

# Green Employee Training—A Remedy for Environmental Behaviour: The Case of Public Universities in Kenya

Grace Mwamburi Odhiambo , Esther Wangithi Waiganjo, and Alice Nanjala Simiyu

## ABSTRACT

The global ecosystem is fast deteriorating due to the devastating effects of climate change resulting from humanity's behaviour towards the environment. Increasing resource scarcity, loss of biodiversity and global warming with disastrous effects have become prevalent. Scientists unanimously blame anthropogenic (human) actions for the crisis and claim that the power to mitigate and preserve the environment lies within human behaviour change. Organizations are under pressure to act since they contribute significantly to climate change through their operations, products and services. By examining the influence of green employee training (GET) on employee pro-environmental behaviour (EPEB), the study sought to investigate whether environmental training could influence eco-friendly behaviour in employees of public universities in Kenya. A measurement model based on the Green Five taxonomy was developed and employed for the study. The model measured an array of employee green behaviours: *transforming, conserving, avoiding harm, influencing others and taking initiative*. A list of 31 public chartered universities accredited by the Commission for University Education in Kenya constituted the sampling frame, where a sample of 123 respondents was drawn from three purposively selected universities. The study adopted a correlational research design and employed mixed research techniques, combining both quantitative and qualitative approaches. An online questionnaire was used to collect primary data from respondents. Data was analysed using both descriptive and inferential statistics. Correlational analysis revealed a significant, positive correlation between GET and EPEB, indicating a strong, positive linear relationship between the predictor and response variables. ANOVA results revealed that green employee training significantly and positively predicts employee pro-environmental behaviour.

Submitted: August 09, 2023

Published: October 31, 2023

 10.24018/ejbm.2023.8.5.2142

Jomo Kenyatta University of Agriculture and Technology, Kenya.

\*Corresponding Author:  
e-mail: gramodh@gmail.com

**Keywords:** Climate change, employee pro-environmental behaviour, green employee training, Green Five taxonomy.

## 1. INTRODUCTION

Climate change is a serious global issue threatening the planet's life support and environmental and human systems (Robertson & Barling, 2015). 97.1% of climate scientists agree that the crisis is largely anthropogenic (Cook *et al.*, 2014). The Intergovernmental Panel on Climate Change (IPCC) is calling for urgent action, which, if not taken, would see the temperature increase to 1.5 °C between 2030–2052, with serious repercussions (Stocker *et al.*, 2014). The call to action has seen organizations change their processes or replace inefficient equipment.

However, structural changes alone may not suffice, given that the role of organizations is enacted by the people working therein (Bartlett, 2011; Dumitru, 2015). The power to mitigate these effects, therefore, lies within human behaviour change (Robertson & Barling, 2015; Swim *et al.*, 2011). Consequently, organizations and their employees have a critical role towards reducing the negative environmental impact and enhancing sustainability. This may be possible by promoting employee pro-environmental behaviour (Vinojini & Arulrajah, 2017). Universities, like any other organization, face increasing pressure from regulatory, normative, and social sources to adopt more

environmentally friendly practices (Norton, 2016). The vastness of these institutions, with a diverse range of stakeholders, requires significant resource consumption for administrative tasks, teaching materials and research activities. They thus generate substantial carbon emissions, waste, and pollution, making them microcosms of the environmental challenges faced by society today (Thondhlana & Hlatshwayo, 2018). As knowledge dissemination institutions and shapers of the future workforce, they hold a special responsibility in addressing environmental challenges, particularly in Africa, which is quite vulnerable to the effects of climate change (Adelekan, 2016; Stocker et al., 2014). In light of the urgency to address this environmental crisis and the pivotal role of universities, the study sought to investigate whether green training had any effect on employee pro-environmental behaviour, with a view of recommending strategies for promoting sustainable behaviours among university staff in Kenya's public universities.

## 2. RESEARCH OBJECTIVE

The study's objective was to investigate the influence of green employee training on pro-environmental behaviour in public universities in Kenya.

## 3. RESEARCH HYPOTHESIS

To determine the effect of green employee training on employee pro-environmental behaviour in public universities in Kenya, the following was hypothesized:

*H<sub>0</sub>: Green employee training has no significant influence on employee pro-environmental behaviour in Public universities in Kenya.*

## 4. THEORETICAL AND CONCEPTUAL FRAMEWORK

### 4.1. Theoretical Framework

#### 4.1.1. ISO 14001 Environmental Management Model

ISO 14001 is an internationally agreed Standard that sets out the requirements for an environmental management system. It helps organizations identify, manage, monitor and control their environmental issues holistically in order to improve their environmental performance through more efficient use of resources and reduction of waste, thereby gaining a competitive advantage and the trust of stakeholders (ISO, 2015). The model embodies various aspects that are critical in the management of an organization's carbon footprint that can be applied in conjunction with HRM practices. For instance, Clause 4.1, on understanding the organization and its context, requires the organization to consider external and internal issues pertinent to its environmental performance. In this context, climate change (an external issue) and employee behaviour (an internal issue) come into perspective. Clause 4.2 requires an understanding of the needs and expectations of various interested parties, such as employees, the community, the government, and pressure groups, among others. This basically calls for an understanding of the

perspective of those who affect or are affected by the organization's activities. This may, for instance, be applicable when environmental training is required, where the organization has to conduct a training needs analysis to understand the kind of knowledge the employees require to work sustainably in order to design a training program that would fulfil those requirements. Clause 5.2 underscores the need for an environmental policy, which is believed to drive the organization as it provides direction, establishes goals and confirms the firm's commitment to environmental sustainability. Clause 6 is about planning and, therefore, promotes risk-based thinking where an organization identifies risks likely to affect its environmental sustainability (ES) stance. Similarly, Clause 7 of the Standard cites the need for adequate resources, competence, awareness and communication if environmental sustainability is to be realized. In this context, human resources are key since an organization's performance is a function of the people who enact the organization's role on its behalf (Bartlett, 2011; Dumitru, 2015). Further, the model requires the establishment of criteria to assess existing competencies and, where gaps are identified, action taken to address them, thereby making green training needs analysis vital. The need to make personnel aware of the environmental policy, significant aspects and impacts of relevance to their activities has also been emphasized in the Standard, again making environmental training relevant. Additionally, employees ought to understand the compliance obligations required of the organization and the implications of failure to comply. The discussion, thus far, confirms the relevance of the ISO 14001 model to this study.

#### 4.1.2. Ability, Motivation and Opportunity (AMO) Theory

The Ability, Motivation and Opportunity (AMO) theory was proposed by Appelbaum (2000). The theory states that a firm's performance is a function of employees' ability, motivation and opportunity to participate. According to Unsworth and Tian (2018), the AMO framework sees HRM systems as comprising bundles of HRM practices geared towards augmenting employees' ability, motivation and opportunity to perform. The "A" in the AMO framework represents ability and proposes rigorous recruitment, selection and training as some of the HR practices likely to enhance employee skills. The "M" in the framework represents the bundle responsible for motivating discretionary employee effort and behaviour, while "O" represents opportunity-enhancing HR practices such as employee participation in decision-making, information-sharing, teamwork and flexible job design aimed at availing motivation-laden opportunities that ensure employee contribution towards achievement of organizational objectives.

The AMO theory can thus be said to facilitate HRM by increasing employees' ability through attracting and developing high-performing employees, enhancing employees' motivation and commitment through practices such as contingent rewards and effective performance management, and providing employees with opportunities to engage in knowledge-sharing and problem-solving activities via employee involvement programmes. The theory

suggests that employees will perform well when they are able, motivated and have the opportunity to do so. This means that they should possess the required skills and knowledge, be rewarded for their behaviour and be facilitated and supported accordingly (Rayner & Morgan, 2018).

#### 4.2. Conceptual Framework

The independent variable was operationalized using three indicators conceptualizing the development of employee capabilities through green training. Employee pro-environmental behaviour formed the dependent variable operationalized with indicators depicting an array of pro-environmental behaviours. It is from this model that the study derived its conceptual framework, as presented in Fig. 1.

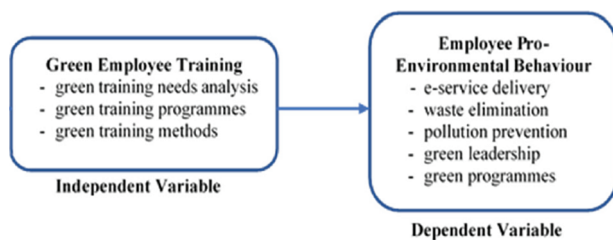


Fig. 1. The conceptual framework.

## 5. LITERATURE REVIEW

### 5.1. Green Employee Training

Green training refers to a sequence of activities intended to impart environment-protection skills to employees in order to create pro-environmental awareness and knowledge (Tang et al., 2018). It serves three main purposes: First, to teach employees about the organization's environmental policies and procedures in order to enhance their understanding of the importance of environmental protection; secondly, to equip employees with knowledge and skills that will enable them to carry out environmental activities; and thirdly, build a climate that encourages employee involvement in environmental initiatives (Tang et al., 2018; Yong et al., 2020). Advanced environmental sustainability initiatives are considered to be 'people intensive' and hence reliant on skill development through employee training (del Brio et al., 2007). Green employee training thus teaches employees the worth of environmental management, trains them on work methods that conserve energy, reduce waste and provide opportunities for employee involvement in environmental problem-solving (Mwita, 2019; Pande, 2016).

Research suggests that environmental training is positively related to the greening of organizations worldwide (Muduli et al., 2013; Paillé & Mejía-Morelos, 2014). It is one of the most important elements for influencing people's behaviour, albeit one of the most overlooked in environmental initiatives (Shahid, 2015). Not only does it induce an employee's emotional involvement in green initiatives through increased awareness of the effects of their poor behaviour towards the environment, but it also taps into an employee's implied environmental knowledge.

Similarly, it enhances high-level skills and attitudes for managers, supervisors and employees while eliminating process and material waste (Dumont, 2015; Lee, 2009; Renwick et al., 2013; Roscoe et al., 2019).

Pro-environmental behaviour (PEB) literature highlights a group of internal factors: social, cognitive and affective, which are believed to be responsible for pro-environmental behaviour. Within the cognitive category are environmental awareness and perceived behavioural control. Environmental awareness, in this case, refers to environmental knowledge and recognition of environmental problems, which, in turn, significantly enhance pro-environmental behaviour (Blok et al., 2015). Although organizations engage in corporate environmental management initiatives to improve their environmental performance, significant barriers bar these efforts, notably among them being the absence of knowledge (Sarkis et al., 2010). Efforts to promote environmentally-relevant human behaviour, therefore, assume that awareness of climate change and an understanding of the magnitude of the problem would lead to significant take-up of pro-environmental behaviour (Dumitru, 2015).

Analysis and identification of environmental training needs of employees has been suggested as a mechanism for creating a more pro-environmental workforce. Aishwarya and Thahrani (2020) allude that training needs analysis is critical in revealing what skills and environmental knowledge employees require. It may, for instance, reveal the need to incorporate environment-related health, energy conservation, waste management and recycling aspects as foci for green training (Aishwarya & Thahrani, 2020). This way, the training will not only act as a critical intervention to inform staff on the environmental impact of their organization's activities but also as a tool that will raise employees' eco-literacy and environmental expertise (Renwick et al., 2013; Roy & Thérin, 2008). The findings of a study by Teixeira et al. (2016) established a significant positive relationship between systematic analysis of training needs and green supply chain management. The electronic-based quantitative survey that sampled 95 ISO 14001-certified Brazilian firms concluded that organizational learning and alignment of HRM practices were crucial to the greening of firms. Similarly, in their study examining employee engagement in managing the environmental performance of two McDonald's subsidiaries (UK and Sweden), Sanyal and Haddock-Millar (2018) highlight the global brand's "Planet Champions" initiative. In this programme, volunteers were trained on diverse environmental issues, the company's objectives and how they could contribute in terms of waste management, recycling and energy conservation.

According to Zhang (2019), the element of greening should not only be reflected in the training content but also in the way training is conducted. The process should utilize eco-friendly methods and technologies in training and development programmes. Consideration should be given to digital learning platforms rather than printed handouts, books and brochures in order to minimize paper consumption and waste generation, ultimately reducing the organization's carbon footprint (Hosain & Rahman,



2015; Mwita, 2019). Aishwarya and Thahriani (2020) concur that online and web-based training programs and digital media are excellent teaching tools at the disposal of any organization set on propagating environmental sustainability. A study by Oyedokun (2019) investigated green HRM and its effect on the sustainable competitive edge in the Nigerian manufacturing industry. Findings of the study that targeted 242 employees from Dangote Nigeria Plc concluded that green employee training practices had a positive and significant effect on the industry's sustainable competitive edge. Moreover, the training was found to utilize web-based audio-visuals and lectures via Skype in order to reduce paper consumption, minimize environmental pollution and consequently enhance employee PEB. Similarly, the results of a case study of Mater Misericordiae Limited in Eastern Australia by Russell and Hill (2018) demonstrated the healthcare provider's success in entrenching environmental sustainability through the utilization of online education modules, among other training methods. Other scholars (Jackson & Seo, 2010; Labela-Fernández & Martínez-del-Río, 2019) have emphasized experiential practices which can be introduced for educational purposes to informally entrench environmental sustainability. They cite Google and Intel, for example, which established employee gardens on-site for employees to tend and grow things like organic vegetables, which are later used as food in the organizations' cafeterias and restaurants, thus boosting employee pro-environmental behaviour.

### 5.2. Employee Pro-Environmental Behaviour

Ture and Ganesh (2014) define pro-environmental behaviour (PEB) as any activity, direct or indirect, undertaken by an employee to improve the natural environment at the workplace. Steg and Vlek (2009) see PEB as one that harms the environment as little as possible or even benefits the environment, while Kollmuss and Agyeman (2002) define it as "behaviour that consciously seeks to minimize the negative impact of one's actions on the natural and built world". Examples of PEB given include limiting energy and water consumption, avoiding/minimising waste, recycling waste, double-sided printing, saving packaging materials, separating biodegradable trash and using more ecological modes of transport (Warrick, 2016). Most research on employee PEB has focused on single behaviours, limiting them to resource reuse, reduction and recycling, thus giving the concept a very narrow perspective. Ones et al. (2018) have, however, conceptualized a wider range of environmentally relevant employee behaviour, hence the development of the Green Five taxonomy, which comprehensively encompasses the relevant environmental behaviours employees are likely to perform at work, namely: *transforming, conserving, avoiding harm, influencing others and taking initiative*.

Transforming behaviours are considered foundational to employee green behaviours and require adaptation and openness to change. For instance, an increasing focus on improving efficiency, efficacy and sustainability has led to an upward trend towards innovative and transformational use of ICT to facilitate e-service delivery. An example

is Interface Company Limited, which exemplified transforming behaviour when its customers began questioning what it was doing for the environment. Ray Anderson, the founder, realized that his carpet-selling business, which heavily relied on petrochemicals, was operating in a take-make-waste mode, placing immense waste on planet Earth in pursuit of profit (Kennedy et al., 2015). To address these concerns, the entity devised new product and process innovations aimed at minimizing greenhouse gas emissions and lessening the quantity of virgin material used (eco-innovation). This involved closed-loop manufacturing, where the company took back post-consumer carpet tiles for recycling in order to reuse the material and minimize landfill disposal of carpet waste (Kennedy et al., 2015; Luqmani et al., 2017).

Conserving behaviours aims to promote resource preservation by avoiding wastefulness and are pegged on the traditional '3Rs' (reduce, reuse, recycle). Reducing use is at the apex and considered most responsible for minimizing environmental impact, followed by reusing and repurposing, which involves putting the same materials into multiple uses instead of disposing after a single use. At the bottom of the apex is recycling, considered to be the least desirable and, hence, a last resort. Resources that can be conserved under this category include paper, water, energy, gas and other natural resources. For instance, aiming to raise environmental awareness among staff, McDonald's undertook an initiative dubbed "*Planet Champion*", which yielded increased cardboard recycling and energy savings (Sanyal & Haddock-Millar, 2018).

Avoiding harm targets to inhibit negative environmental behaviour, reducing impact and mitigating environmental damage. The subcategories here include pollution prevention, monitoring environmental impact and strengthening ecosystems, which may involve repairing or recovering from current environmental damages, for instance, by planting trees. An example is Interface's "*Net-Works*", an initiative by a pro-environmental employee who spearheaded the collection of discarded fishing nets from Danajon Bank in the Philippines, thereby improving fish catches in the longer term and consequently strengthening the ecosystem (Kennedy et al., 2015).

Green leadership is about influencing others by spreading sustainability behaviours from one individual to the other. Being a social category, influencing others requires extraversion, agreeableness and interpersonal skills, according to Ones and Dilchert (2013). It corresponds to general job performance associated with leadership, management and communication. In Mater, for instance, targeting to reduce energy usage in administrative areas, senior managers modelled behaviour through a "*Turn it off*" campaign. The success was evident as a significant reduction in electricity consumption was realized in the form of standby power for computing equipment where employees took individual responsibility to turn off computer monitors and hard drives (Russell et al., 2016; Russell & Hill, 2018).

Green programs answer to the category of taking initiative. This is the last meta-category in the Green Five taxonomy and involves behaviours that are proactive, entrepreneurial and bearing a certain level of personal risk

or sacrifice. The performance of these behaviours may thus involve some negative consequences such as financial loss, discomfort or social costs. They may be geared towards avoiding harm, transforming or conserving. Its subcategories include initiating programmes and policies to address any aspect of environmental sustainability, such as a recycling programme; lobbying and activism (or green voice) aimed at advocating for environmental causes which require effort and courage; putting environmental interests first by sacrificing personal interests such as comfort, convenience, financial, social etc. for environmental sustainability (Ones et al., 2018). An example may be opting for a public commute instead of driving.

## 6. RESEARCH METHODOLOGY

### 6.1. Research Design

The study utilized correlational research design, which is normally used to search for and describe relationships among measured variables. The design aims to establish the extent to which two variables are related, where values for one may be used to predict changes in the values of another (Stangor, 2011). The researcher does not attempt to control or manipulate the variables (Meissner et al., 2011). The study adopted a combination of both quantitative and qualitative research techniques (mixed methods). The combined approach was deemed necessary for the study, given that the questionnaire contained both closed and open-ended questions. This strengthens the validity of the methodology, counteracting some of the limitations and problems linked with individual research approaches, thus giving a more complete and comprehensive account of the enquiry (Bryman, 2006; Creswell, 2013).

### 6.2. Research Philosophy

Philosophy refers to a system of beliefs and assumptions about the development of knowledge. Although there are a number of views debated, research philosophies are mainly categorized into three: *positivism*, *constructivism and pragmatism*. This study adopted the pragmatic philosophy, which assumes that research starts with a problem and aims to contribute practical solutions that inform future practice (Saunders et al., 2019). This view, according to Creswell (2013), stems from actions, situations and consequences rather than antecedent conditions, as is the case with the positivist approach. It tends to focus on the research problem and utilizes all available techniques to understand it (Rossman & Wilson, 1985). The pragmatic philosophy applies mixed methods research such that the researcher borrows from both quantitative and qualitative assumptions, thus giving latitude to choose methods, techniques and procedures that best address the research needs and purposes. In so doing, the researcher lends more clarity to a research problem. Proponents of pragmatism do not view the world as an absolute unity. As such, those ascribing to this approach blend mixed methods to gather and analyse data rather than stick to only one way: quantitative or qualitative, as is the case with positivists or constructivists, respectively. This view opens more avenues to multiple methods, varying worldviews and

assumptions, as well as several forms of data collection and analysis. In summary, the core elements of pragmatism are consequences of actions, problem-centred, pluralistic and real-world practice-oriented (Saunders et al., 2019).

### 6.3. Target Population

This study targeted employees of the 31 accredited public universities in Kenya. These universities were targeted since they have been described as microcosms of environmental problems facing society today, being chief consumers of paper, water and energy, given the large number of students they host (Thondhlana & Hlatshwayo, 2018) and their multiple stakeholders. They are also the majority in Kenya compared to their private counterparts, which stood at 18 in number at the time (CUE, 2016). They, therefore, have a wider reach and, consequently, a greater impact on the environment through their operations.

### 6.4. Sample Size

A sample of 123 respondents was drawn using Yamane's (1967) formula:

$$n = \frac{N}{1 + Ne^2} \quad (1)$$

where:

$n$  is the sample size,

$N$  is the population under study,

$e$  is the margin of error (it could be 0.10, 0.05 or 0.01).

Further, stratification was applied to categorize the respondents into top-level management, middle-level management and others (teaching and non-teaching) within each university to ensure proportionality when drawing the sample. The stratified sample size was obtained using the following formula:

$$nh = \frac{Nh}{N} \times n \quad (2)$$

where  $nh$  is the sample size for stratum  $h$ ,  $Nh$  is the population size for stratum  $h$ ,  $N$  is the total population size, and  $n$  is the total sample size. See Table I for the final calculations.

TABLE I: SAMPLE SIZE

University	Top-level management	Mid-level management	Others (Teaching and non-teaching staff)	Total
University A	1	3	56	60
University B	1	3	50	54
University C	1	1	7	9
Total	3	7	113	123

### 6.5. Data Collection

The study utilized a semi-structured online questionnaire to collect primary data from 123 respondents. It also used a document analysis guide to collect secondary data to specifically establish the status of green training programmes. While looking at data relating to green employee training, it considered data over a five-year period to establish a trend and also provide a clear picture of how the

institutions in focus had fared over time (Bowen & Ostroff, 2004). The survey tool contained open-ended, closed-ended and matrix questions to facilitate the collection of both qualitative and quantitative data. It began with a series of closed-ended, followed by open-ended items intended to give respondents autonomy in their answers. Matrix questions were used to gauge the extent to which a respondent agreed or disagreed with a statement or series of statements. The responses were anchored on a five-point scale ranging from strongly agree to strongly disagree (a scale of 1–5, where 5 = Strongly Agree, 4 = Agree, 3 = Neither Agree nor Disagree, 2 = Disagree and 1 = Strongly Disagree). The Likert Scale was deemed appropriate for the study since it is a multiple-indicator measure, thus overcoming the challenge associated with reliance on just a single indicator (Bryman & Bell, 2015).

## 7. RESULTS AND DISCUSSION

### 7.1. Response Rate

Out of the 123 online questionnaires administered to respondents, 90 were fully completed, representing a 73.17% response rate. This rate was deemed sufficient since, according to Mellahi and Harris (2016), a response rate above 50% for HRM and business management is considered good. Achieving 73.17% was therefore considered a good basis for data analysis and drawing of conclusions.

### 7.2. Reliability of Research Instrument

The variables of focus, green training and employee pro-environmental behaviour yielded Alpha coefficients of 0.903 and 0.835, respectively, indicating an adequate level of inter-item reliability.

### 7.3. Descriptive Findings

#### 7.3.1. Descriptive Findings for Green Employee Training

The study utilized six items to examine the influence of green employee training on employee pro-environmental behaviour in public universities in Kenya. Analysis of data generated mean scores of 2.5231 (SD = 0.6018, N = 36), 3.4778 (SD = 0.6663, N = 45), and 3.8519 (SD = 0.7925, N = 9) for University A, B and C respectively. The overall mean score for GET was 3.1333 (SD = 0.8253, N = 90), an indication that green employee training, as an HR practice, was not fully implemented in public universities in Kenya.

The mean for University A (2.5231) corresponds to a score slightly above “disagree”, indicating that, on average, employees at University A tend to disagree, although not strongly, with the implementation of green employee training. Employees of Universities B and C, with means of 3.4778 and 3.8519, respectively, tend towards confirming the implementation of green employee training in their respective institutions. Respondents in the total sample, however, seem to somewhat remain neutral on the implementation of green training, as indicated by the overall mean of 3.133. This concurs with Shahid’s (2015) observation that among the most important elements for influencing people’s behaviour, green training is one of the most overlooked aspects of environmental initiatives (Shahid, 2015). The standard deviation for the total sample is 0.825, signifying overall variability in respondents’

perceptions of the status of green employee training across the three institutions. Table II presents these results.

TABLE II: GREEN EMPLOYEE TRAINING ACROSS INSTITUTIONS

Name of University	Mean	N	Std. deviation
University A	2.523	36	0.602
University B	3.478	45	0.666
University C	3.852	9	0.792
Total	3.133	90	0.825

When asked to suggest other training-related mechanisms for entrenching pro-environmental behaviour, green simulation, green role-modelling, green visual imagery and green training evaluation were suggested by 44%, 20% and 18% of the respondents, respectively, as shown in Table III. These results resonate with various others highlighted in the empirical literature. For instance, findings of a study by Rooney-Varga et al. (2020) revealed that Climate Action Simulation increased participants’ understanding of carbon emissions and actions needed to mitigate climate change and also amplified their personal and emotional engagement with climate change. On green role-modelling, Kennedy et al. (2015) report the realization of 80% of environmental targets set by Interface, a global carpet manufacturer, made possible by the founder’s own pro-environmental actions, which inspired employees’ PEB. Similarly, green visual imagery may expose employees to visual pro-environmental messages showing the invisible—future consequences of their current behaviour, since “seeing is believing” (Boomsma, 2012).

TABLE III: SUGGESTED ADDITIONAL GREEN TRAINING STRATEGIES

Theme	Frequency	Percentage
Green simulation	40	44
Green role-modelling	18	20
Green visual imagery	16	18
Green training evaluation	16	18
Total	90	100

An exploration of secondary data was done to establish a number of green trainings that may have been conducted in each of the three institutions. While no information was forthcoming from University A on this aspect, data revealed that University B had conducted two environmental trainings each year for 2016, 2017 and 2018, and one in 2019. Similarly, University C reported one green training for each year over the entire five-year period. Additionally, it highlighted an awareness campaign cautioning against printing e-mail messages, which accompanied every message relayed via corporate e-mail. Overall, these findings concur with the respondents who confirmed that digital learning platforms were used during training and that training materials were availed electronically. This infers the institutions’ efforts to emphasize green citizenship behaviour and encourage employees to behave pro-environmentally.



### 7.3.2. Descriptive Findings for Employee Pro-environmental Behaviour

Descriptive statistics for EPEB presented an overall mean score of 3.25, while the mean scores across the three institutions were: University A (M = 2.9063, SD = 0.46519, N = 36), University B (M = 3.4528, SD = 0.4873, N = 45), and University C (M = 3.611, SD = 0.2684, N = 9). Results are displayed in Table IV.

TABLE IV: GREEN EMPLOYEE TRAINING ACROSS INSTITUTIONS

Name of University	Mean	N	Std. deviation
University A	2.906	36	0.465
University B	3.453	45	0.487
University C	3.611	9	0.268
Total	3.250	90	0.539

University C has the highest mean pro-environmental behaviour score, indicating that their employees, on average, exhibit the highest level of pro-environmental behaviour among the three universities. University B follows closely, with a higher mean score than University A, suggesting higher pro-environmental behaviours compared to University A. The standard deviations provide insights into the variability of respondents' pro-environmental behaviour scores within each university and the total sample. University C has the smallest standard deviation, implying that its employees' behaviours are more consistent and hence clustered around the mean, consequently signifying a more uniform agreement with pro-environmental statements. University B and C had a slightly higher standard deviation, inferring somewhat more variation in pro-environmental behaviours among their employees compared to University C. On the overall, there is a general tendency towards agreement with pro-environmental statements in the total sample. However, University A may need to work on improving and encouraging more environmentally friendly practices among its workforce.

## 7.4. Inferential Results

### 7.4.1. Correlation Analysis Findings

A Pearson's Correlation Coefficient two-tailed test was computed to assess the direction and strength of the relationship between GET and EPEB. The correlation analysis revealed a significant, strong positive correlation between the two variables ( $r = 0.660$ ,  $p < 0.001$ ), as shown in Table V. The findings suggest that training programs focusing on green initiatives may have a positive effect on employees' pro-environmental behaviour.

TABLE V: PEARSON PRODUCT-MOMENT CORRELATION BETWEEN GET AND EPEB

	EPEB	GET
EPEB	1	
GET	0.660*	1

Note: \* $p < 0.01$ .

### 7.4.2. Findings for ANOVA between EPEB and GET

A regression analysis was carried out to assess the influence of green employee training on employee pro-environmental behaviour. GET, the predictor variable, was found to account for a significant proportion of the variance in EPEB ( $R = 0.660$ ,  $R^2 = 0.436$ , Adjusted  $R^2 = 0.429$ ,  $SE = 0.407$ ; see Table VI).

TABLE VI: MODEL SUMMARY OF THE REGRESSION MODEL

R	R-squared	Adjusted R-squared	Std. error of the estimate
0.660	0.436	0.429	0.407

The study sought to further establish whether green training significantly predicted employee pro-environmental behaviour. Results in Table VII reveal that green employee training significantly and positively predicts employee pro-environmental behaviour  $F(1, 88) = 67.975$ ,  $p < 0.001$ .

TABLE VII: ANOVA RESULTS OF THE REGRESSION MODEL

Model	SS	df	Mean square	F	p-value
Regression	11.276	1	11.276	67.975	<0.001
Residual	14.599	88	0.166		
Total	25.875	89			

Further scrutiny of the coefficients to ascertain the influence of GET on EPEB revealed that green employee training significantly and positively influences employee pro-environmental behaviour ( $B = 0.431$ ,  $t = 8.245$ ,  $p < 0.001$ ). This indicates that for every one-unit increase in Green Employee Training, there is an expected increase of 0.431 units in Employee Pro-environmental Behaviour.  $H_0$  was unsupported and, therefore, rejected. The findings align with those of a study by Oyedokun (2019), who reported a positive and significant effect of green employee training on Dangote's sustainable competitive edge. Results are presented in Table VIII.

TABLE VIII: REGRESSION COEFFICIENTS

Model	Unstandardized coefficients		Standardized coefficients	t	p-value
	B	Std. error			
(Constant)	1.899	0.169		11.205	<0.001
Green Employee Training	0.431	0.052	0.660	8.245	<0.001

A visual inspection of the scatterplot in Fig. 2 confirmed the relationship.

## 8. CONCLUSION AND RECOMMENDATIONS

The study reveals that implementation, hence, the effect of green employee training on employee pro-environmental behaviour, varies across universities A, B, and C. Further investigations or follow-up actions may, therefore, be necessary to gain more insights on the factors influencing variation in these perceptions with a view to

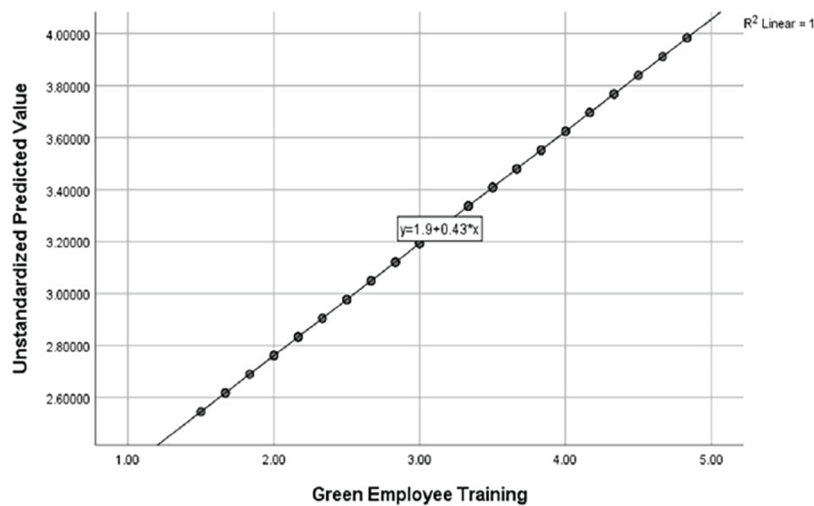


Fig. 2. The scatterplot of EPEB(Y) and GET(X).

optimizing the impact of training programs in order to promote pro-environmental behaviours among employees. Respondents suggested green simulation as a probable strategy likely to equip them with interactive and hands-on learning experiences that may go a long way in enhancing their pro-environmental behaviours. The proposition of green role-modelling and green visual imagery also implies that real-life examples and visual aids could be effective tools for inspiring sustainable practices in these institutions. According to respondents, green training evaluation to measure the effectiveness of a training program was also necessary.

The study recommends the identification of specific areas where effective green employee training is required, with the aim of tailoring green training content to address the precise needs and challenges encountered by each university. While doing so, the universities should also consider utilizing interactive and hands-on approaches, such as green simulation, to provide practical experiences for better understanding and adoption of eco-friendly practices. Green training evaluation should also be incorporated as a standard practice to constantly assess the impact and effectiveness of green training initiatives. This would facilitate the measurement of changes in environmental knowledge, attitudes and behaviours in order to make data-driven adjustments where necessary.

#### CONFLICT OF INTEREST

The authors declare that they do not have any conflict of interest.

#### REFERENCES

- Adelekan, I. O. (2016). Flood risk management in the coastal city of Lagos, Nigeria. *Journal of Flood Risk Management*, 9(3), 255–264. <https://doi.org/10.1111/jfr3.12179>.
- Aishwarya, N., & Thahriani, R. (2020). HR green initiatives for sustainable development. *Shanlax International Journal of Management*, 7(S1), 37–43.
- Appelbaum, E. (2000). *Manufacturing Advantage: Why High-Performance Work Systems Pay Off*. New York: Cornell University Press. <https://books.google.co.ke/books?id=WqfG1HDc3fsC>.
- Bartlett, D. (2011). Introduction: The psychology of sustainability in the workplace. In D. Bartlett (Ed.), *Going Green: The Psychology of Sustainability in the Workplace* (Issue February, pp. 1–5). British Psychological Society. [http://www.communitypathways.org.uk/files/docs/biblio/bartlett\\_BPS\\_GoingGreenAtWorkBook\\_0211.pdf#page=33](http://www.communitypathways.org.uk/files/docs/biblio/bartlett_BPS_GoingGreenAtWorkBook_0211.pdf#page=33).
- Blok, V., Wesselink, R., Studynka, O., & Kemp, R. (2015). Encouraging sustainability in the workplace: A survey on the pro-environmental behaviour of university employees. *Journal of Cleaner Production*, 106, 55–67. <https://doi.org/10.1016/j.jclepro.2014.07.063>.
- Boomsma, C. (2012). *Visual images as a motivational bridge to pro-environmental behaviour: A cognitive approach* [Unpublished doctoral dissertation]. Plymouth University. Available at: <https://core.ac.uk/download/pdf/29817531.pdf>.
- Bowen, D. E., & Ostroff, C. (2004). Understanding HRM-firm performance linkages: The role of the strength of the HRM system. *Academy of Management Review*, 29(2), 203–221. <https://doi.org/10.5465/AMR.2004.12736076>.
- Bryman, A. (2006). Integrating quantitative and qualitative research: How is it done? *Qualitative Research*, 6(1), 97–113. <https://doi.org/10.1177/1468794106058877>.
- Bryman, A., & Bell, E. (2015). *Business Research Methods. Methods*. 4th ed. Oxford: Oxford University Press.
- Cook, B. I., Smerdon, J. E., Seager, R., & Coats, S. (2014). Global warming and 21st century drying. *Climate Dynamics*, 43(9–10), 2607–2627. <https://doi.org/10.1007/s00382-014-2075-y>.
- Creswell, J. W. (2013). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. 4th ed., SAGE Publications, Inc. <http://gen.lib.rus.ec/book/index.php?md5=4dd8ec34ba58a24704851167d8481ced>.
- CUE (2016). *Quality: Our Agenda* (Report). Commission for University Education. [https://www.cue.or.ke/documents/Accredited\\_Universities\\_Kenya\\_August\\_2022.pdf](https://www.cue.or.ke/documents/Accredited_Universities_Kenya_August_2022.pdf).
- del Brio, J. A., Fernandez, E., & Junquera, B. (2007). Management and employee involvement in achieving an environmental action-based competitive advantage: An empirical study. *The International Journal of Human Resource Management*, 18(4), 491–522. <https://doi.org/10.1080/09585190601178687>.
- Dumitru, A. (2015). *Sustainable Behaviour in the Workplace: The Role of Universities in Promoting Pro-Environmental Behaviour*. Universidade da Coruña.
- Dumont, J. (2015). Green human resource management and employee workplace outcomes [University of South Australia]. Available at: [https://scholar.google.com/scholar?hl=en&as\\_sdt=0,5&q=green+human+resource+management+and+employee+outcomes,+jenny+dumont+2015&btnG=](https://scholar.google.com/scholar?hl=en&as_sdt=0,5&q=green+human+resource+management+and+employee+outcomes,+jenny+dumont+2015&btnG=).
- Hosain, S., & Rahman, S. (2015). “Green” human resource management—A. *Journal of Business and Management*, 03(6), 24–30. <https://doi.org/10.9790/487X-1806035459>.
- ISO (2015). ISO 14001. [http://www.iso.org/iso/introduction\\_to\\_iso\\_14001.pdf](http://www.iso.org/iso/introduction_to_iso_14001.pdf).
- Jackson, S. E., & Seo, J. (2010). The greening of strategic HRM scholarship. *Organisation Management Journal*, 7(4), 278–290. <https://doi.org/10.1057/omj.2010.37>.
- Kennedy, S., Whiteman, G., & Williams, A. (2015). Sustainable innovation at interface: Workplace pro-environmental behavior as a



- collective driver for continuous. In J. L. Robertson & J. Barling (Eds.), *The Psychology of Green Organizations* (pp. 351–377), New York: Oxford University Press.
- Kollmuss, A., & Agyeman, J. (2002). Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research*, 8(3), 239–260.
- Labella-Fernández, A., & Martínez-del-Río, J. (2019). Green human resource management. In W. Leal Filho, A. Azul, L. Brandli, P. Özuyar, T. Wall (Eds.), *Responsible Consumption and Production. Encyclopedia of the UN Sustainable Development Goals (Living Edi, Issue September)*. Cham: Springer, [https://doi.org/10.1007/978-3-319-71062-4\\_113-1](https://doi.org/10.1007/978-3-319-71062-4_113-1).
- Lee, K.-H. (2009). Why and how to adopt green management into business organizations?: The case study of Korean SMEs in manufacturing industry. *Management Decision*, 47(7), 1101–1121. <https://doi.org/10.1108/00251740910978322>.
- Luqmani, A., Leach, M., & Jesson, D. (2017). Factors behind sustainable business innovation: The case of a global carpet manufacturing company. *Environmental Innovation and Societal Transitions*, 24, 94–105.
- Meissner, H., Creswell, J., Klassen, A. C., Plano, V., & Smith, K. C. (2011). Best practices for mixed methods research in the health sciences. *Methods*, 29, 1–39. <https://doi.org/10.1002/cdq.12009>.
- Mellahi, K., & Harris, L. C. (2016). Response rates in business and management research: An overview of current practice and suggestions for future direction. *British Journal of Management*, 27(2), 426–437. <https://doi.org/10.1111/1467-8551.12154>.
- Muduli, K., Govindan, K., Barve, A., Kannan, D., & Geng, Y. (2013). Role of behavioural factors in green supply chain management implementation in Indian mining industries. *Resources, Conservation and Recycling*, 76, 50–60. <https://doi.org/10.1016/j.resconrec.2013.03.006>.
- Mwita, K. M. (2019). Conceptual review of green human resource management conceptual review of green human resource management practices. *East African Journal of Social and Applied Sciences (EAJ-SAS)*, 1(December), 13–20.
- Norton, T. A. (2016). *A Multilevel Perspective on Employee Green Behaviour*. Australia: The University of Queensland.
- Ones, D. S., & Dilchert, S. (2013). Measuring, understanding, and influencing employee green behaviors. In A. H. Huffman & S. R. Klein (Eds.), *Green Organizations: Driving Change with I-O Psychology* (pp. 115–148), New York: Routledge.
- Ones, D. S., Wiernik, B. M., Dilchert, S., & Klein, R. M. (2018). Multiple domains and categories of employee green behaviours: More than conservation. In V. K. Wells, D. Gregory-Smith, & D. Manika (Eds.), *Research Handbook on Employee Pro-Environmental Behaviour* (pp. 13–38). United Kingdom: Edward Elgar Publishing. <https://doi.org/10.4337/9781786432834>.
- Oyedokun, O. O. (2019). Green human resource management practices (GHRM) and its effect on sustainable competitive edge in the Nigerian manufacturing industry. Available at: <https://esource.dbs.ie/handle/10788/3829>.
- Paillé, P., & Mejía-Morelos, J. H. (2014). Antecedents of pro-environmental behaviours at work: The moderating influence of psychological contract breach. *Journal of Environmental Psychology*, 38, 124–131. <https://doi.org/10.1016/j.jenvp.2014.01.004>.
- Pande, B. H. (2016). A study on work behaviour of Hr personnel towards environment to endorse green hrm practices at workplace. *Journal of Advances in Business Management*, 53–55. <https://doi.org/10.14260/jadbm/2016/22>.
- Rayner, J., & Morgan, D. (2018). An empirical study of ‘green’ workplace behaviours: Ability, motivation and opportunity. *Asia Pacific Journal of Human Resources*, 56, 56–78. <https://doi.org/10.1111/1744-7941.12151>.
- Renwick, D. W. S., Redman, T., & Maguire, S. (2013). Green human resource management: A review and research agenda\*. *International Journal of Management Reviews*, 15(1), 1–14. <https://doi.org/10.1111/j.1468-2370.2011.00328.x>.
- Robertson, J. L., & Barling, J. (2015). The psychology of green organizations. In J. L. Robertson & J. Barling (Eds.), *The Psychology of Green Organizations*. New York: Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199997480.001.0001>.
- Rooney-Varga, J. N., Kapmeier, F., Sterman, J. D., Jones, A. P., Putko, M., & Rath, K. (2020). The climate action simulation. *Simulation and Gaming*, 51(2), 114–140. <https://doi.org/10.1177/1046878119890643>.
- Roscoe, S., Subramanian, N., Jabbour, C. J. C., & Chong, T. (2019). Green human resource management and the enablers of green organisational culture: Enhancing a firm’s environmental performance for sustainable development. *Business Strategy and the Environment*, 28(5), 737–749. <https://doi.org/10.1002/bse.2277>.
- Rossmann, G. B., & Wilson, B. L. (1985). Numbers and words: Combining quantitative and qualitative methods in a single large-scale evaluation study. *Evaluation Review*, 9(5), 627–643. <https://doi.org/10.1177/0193841X8500900505>.
- Roy, M. J., & Thérin, F. (2008). Knowledge acquisition and environmental commitment in SMEs. *Corporate Social Responsibility and Environmental Management*, 15(5), 249–259. <https://doi.org/10.1002/csr.145>.
- Russell, S. V., Evans, A., Fielding, K. S., & Hill, C. (2016). Turn it off: An action research study of top management influence on energy conservation in the workplace. *Frontiers in Psychology*, 7(389), 1–10.
- Russell, S. V., & Hill, C. (2018). A case study of mater misericordiae limited. In D. W. S. Renwick (Ed.), *Contemporary Developments in Green Human Resource Management Research: Towards Sustainability in Action?* (pp. 57–72). New York and London: Routledge, Taylor & Francis. <https://doi.org/10.4324/9781315768953-4>.
- Sanyal, C., & Haddock-Millar, J. (2018). Employee engagement in managing environmental performance: A case study of the Planet Champion initiative, McDonalds UK and Sweden. In *Contemporary Developments in Green Human Resource Management Research* (pp. 39–56). London: Routledge.
- Sarkis, J., Gonzalez-Torre, P., & Adenso-Diaz, B. (2010). Stakeholder pressure and the adoption of environmental practices: The mediating effect of training. *Journal of Operations Management*, 28(2), 163–176. <https://doi.org/10.1016/j.jom.2009.10.001>.
- Saunders, M. N. K., Lewis, P., & Thornhill, A. (2019). Chapter 4: Understanding research philosophy and approaches to theory development. In *Research Methods for Business Studies (Issue March)*. [https://www.researchgate.net/publication/330760964\\_Research\\_Methods\\_for\\_Business\\_Students\\_Chapter\\_4\\_Understanding\\_research\\_philosophy\\_and\\_approaches\\_to\\_theory\\_development](https://www.researchgate.net/publication/330760964_Research_Methods_for_Business_Students_Chapter_4_Understanding_research_philosophy_and_approaches_to_theory_development)
- Shahid, N. (2015). Pro-environmental behaviour and implementation of environmental interventions in Pakistan [Norwegian University of Science and Technology]. <http://hdl.handle.net/11250/286223>.
- Stangor, C. (2011). *Research methods for the behavioural sciences*. 4th ed. Wadsworth, USA: Cengage Learning.
- Steg, L., & Vlek, C. (2009). Encouraging pro-environmental behaviour: An integrative review and research agenda. *Journal of Environmental Psychology*, 29(3), 309–317.
- Stocker, T. F., Qin, D., Plattner, G. K., Tignor, M. M. B., Allen, S. K., Boschung, J., et al. (2014). Climate change 2013 the physical science basis: Working Group I contribution to the fifth assessment report of the intergovernmental panel on climate change. In *Intergovernmental Panel on Climate Change (IPCC)*. Switzerland: Cambridge University Press. <https://doi.org/10.1017/CBO9781107415324>.
- Swim, J. K., Stern, P. C., Doherty, T. J., Clayton, S., Reser, J. P., Weber, E. U., et al. (2011). Psychology’s contributions to understanding and addressing global climate change. *American Psychologist*, 66(4), 241–250. <https://doi.org/10.1037/a0023220>.
- Tang, G., Chen, Y., Jiang, Y., Paillé, P., & Jia, J. (2018). Green human resource management practices: Scale development and validity. *Asia Pacific Journal of Human Resources*, 56(1), 31–55. <https://doi.org/10.1111/1744-7941.12147>.
- Teixeira, A. A., Jabbour, C. J. C., De Sousa Jabbour, A. B. L., Latan, H., & De Oliveira, J. H. C. (2016). Green training and green supply chain management: Evidence from Brazilian firms. *Journal of Cleaner Production*, 116, 170–176. <https://doi.org/10.1016/j.jclepro.2015.12.061>.
- Thondhlana, G., & Hlatshwayo, T. N. (2018). Pro-environmental behaviour in student residences at Rhodes University, South Africa. *Sustainability (Switzerland)*, 10(8), 1–19. <https://doi.org/10.3390/su10082746>.
- Ture, R. S., & Ganesh, M. P. (2014). Understanding pro-environmental behaviours at workplace: Proposal of a model. *Asia-Pacific Journal of Management Research and Innovation*, 10(2), 137–145.
- Unsworth, K. L., & Tian, A. (2018). Motivation and GHRM: Overcoming the paradox. In: D. W. S. Renwick (Ed.), *Contemporary Developments in Green Human Resource Management Research: Towards Sustainability in Action?* (pp. 23–38). New York: Taylor & Francis. <https://doi.org/10.4324/9781315768953-2>.
- Vinojini, M., & Arulrajah, A. A. (2017). The pro-environmental behaviour of employee in an apparel manufacturing organization in Nuwara-Eliya District of Sri Lanka. *Sri Lankan Journal of Human Resource Management*, 7(1):1–17.
- Warrick, B. (2016). Examining employee motivation, environmental systems, and corporate social responsibility in proenvironmental behavior this is to certify that the doctoral dissertation by [Walden University]. <https://scholarworks.waldenu.edu/cgi/viewcontent.cgi?article=4009&context=dissertations>.

- Yamane, T. (1967). *Statistics: An Introductory Analysis*. 2nd ed. New York: Harper and Row.
- Yong, J. Y., Yusliza, M. Y., Ramayah, T., Chiappetta Jabbour, C. J., Sehnem, S., & Mani, V. (2020). Pathways towards sustainability in manufacturing organizations: Empirical evidence on the role of green human resource management. *Business Strategy and the Environment*, 29(1), 212–228. <https://doi.org/10.1002/bse.2359>.
- Zhang, B. (2019). Environmental protection responsibility of enterprises: Green human resource management environmental protection responsibility of enterprises: Green human resource management. *IOP Conference Series: Materials Science and Engineering*, 612(5), 1–6. <https://doi.org/10.1088/1757-899X/612/5/052022>.