workplace, there is a lack of study focus on this topic within the manufacturing sector in Bangladesh and other developing nations. Hence, the findings of this study offer practical guidelines for professionals to develop optimal and efficient strategies for enhancing employees' involvement in pro-environmental actions. To encourage EGB, companies should make efforts to enhance employees' intents to engage in environmentally friendly actions, while also developing and successfully communicating a strong corporate environmental strategy to employees.

## **Managerial Implications**

The findings may offer approaches to effectively encourage and stimulate employees to embrace green habits. If practitioners gained environmental awareness, they would be more

likely to adopt green practices. Companies should use explicit initiatives to enhance employees' environmental consciousness, beginning with the dissemination of knowledge on the ecological consequences of conventional behaviors. Advocate and emphasize the advantages of adopting ecological behavior, encompassing comprehension of environmental problems and their application in decision-making. Additionally, organizational culture and change management should increase green understanding among employees to persuade them to adopt these practices freely.

Employees that use green techniques for environmentally sustainable development should get rewards, promotions, certifications, and stipends. Organizations should acknowledge workers' voluntary participation in environmental projects and enhance employees' understanding of the financial advantages of adopting green practices. In addition, self-efficacy and performance-related sentiments are crucial to green practice intentions. We also suggest making available an all-inclusive manual on eco-friendly procedures (such as cutting back on power, water, and paper usage) and organizing green practice training programs to help employees overcome any barriers to these practices. It is also important to raise employees' awareness of energy waste until it is eliminated, such as leaving office lights on and wasting water. Wall stickers and decals with Quranic verses, prophetic teachings, and hadiths that promote resource conservation are also impactful. Implementing green human resources management strategies, such as acknowledging and incentivizing eco-friendly actions, not only boosts employee motivation but also encourages their active involvement in sustainable practices. To promote environmentally friendly actions, an organization should implement sustainable architecture, transition from gasoline-powered vehicles to those fueled by natural gas, decrease overall electricity usage, particularly during overnight hours, and prioritize the use of electronic documents over paper.

### **Limitations and Directions for Future Research**

It is important to recognize that there are some limits to this current article, which in turn present various potential for future research. Our sample, being a non-probability sample, was not a completely accurate representative of all Bangladeshi manufacturing personnel. The sample size was quite small, hence constraining the generalizability of the study's findings. Hence, future study would benefit from augmenting the sample size and ensuring a representative random selection. Furthermore, the study did not assess all the characteristics encompassed in the notion of planned behavior. The current study primarily focuses on components that are integral to the idea of reasoned action, as well as constructions such as environmental knowledge, environmental consciousness, and motivation. Further research should explore supplementary factors, such as interpersonal communication through personal qualities, one's degree of religious devotion, and word of mouth. In addition to investigating the influence of contextual elements such as the provision of assistance to senior management, organizational culture, and empowerment. Furthermore, future research endeavors might examine the extent to which the results of this study withstand rigorous examination in other nations such as Malaysia, India, and China.

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