

## Exploratory Factor Analysis for Pro-Environmental Behaviour Among Employees of Development Financial Institutions in Malaysia

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### Abstract

This study aims to explore and confirm the pro-environmental behaviour construct as a multi-dimensional construct as suggested by previous key scholars since most of the studies in the past measure the said construct as a dimension of its own. The respondents are employees in six development financial institutions in Malaysia. The researchers adapted 16 items from the previous study and the items went through a combined translation technique which translate the instrument from English into Malay and English language again to suit the target population. The translated item statements underwent expert reviews for their verification and validation in terms of content validity and face validity. 106 employees were selected randomly for data collection. The data were explored and validated through the exploratory factor analysis (EFA) procedure. The results of the EFA procedure revealed the 13 items fall into five underlying components. The items under these five components explained 74.41% of the total variance. The internal reliability of the pro-environmental construct was 0.753. This study adds to the current body of knowledge by providing a reliable source of information for researchers and professional practitioners interested in future research in the area of environmental behaviour within the workplace context.

**Keywords:** Pro-environmental Behaviour, Ability Motivation Opportunity Theory, Exploratory Factor Analysis

### Introduction

During the past few decades, the issues associated with climate change have become more prominent. In 2015, the United Nation (UN) proposed a series of sustainable development goals (SDGs) to minimize, mitigate, and neutralize environmental impacts resulting from industrialisation economic growth. There is no doubt that industry and humanity have

contributed to environmental degradation (Suganthi, 2019; Robertson & Barling, 2013; Ones & Dilchert, 2012b; Masud et al., 2015). Consequently, organisations and people have quickly realised the severity of environmental issues, seeking ways to address the problem by introducing sustainability practices and other means (Wang et al., 2018). Moreover, it requires people in developing and developed nations to implement new methods, behaviour and technologies to minimise the effect of climate change and reduce greenhouse emissions and other pollutants into the atmosphere and our river systems (Carattini et al., 2020; Graves et al., 2013).

Organisations and those individuals involved in green management initiatives have continually debated about the way to act sustainably, and the need for organisations to move beyond simply adopting technical perspectives and instead, adopt environmentally responsible practices and values, behaviours and beliefs largely dependent on the extent of change in transitioning to a green culture (Harris & Crane, 2002). Following the government's progressive target on green growth in the EMP for 2016-2020, the green trajectory has been laid out mainly directed toward pursuing a more sustainable Malaysia. As such, socio-economic development (SED) is imperative in increasing the well-being of the community in Malaysia, provided that the current resources are effectively utilised. Any wastage attributed to the use of natural resources will cause further harm to the environment and climate change, not only placing Malaysia's growth and development as a nation at risk but causing irreversible harm to the environment.

The need to adopt green practices in today's business environment is imperative, and looking at the impact of climate change, organisations since then have attempted to change the behaviour of employees and reengineer business practices by transforming these practices into "green practices" by not only imposes formal policies, procedures and certain activities but the adoption of new technologies also needed to be considered in light of these changes (Saeed et al., 2019; Afsar & Umrani, 2019; Ojo & Raman, 2019; Ones & Dilchert, 2012b). It required employees to reconsider discretionary acts and the willingness to weigh these acts to the impact on the environment through the involvement of the employees themselves (Alt & Spitzeck, 2016; Boiral & Paillé, 2012; Robertson & Barling, 2013). One of the ways to achieve low-carbon economy in the future is to shape the pro-environmental behaviour (PEB) of employees which will aid to accelerate the implementation of green practices across organisations (Yong et al., 2020; 2019). It is important to understand the individual behaviour of employees given it contributes to organisational performance since they devote a vast amount of time to performing work (Wells et al., 2020).

This study examined the PEB construct at the workplace, within the Malaysian setting. Hence, the majority of previous studies referenced are the ones that explored the predictors of PEB at the individual level; specifically at the employee level. Paillé et al (2013) advocated the significance of employees' PEB at the workplace in order to achieve environmental performance. By considering the behavioural aspect of the employees, it helped to increase the awareness of employees on environmental issues and knowledge, leading to PEB (Iqbal et al., 2018). Furthermore, it would help organisations towards achieving environmental performance and sustainability. With the need to urgently act in addressing climate change issues and act in an environmentally conscious manner, employees willingness to cooperate with colleagues and organisations by committing to green practices would certainly boost the organisation's environmental performance (Yusoff, 2019b).

Despite the number of conceptual and empirical research that has provided further understanding of how PEB at the workplace has been affected, understanding of an organisational and individual aspect of environmental behaviour is still dearth. Studies that apply GHRM in their measurement of PEB (Dumont et al., 2017; Fawehinmi et al., 2020; Saeed et al., 2019; Chaudhary, 2019b) depicted mixed results on the relationship between constructs that influence employee PEB directly and indirectly. Thus, these variables warrant further examination. In addition, the consistency and clarity of the PEB construct are rather lacking, since the refinement of any measurement is a continual process requiring studies to depict the empirical superiority of one measure from another across a broader time frame (Robertson & Barling, 2017).

There are limited theoretical basis developed which explained organisational and individual variables that could unfold employees' PEB at the workplace (Lo et al., 2012; Ren et al., 2018). What is apparent – is that employees' PEB might or might not be influenced by organisational factors such as GHRM practices directly. Thus, further analysis to examine how GHRM practices translated into PEB at the workplace is needed. Following AMO theory (Renwick et al., 2008; 2013), GHRM is in fact the antecedent to PEB; however, there is evidence that GHRM does not necessarily imply that employees are inclined to exercise environment-friendly behaviour (Fawehinmi et al., 2020). Therefore, the integration with other variables (i.e.; perceived innovation characteristics (PICs) and environmental knowledge (EK) seem and deemed necessary to explain how employees' PEB are affected by organisational and individual determinants.

In the approach of conceptualising PEB at the workplace, the green taxonomy of Ones and Dilchert (2012) only include the type of behaviour that although it exhibits no connection between green behaviour and work descriptions, it is indeed, a distinct variation between the two and it can be seen in the manner that an individual undertakes common or regular work activities and converting them to greener tasks. Even though these two streams are complementary and centering on the same phenomenon, they were developed separately. However, the definition that constitutes employees' PEB remains ambiguous (Paillé & Boiral, 2013) and the particular type of employee engagement in organisational greening remains uncertain given the appropriate questions have rarely been addressed directly (Boiral et al., 2015).

Several studies on employees' PEB have been conducted in the area of financial services, also categorised as a service industry (Iqbal et al., 2018; Mi et al., 2019; Afsar, Maqsoom, et al., 2019). However, at this stage, only a few past studies are focusing on employees' PEB in banking institutions, without combining it with other FIs (Iqbal et al., 2018). Therefore, acknowledging the growing interest in employees' PEB at the workplace in different contexts (DFIs) and with various approaches in different countries (Malaysia), one can conclude that employees' PEB is a significant behaviour in a work setting. Subsequent to the above, it has been demonstrated that employees' PEB at the workplace is continuing to attract greater interest and attention among scholars and practitioners in Malaysia. However, empirical research remains limited. Henceforth, the studies suggested further investigation should be done on employees' PEB in a work setting (Yong et al., 2019; Amrutha & Geetha, 2019; Yusoff, 2019b).

To justify the development of PEB framework in Malaysian DFIs, the following section will begin with a discussion on the PEB concept at the workplace, related studies concerning the PEB, and the need for employee PEB studies in Malaysian organisation, particularly in the

development financial institutions.

## Literature Review

### Pro-environmental Behaviour

Having realised the importance of employee PEB at the workplace, a vast number of studies explored the concept of PEB across diverse contexts in both developing and developed nations. Also, despite the diversity in its approach and conceptualisation, many studies have highlighted the multifaceted views on the notion of PEB and a wide range of conceptualisations on the PEB of employees at the workplace. PEB plays a key role in the implementation of environmental initiatives (Zhang & Huang, 2019) due to the fact that successful implementation of environmental programmes and/or initiatives typically relies on the consistency of employee behaviours towards said programmes (Robertson & Barling, 2013). Employee involvement in addressing issues associated with the environment in addition to engaging in PEB is viewed as a useful strategy for organisations in becoming environmentally responsible (Saeed et al., 2019). As such, employees' PEB can be defined as a broader set of eco-friendly or environmentally responsible events including comprehending more regarding the environment, providing insights to organisations to reduce the environmental impact on the business, initiating green work processes, recycling, reprocessing and questioning practices or acts that could harm the environment (Graves et al., 2013).

Originally, Ramus and Killmer (2007) separated PEB at the workplace into three dimensions. (1) *pro-social nature* of PEB in supporting the welfare of individuals and organisations; (2) *discretionary nature*, where employees engage in PEBs voluntarily like turning the lights off or taking the stairs rather than catching the elevator, and (3) *extra-role nature* of PEB, where employees partake in environmental protection and improvement of environmental performance stipulated position description; although employees did it for the sake of the company's green image. The majority of studies associated with PEB at the workplace are separated into two main branches that focus on private and direct PEB, such as energy concentration and reprocessing or recycling associated with behaviour and social and indirect PEB that include eco-helping and eco-civic engagement behaviour (Robertson & Barling, 2017).

In contrast, Bissing-Olson et al (2013) conceptualised PEB at the workplace into two dimensions. First is *task-related PEB*, which explains employee behaviour to accomplish their work stipulated by the organisation in an environmentally-friendly manner, and to what extent employees perform their work in an environmentally-friendly manner. Second is *proactive PEB* which showcased the initiative of employees to engage in environmentally-friendly behaviours external to core work activities, such as adopting a self-approach to one's work by improvising or improving on performing work or inspiring others to act in an environmentally-friendly manner, which is not formally required in order to improve the existing work process. These two pro-environmental concepts are forms of workplace behaviours, related but quite distinct.

From a different perspective, Paillé and Boiral (2013); Robertson and Barling (2017) suggested that OCBE is the best approach to gauging employees' PEB at the workplace. Moreover, constructed upon the framework of organisational citizenship behaviour (OCB), OCBE is described as discretionary acts towards environmental efforts (Daily et al., 2009), that involve voluntary and proactive environmental behaviours (Lamm et al., 2013), carried out by

organisational employees who are neither rewarded nor their actions are needed by the organisation, for the sake of environmental improvement and creating a sustainable organisation.

Due to the growing concept of OCBE in environmental literature, Boiral and Paillé (2012) developed a validated measurement for OCBE dimensions, dividing it into three key dimensions of OCBE. The first is *eco-initiatives* that explain the employee's discretionary behaviour in performing environmental actions, such as suggesting insights to improve methods to complete tasks aimed at reducing greenhouse gas emissions. The second is *eco-civic engagement*, where the employee is involved in the organisation's environmental initiatives, such as green events organised by the company to address climate issues in raising awareness amongst the public. The third is *eco-helping* which is associated with mutual assistance regarding environmental issues, for example, assisting or inspiring fellow employees to consider environmental issues when completing work tasks and to act more environmentally responsible. Each form of OCBE is established to cater to different aspects of environmental management (Boiral & Paillé, 2012; Paillé & Boiral, 2013). As mentioned earlier, Robertson and Barling (2017) conceptualised PEB at the workplace under the OCBE framework with validated measurement, consisting of three OCBE dimensions. (1) *self-enacted OCBE*, which includes the employee's discretionary act in performing PEB at the workplace without any intention to influence others. (2) *co-workers focused OCBE* that includes employees' discretionary PEB, where they encourage colleagues to integrate environmental considerations into work tasks that are not recognised via a formal reward system. This incorporates sharing with fellow employees on sustainability-related values to enhance their understanding, assisting co-workers in understanding the need to safeguard the environment, and helping one another in addressing environmental issues (Robertson & Barling, 2017; Pinzone et al., 2019). Dimension (3) is *organisationally-focused OCBE* that depicts employees' discretionary actions to perform PEB at the workplace in order to influence the organisation in performing in an environmentally-friendly manner, such as offering good ideas and encouraging the organisation to reduce the impact on the environment (Robertson & Barling, 2017; Pinzone et al., 2019). Concerning the above, all concepts of PEB at the workplace introduced by Ramus and Killmer (2007), Boiral and Paillé (2012); Robertson and Barling (2017) are intended to reflect employees' extra-role behaviours in completing their work in an environmentally-friendly manner.

Aside from that, another proposed view of employees' PEB at the workplace was conceptualised using a different term, such as EGB; categorised into two dimensions by (Norton et al., 2015). First is *required EGB*, which is described as green behaviour carried out in completing the job tasks of the employee, such as methods in completing the tasks must comply with organisational policies. This concept is similar to task-related PEB by (Bissing-Olson et al., 2013). The second is *voluntary EGB*, where employees can decide whether to act environmentally outside of what is imposed by the organisation and involves employees' initiatives such as initiating and engaging in environmental programmes and encouraging others to be involved in environmental activities. These dimensions are also similar to proactive PEB by (Bissing-Olson et al., 2013). Dumont et al (2017) used *extra-role green behaviour and in-role green behaviour* terms, having a similar scope in measuring EGB at the workplace. Even though Boiral (2009) suggested that OCBE adoption could not be imposed on employees, organisations could inspire the advent of OCBE via appropriate interventions. When accumulated throughout organisations, it will instill a significant effect on

organisational environmental performance. This view was also acknowledged by Ones and Dilchert (2012b), suggesting that it is imperative to consider behaviours linked to core tasks, such as changing the approach in performing work to more environmentally responsible ways.

Employee's PEB centred around the workplace was conceptualised as an outcome resulting from the implementation of various aspects of environmental management initiatives. For instance, by promoting employees' PEB through GHRM (Zhang et al., 2019; Chaudhary, 2019; Dumont et al., 2017; Saeed et al., 2019; Luu, 2019; Pham et al., 2019; Fawehinmi et al., 2020). Overall, despite various concepts and definitions established by renowned scholars, PEB appears to be an umbrella concept describing a variety of actions directed towards the environment. The various concept is by no means the only term used for describing environmental behaviours at the workplace (Boiral et al., 2015). This study defines employees' PEB at the workplace as the discretionary act of employees in performing and enacting voluntary environmental behaviour within the organisational context, hence, aims to explore and develop the instruments for a multidimensional PEB construct.

### **Ability – Motivation – Opportunity Theory**

Employee roles can be gauged using the AMO theory, further developed by Appelbaum et al (2000) at a micro level to explain behaviour via situational and psychological constructs centering on the individual motivation (M) and ability (A), and opportunity (O). Renwick et al (2013) expanded this theory by integrating HRM areas into EM to gauge the effect of GHRM practices on organisational performance (i.e.: proper waste management, optimum use of workplace resources or any behaviour that led to reducing the risk of increasing carbon footprints) through indirect manners which in this study context through employee PEB. Accordingly, this theory postulates that by providing employees with opportunities, together with skills and motivating incentives, it will result in increased job performance relative to other employees (Appelbaum et al., 2000; Rayner & Morgan, 2018). The upside of utilising AMO theory in a GHRM study is that it has practical relevance in guiding organisations, managers and practitioners on what to consider in GHRM interventions in combating climate change such as by using the indirect links (mediator) to change employee behaviour Renwick (2018) and PEB are considered critical employee behaviour within GHRM framework to enhance environmental performance (Tang et al., 2018). Hence, integration with other individual factors is deemed necessary since the scope of this study is to examine the effect of organisational practices and employee behaviour within the workplace.

Accordingly, under AMO theory, the main aim of the ability (A) component of the AMO model is to ensure employees have adequate skills and the ability to perform necessary functions. The second key element of the AMO model is motivation (M) which can be influenced by intrinsic and extrinsic rewards, performance reviews, feedback, career development, employment security and work-life balance. The key focus of the motivation component of the AMO model is to ensure motivation and commitment through practices such as contingent rewards and effective performance management. The third key element of the AMO model is opportunity (O) which can be influenced by the employee's involvement in the organisation's initiatives, team working and communication.

Subsequently, this theory reflects and presents the PEB of employees from a broader perspective by describing how GHRM practices under AMO influence employee behaviour. Organisations that consider the pivotal role of employees' environmental performance will

provide employees with the skills and opportunities necessary to partake in green organisational practices, and ultimately enhance environmental understanding, knowledge, skills, and behaviours (Dumont et al., 2017; Renwick et al., 2013). Therefore, this study utilised the AMO as an underlying theory to examine the employees PEB at the workplace at an individual level. The AMO theory can be operationalised concerning HRM in assessing green workplace behaviours for creating green employees (Morgan & Rayner, 2019).

### **Methodology**

The study adapted a total of 16 items related to measuring the pro-environmental behaviour construct from previous literature. The item statement was modified to suit the study at hand. Then, the item went through a combined translation technique which translate the instrument from English into Malay and English language again to suit the target population. The modified and translated item statements were sent to the experts for their verification and validation in terms of content validity and face validity. Upon getting the feedback from the above experts, the researchers amended the statement accordingly based on their comments and suggestion. The pilot study was conducted to gather data using the newly modified questionnaire. The questionnaire was distributed using hyperlinks to 6 gatekeepers of DFIs, who then distribute them to employees from six DFIs. The pilot study took about three weeks. The pilot sample size was determined by following the recommendation by Hair et al. (2019) suggesting that the sample size for exploratory factor analysis (EFA) should not be less than 50, and preferably 100 or larger. A total of 128 responses were utilized for pilot data analysis after discarded 3 questionnaires were discarded due to the responses being outside the targeted population criteria and the completion time of the questionnaire was around 7 to 15. From the data collected, the researchers employed the exploratory factor analysis (EFA) procedure in SPSS 26.0 to explore and assess the usefulness of every measuring item and to determine their dimensionality. Items that do not meet the minimum threshold of factor loading are removed.

### **Findings**

#### **The Exploratory Factor Analysis (EFA) Procedure**

In the exploratory Factor Analysis (EFA) procedure, this study utilised the Principal Component Analysis (PCA) with orthogonal rotation methods of varimax to extract factors as recommended by (Hair et al., 2019; Tabachnick and Fidell, 2013). The current study decided to employ the orthogonal rotation method to ensure that rotating factors are not correlated (Plucker, 2003). For this study, the appropriateness of the pilot data for factor analysis in this study can be measured following the suggestion by (Tabachnick and Fidell, 2013; Hair et al., 2019).

- 1) Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) where the value of KMO should be a minimum of 0.60.
- 2) Bartlett test of sphericity examines the entire correlation matrix to test for the presence of correlations among the variables. The recommended significant value is less than 0.05 ( $p < 0.05$ ) which indicates data do not create an identity matrix and are thus multivariate normal and suitable for further analysis (Field, 2018; Pallant, 2016).
- 3) Identifying factors should have an eigenvalue greater than 1.0 to indicate a significant factor that represents the amount of variance.
- 4) Items should have factor loading greater than 0.60 which is considered necessary for

practical significance.

- 5) No item cross-loading more than 0.50. However, this study decided to uphold only for items with factor loading more than 0.60 since the items in the questionnaire were initially adopted from established items. An item with a factor loading of less than 0.6 across all components must be eliminated from the analysis.
- 6) In terms of the number of items per factor, each factor must have at least three items. If a factor has two or less items, it is only included if the items are highly correlated ( $r > .30$ ) with one another and uncorrelated with other variables (Yong & Pearce, 2014). The percentage of Total Variance Explained should be at least 60% of the total variance.

### **Instruments**

Construct for PEB should include civic awareness, voice out environmental concerns and performing sustainable work such as adopting environmental initiatives in accomplishing work tasks, influencing and encouraging others and transforming the way individuals act (Francoeur et al., 2019). To assess the employee PEB in Malaysian DFIs, the original 16 items were adopted from Saeed et al.'s (2019) where the instruments were grounded in (Robertson and Barling, 2013; Kim et al., 2016; Kaiser et al., 2007). The items are then adapted and modified (after content validity) accordingly to suit the current study. Table 1 presents the items numbered from 1 to 16 that measure the PEB construct. The measurement used a 7-point interval scale ranging from "1 = Strongly Disagree to 7 = Strongly Agree".



Table 1

*Items of pro-environmental behaviour construct*

Item No.	Construct	Item Label	Statements
1	Pro-environmental Behaviour	PEB1	I make suggestions and bring new ideas about environmentally friendly practices to relevant committees to increase organizations environmental performance.
2		PEB2	At work, I take part in environmentally friendly programs.
3		PEB3	I share my knowledge about the environment with co-workers.
4		PEB4	I suggest new practices that could improve the environmental performance of my organization.
5		PEB5	At work, I question practices that are likely to hurt the environment.
6		PEB6	In my work, I weigh the consequences of my actions before doing something that could affect the environment.
7		PEB7	At work, I perform environmental tasks that are not required by my organization.
8		PEB8	At work, I avoid wasting resources such as electricity or water.
9		PEB9	At work, I take stairs instead of elevators to save energy.
10		PEB10	At work, I turn off lights when I am out of the office.
11		PEB11	I print double sided whenever possible
12		PEB12	At work, I recycle (e.g., paper, ink pen, batteries).
13		PEB13	I adequately complete assigned duties in environmentally friendly ways.
14		PEB14	I fulfil responsibilities specified in my job description in environmentally friendly ways.
15		PEB15	I perform tasks that are expected of me in environmentally friendly ways.
16		PEB16	Compared to others at my work, I minimize and recycle waste.

**EFA for Pro-Environmental Behaviour**

The pro-environmental behaviour (PEB) construct was gauged using 16 items in the survey; using the interval score from 1 (strongly disagree) to 7 (strongly agree). The PEB construct was measured initially by its own dimension. The mean of the items for PEB construct varied from 2.86 to 6.57, while the standard deviation of the items stretched from 0.756 to 1.934. The skewness of the items extended from -1.778 to 0.783 along with the values of kurtosis ranging from -0.907 to 2.954. Since the values of skewness for the 16 items in measuring PEB construct is between -1.778 to 0.783, within the recommended threshold of  $\pm 1.96$ , the assumption of normality was met.

The result verified pilot data of N=106 was suitable for factor analysis is disclosed in Table 2. The value of the KMO for PEB construct after the deletion of three items (PEB2, PEB10 and PEB15) with low factor loading was 0.702 (middling). The Bartlett's Test of Sphericity was also significant (Chi-square = 491.636, p-value < 0.000). It can be concluded that the PEB construct

with thirteen (13) items was adequate to proceed with Factor Analysis (FA).

Table 2

*The KMO and Bartlett's test score*

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.702
Bartlett's Test of Sphericity	Approx. Chi-Square	491.636
	df	78
	Sig.	0.000

**Dimensions and Total Variance**

The result in Table 3 revealed that the Principal Component Analysis (PCA) procedure has extracted five distinct dimensions with eigenvalue exceeding the value of 1.0. Explicitly, the five-factor component explained a total of 74.411% of the variance, with Factor 1 contributing 21.289%, Factor 2 contributing 14.886%, Factor 3 contributing 14.612%, Factor 4 contributing 12.773% and Factor 5 contributing 10.851%.

Table 3

*Total Variance Explained (TVE) for Pro-environmental Behaviour*

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Sums of Rotation Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Var	Cum. %	Total	% Var	Cum. %
1	3.978	30.601	30.601	3.978	30.601	30.601	2.768	21.289	21.289
2	1.906	14.661	45.262	1.906	14.661	45.262	1.935	14.886	36.175
3	1.494	11.491	56.753	1.494	11.491	56.753	1.900	14.612	50.787
4	1.199	9.227	65.980	1.199	9.227	65.980	1.661	12.773	63.560
5	1.096	8.431	74.411	1.096	8.431	74.411	1.411	10.851	74.411

Extraction Method: Principal Component Analysis.

Table 4 showed the Principal Component Analysis (PCA) with varimax rotation results for the thirteen (13) items under the PEB construct. Based on the results, all 13 items were divided into five components. Each item has a factor loading of more than 0.60. The items were placed neatly according to the stated sub-constructs created by the researcher for PEB construct. For item PEB9, the factor loading with the negative value indicated that the responses tend to lean to one direction due to the question asked "At work, I take stairs instead of elevators to save energy" which is relevant to almost all employees in DFIs where their workplace is in the high rise building and they might prefer to utilise the elevator compared to the stairs, hence it leans to one direction. To conclude, EFA results confirmed that PEB constructs with 1 item is indeed a multidimensional construct with five sub-constructs.

Table 4

*Total Variance Explained (TVE) for Pro-environmental Behaviour*

	Component				
	1	2	3	4	5
<b>PEB4</b>	0.770				
<b>PEB7</b>	0.739				
<b>PEB12</b>	0.789				
<b>PEB16</b>	0.736				
<b>PEB13</b>		0.867			
<b>PEB14</b>		0.824			
<b>PEB8</b>			0.767		
<b>PEB9</b>			-0.763		
<b>PEB11</b>			0.651		
<b>PEB3</b>				0.874	
<b>PEB6</b>				0.709	
<b>PEB1</b>					0.811
<b>PEB5</b>					0.682

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.<sup>a</sup>

a. Rotation converged in 6 iterations.

### The Instrument's Internal Reliability

The reliability of a scale varies depending on the sample, therefore it is imperative to examine the scale to be reliable for the particular sample in the study (Pallant, 2016). On this basis, internal consistency reliability was used to assess the reliability of the pilot instrument in this study. Cronbach's alpha test is the most widely used method for determining internal consistency reliability (Pallant, 2016). Cronbach's alpha reliability coefficients typically range from 0 to 1. Cronbach's alpha was calculated using IBM-SPSS 26.0 in this study. If the alpha value is more than 0.90, the construct's internal consistency is excellent. Nunnally and Bernstein (1994) advised that a coefficient alpha of at least 0.70 be used to keep an item on a scale. The reliability analysis for the constructs and their sub-constructs (13 items) for this study were presented below (Table 5), and the pilot sample size taken was N=106.

Table 5

*Reliability Analysis*

Constructs	No of Items	Cronbach's Alpha	Decision
<b>Pro-Environmental Behaviour</b>	13	0.753	Acceptable

### Conclusions

The current study contributed to the development of PEB measurement scale and confirmed that PEB construct indeed is a multi-dimensional construct as suggested by (Daily et al., 2009; Boiral, 2009; Organ et al., 2006; Boiral and Paillé, 2012; Ones and Dilchert, 2012a). However further study is needed to test the involved construct and items and confirmed the PEB construct is a second-order construct. Various classifications and groupings have been

created in an attempt to classify green workplace behaviours. Ramus and Steger (2000) were among the initial scholars to empirically validate the employee's willingness to promote self-discretionary environmental initiatives at the organisational level, where they discovered that employees would offer insights within environmental scope if they demonstrated strong organisational devotion towards the situation and demonstrated supervisory support that encouraged such behaviour through the effective communication of organisational environmental policies. Despite the number of conceptual and empirical research that has provided further understanding on how employees' PEB at the workplace has been affected, the consistency and clarity of the PEB construct remains rather lacking, since the refinement of any measurement is a continual process, requiring studies to depict empirical superiority of one measure from another across a broader time frame (Robertson & Barling, 2017).

### **Ethics Approval and Consent TO Participate**

All procedures performed in this study involving human participants were conducted in accordance with the ethical standards of the institutional research committee.

### **Conflict of Interest**

The authors reported no conflicts of interest for this work and declare that there is no potential conflict of interest concerning the research, authorship, or publication of this article.

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