Personality and Pro-Environmental Behaviour in the Workplace: A Big Five Perspective

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Abstract
This study investigates the association between Big Five personality traits and Organisational Citizenship Behaviour toward the Environment (OCBE) within the workplace context. A two-step hierarchical regression approach was employed to elucidate the predictive power of both demographic variables and Big Five traits on OCBE. In the initial step, demographic variables were introduced into Model 1 and the outcome showed that education and recycling habits significantly predicted OCBE. However, in Model 2, which focused solely on the Big Five traits, conscientiousness emerged as the sole significant predictor of OCBE. These findings highlight the pivotal role of education, personal recycling habits and conscientiousness trait in fostering organisational citizenship behaviours. This could be achieved through interventions and training programmes designed to promote and facilitate environmentally friendly behaviours both within home and workplace settings. Such initiatives have the potential to cultivate a more proactive and engaged workforce, thereby fostering a positive organisational culture that values sustainability.
Keywords: Five-Factor Model, Employee Pro-Environmental Behaviour, Sustainability, Environmental Stewardship, Recycling.

Introduction
In contemporary organisational psychology, understanding the intricate interplay between individual personality traits and workplace behaviours has become paramount. Organisational Citizenship Behaviour (OCB) refers to discretionary acts that are not formally rewarded but contribute to the effective functioning of an organisation (Smith et al., 1983). It includes behaviours such as altruism, conscientiousness, and civic virtue that go beyond the formal job description but significantly contribute to organisational effectiveness (Podsakoff et al., 2000). Subsequent research has expanded the understanding of OCB, acknowledging its role in promoting a positive organisational climate, enhancing job satisfaction, and fostering innovation (Moqbel & Panuwatwanich, 2021a; Raza et al., 2021; Zhao & Liu, 2021). While considerable research has explored the link between personality traits and OCB in

various contexts, there exists a burgeoning interest in examining how personality traits influence OCB specifically towards environmental sustainability within organisations. Simultaneously, the urgency to address environmental issues has escalated in recent years, prompting organisations to integrate sustainability into their core values and practices. This has led to the emergence of a new dimension of OCB, known as Environmental Citizenship Behaviour (ECB) that includes behaviours such as conserving resources, recycling, advocating for environmentally responsible practices, and participating in green initiatives (Fakhar et al., 2021; Zsolnai, 2021). In organisations, employees' pro-environmental behaviours encompass voluntary actions aimed at reducing environmental harm and promoting sustainability within the organisational context such recycling paper, printing double-sided and conserving resources such as water and electricity (Bissing-Olson, 2013).

Personality, as a stable pattern of individual differences in thinking, feeling, and behaving, has long been recognized as a significant predictor of workplace behaviours. The Five-Factor Model (FFM) or the Big Five personality traits consist of five dimensions: Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism (often abbreviated as OCEAN), has provided a robust framework for studying the relationship between personality and various organisational outcomes (Hurtz & Donovan, 2000; Barrick et al., 2001). While research has explored the influence of personality traits on general OCB, limited attention has been paid to how personality traits specifically relate to employees' pro-environmental behaviour. Understanding this relationship is crucial for organisations aiming to foster a culture of environmental sustainability and socially responsible behaviour among employees. In the context of the environment, understanding how specific personality traits align with OCB can shed light on how employees may exhibit pro-environmental behaviours, such as conservation efforts, sustainability initiatives, and promoting eco-friendly practices within the organisation. As such, organisations can tailor recruitment, training, and development programmes to cultivate a workforce that is inclined towards environmentally responsible actions.

In light of these considerations, the present study seeks to investigate the relationship between personality traits and employees' pro-environmental behaviour within the context of organisational settings. Understanding how the Big Five personality traits influence employee behaviours, attitudes, and performance can inform recruitment strategies, team composition, and leadership development initiatives. By recognising the nuanced interplay between personality traits and organisational outcomes, companies can leverage individual differences to cultivate a diverse, resilient, and high-performing workforce.

After the introduction, the paper proceeds with the literature review, which provides an overview of existing research and identifies gaps that the current study aims to address. The methodology section details the research design, data collection methods, and analysis procedures used to investigate the research question. The results section presents the findings of the study, while the discussion interprets these results in the context of existing literature, acknowledges limitations and explores implications for practice or further research.

Literature Review

Demographic Variables and Sustainable Behaviours

Demographic variables such as gender, age, education level, marital status, and recycling practices significantly influence individuals' engagement in sustainable behaviours within organisational settings. Recent research provides valuable insights into how these variables shape pro-environmental actions. Gender differences have been consistently observed in sustainable behaviour studies, with women generally exhibiting higher levels of environmental concern and engagement compared to men. Women are more likely to participate in activities such as energy conservation, recycling, and supporting eco-friendly products (Gifford et al., 2020). This disparity is often attributed to women's greater environmental concern and more pronounced emotional responses to ecological issues (Dietz et al., 2019). Nonetheless, these gender differences can vary based on cultural and contextual factors (McCright & Eglund, 2021).

Age also plays a crucial role in determining sustainable behaviours. Recent studies reveal that younger individuals, particularly Millennials and Gen Z, are more likely to engage in sustainable actions due to heightened environmental awareness and activism. These younger generations are notably proactive in recycling and supporting green initiatives (Ojala, 2020; Burgess et al., 2021). Conversely, older adults can also be significantly involved in pro-environmental behaviours, especially when they have long-standing environmental values (Drews & Berghofer, 2021). Higher education levels are strongly correlated with increased engagement in sustainable behaviours. Individuals with more education are more likely to participate in recycling, energy conservation, and support environmental policies due to enhanced environmental literacy (Gifford & Nilsson, 2021; Wang et al., 2021). Educational programs that focus on environmental issues have been shown to positively influence pro-environmental attitudes and behaviours, underscoring the role of education in fostering sustainability (Schultz & Zelezny, 2022).

The impact of marital status on sustainable behaviours presents a more complex picture. Recent studies suggest that marital status can influence pro-environmental behaviours, although findings are mixed. For instance, married individuals, especially those with children, may be more motivated to engage in sustainable practices due to concerns about future generations (Jansson et al., 2020). On the other hand, single individuals may display varying levels of environmental engagement influenced by their personal values and lifestyle choices (Seyfang, 2022). Recycling practices are a key indicator of pro-environmental behaviour. Research highlights that individuals who regularly engage in recycling at home are more likely to adopt other sustainable behaviours, such as reducing energy consumption and supporting eco-friendly initiatives (Baker et al., 2021; Wang et al., 2023). The commitment to

recycling often correlates with a broader commitment to environmental sustainability, reflecting an overall dedication to pro-environmental actions.

Overall, demographic variables significantly impact sustainable behaviours. Gender differences, age, educational background, marital status, and recycling practices all play important roles in shaping individuals' pro-environmental actions. However, further research is needed to explore how these demographic factors interact and influence sustainability within organisational contexts. Understanding these factors can help organisations tailor strategies to enhance sustainability and encourage a more comprehensive commitment to environmental responsibility.

Big Five Personality Traits
Personality psychology is a field dedicated to understanding the enduring patterns of thoughts, feelings, and behaviours that characterise individuals. Among the various frameworks proposed to conceptualise personality, the Big Five personality traits has gained widespread acceptance and prominence. Developed through decades of research, the Big Five model identifies five broad dimensions of personality: openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism. The Big Five model emerged from factor analytic studies that aimed to identify the fundamental dimensions underlying personality traits. Each of the five traits represents a continuum ranging from low to high levels, capturing the diversity and complexity of human personality (DeYoung, 2015).

Openness to experience reflects the inclination towards imagination, curiosity, appreciation for art and culture as well as open to new ideas. Studies have shown that employees high in openness are more likely to adapt to change, engage in creative problem-solving, and embrace innovative practices within organisations (Andolsek & Salkic, 2023; Roberts et al, 2023). Conscientiousness encompasses traits such as organisation, reliable, responsibility, and self-discipline. Employees high in conscientiousness demonstrate a strong work ethic, attention to detail, and a proactive approach to tasks, leading to higher job performance and job satisfaction (Barrick & Mount, 2012; Adeniji et al., 2024). Extraversion entails sociability, assertiveness, outgoing and positive emotionality. Studies suggest that employees high in extraversion excel in roles that involve social interaction, leadership, and networking (Varghese & Barber, 2017; Campbell et al., 2024). Their assertiveness and enthusiasm can positively influence team dynamics and foster a vibrant work environment. Agreeable individuals are kind, cooperative, and empathetic. Those high in agreeableness are skilled in building harmonious relationships, resolving conflicts effectively, and promoting a positive organisational culture based on trust and collaboration (Choi et al., 2015; Wei et al., 2020). Neuroticism pertains to emotional instability, anxiety, and vulnerability to stress. Hence, employees high in neuroticism may experience higher levels of stress, lower job satisfaction, and greater susceptibility to burnout (Lu et al., 2022; Angelini, 2023). However, interventions such as emotional regulation training can help mitigate these effects (Fabbro et al., 2020).

The Big Five model has practical implications in various fields, including organisational psychology, clinical psychology, education, and consumer behaviour. In the workplace, understanding employees' personality traits can inform personnel selection, team composition, and leadership development initiatives. In clinical settings, assessing clients' personality profiles aids in treatment planning, intervention strategies, and therapeutic outcomes. In educational contexts, identifying students' personality strengths and weaknesses informs instructional strategies, career guidance, and academic counseling. In marketing and advertising, targeting consumers based on their personality traits enhances message effectiveness, brand engagement, and consumer satisfaction. Despite its widespread acceptance, the Big Five model is not without its critiques and controversies. Debates persist regarding the cultural universality of the Big Five traits and the adequacy of the model in capturing the full complexity of personality.

In conclusion, the Big Five model serves as a comprehensive framework for understanding the fundamental dimensions of personality. Through empirical research, theoretical advancements, and practical applications, the Big Five traits continue to enrich our understanding of human behaviour, inform decision-making processes, and facilitate personal and professional development. As researchers continue to explore the nuances of personality, the Big Five model remains a cornerstone in the field of personality psychology, guiding both theory and practice in diverse contexts.

Organisational Citizenship Behaviour for the Environment (OCBE)
In recent years, there has been a growing interest in a specific form of OCB known as Organisational Citizenship Behaviour for the Environment (OCBE). OCBE is a type of employee pro-environmental behaviour that encompasses voluntary actions undertaken by employees to support environmental sustainability initiatives within their organisations (Boiral, 2009; Daily et al., 2009). Examples of OCBE include conserving resources, reducing waste, recycling, advocating for environmentally friendly practices, participating in environmental training programmes, and volunteering for environmental initiatives. These behaviours align with organisational goals related to environmental responsibility, corporate social responsibility (CSR), and sustainable development.

Several factors influence employees' engagement in OCBE. Individual-level antecedents may include environmental awareness, pro-environmental attitudes, personal values emphasizing environmental stewardship, and perceived efficacy in making a difference (Baldassari et al., 2023; Lu et al. 2023; Saifulina et al., 2023). Organisational factors such as leadership support, organisational culture emphasizing sustainability, green HRM practices, and perceived organisational support for pro-environmental initiatives also play a crucial role in shaping employees' OCBE (Wesselink et al., 2017; Zientara & Zamojska, 2018; Huda et al., 2021; Foster et al., 2022). Employees who perceive strong organisational support for environmental sustainability are more likely to exhibit OCBE. Engaging in OCBE can yield various positive outcomes for organisations, employees, and the environment. At the organisational level, OCBE contributes to enhanced environmental performance, cost savings through resource conservation, improved corporate reputation, and stakeholder engagement. For employees, engaging in OCBE can enhance job satisfaction, organisational commitment, and perceived meaningfulness of work. Additionally, OCBE fosters a sense of

environmental responsibility and contributes to the broader societal goal of environmental sustainability.

In conclusion, OCBE represents a vital dimension of employee behaviour that contributes to organisational sustainability efforts. As organisations increasingly recognise the importance of environmental responsibility, OCBE offers a promising avenue for promoting sustainable practices and fostering a culture of environmental stewardship within the workplace. By understanding the antecedents, outcomes, measurement, and implications of OCBE, organisations can leverage employees' voluntary contributions to enhance employee well-being, advance environmental sustainability goals and contribute to a greener future for society as a whole.

Method

Data Collection Procedures

A questionnaire was developed to collect data from administrative staff at four public universities in Klang Valley. Specifically, 100 administrative staff members were randomly selected from each university's website, resulting in a total of 400 distributed surveys. Of these, 359 completed questionnaires were returned, representing a response rate of 89.8%. Tokens were provided to respondents upon completion of the questionnaire. Additionally, respondents were assured that their personal information and responses would be kept strictly confidential.

Instrument and Measurement

The first part of the study collected data on respondents' background such as gender, age, education level, marital status and recycling habits. Items for measuring the Big Five personalities and employee pro-environmental behaviour were adopted from previous studies. Respondents' personality was measured using the Big Five Inventory-2 (BFI-2) short scale developed by Soto and John (2017). Each item was being measured on a 5-point Likert scale (1 = *disagree strongly*; 5 = *agree strongly*). On the other hand, employee pro-environmental behaviour was measured using the Organisational Citizenship Behaviour toward the Environment (OCBE) scale, developed by Lamm, Tosti-Kharas and Williams (2013). All items were rated on 7-point Likert scale ranged from 1 = *strongly disagree* to 7 = *strongly agree*. All scales exhibited acceptable Cronbach's alpha coefficients.

Descriptive, Pearson correlation and multiple regression analyses were used to analyse the data and to answer the research objectives. Additionally, point-biserial correlations were used to assess the relationship between binary categorical variables (such as recycling habits) and continuous variables (such as Big Five personality traits). Pearson correlation measures the linear relationship between two continuous variables, while point-biserial correlation specifically evaluates the association between a continuous variable and a binary categorical variable.

Results

Table 1 shows the demographic background of respondents who participated in this study. Majority of the study sample was female (73%), aged between 31-40 years old (42.6%), had a bachelor's degree (33.7%), married with children (56.3%) and occasionally practiced recycling at home (50.1%).

Table 1
Demographic background of respondents

	Modalities	Frequency	Percentage
Gender	Male	97	27
	Female	262	73
Age	21-30 y/o	104	29.0
	31-40 y/o	153	42.6
	21-50 y/o	70	19.5
	21-60 y/o	32	8.9
Education Level	SPM	97	27.1
	STPM / Pre-U	75	20.9
	Bachelor's degree	121	33.8
	Master's degree	30	8.4
	Others	35	9.8
Marital Status	Single	115	32.0
	Married without children	42	11.7
	Married with children	202	56.3
Do you practice recycling at home?	Yes	110	30.6
	No	69	19.2
	Sometimes	180	50.1

Table 2 shows the Pearson and Point Biserial correlations of all variables. Among the Big Five personality traits, four exhibit statistically significant correlations with Organisational Citizenship Behaviour (OCBE), albeit the strength of these correlations is weak. Extraversion ($r = .18$, $p < .001$), agreeableness ($r = .02$, $p < .001$) and conscientiousness ($r = .28$, $p < .001$) were positively correlated with OCBE. As expected, neuroticism was negatively correlated with OCBE ($r = -.21$, $p < .001$) while openness to experience was not significantly associated with OCBE ($r = .26$, $p = .62$).

A two-block hierarchical regression was implemented to identify factors predicting OCBE. The first block of predictors consists of demographic such as gender, education level, age, marital status and recycling habit, while the second block included the Big Five personality traits related to OCBE. The hierarchical approach allows us to systematically examine the unique contributions of each set of predictors while controlling for the effects of other variables. The standardized regression coefficients (β) for the full model are reported in Table 3.

In the first model, demographic variables explained a small part (9.3%) of the variance in OCBE. Analyses showed that education levels play a significant role in predicting employees' OCBE. Specifically, employees with STPM/Pre-U qualification ($\beta < .145$, $p < .05$), bachelor's degree ($\beta < .170$, $p < .01$), master's degree ($\beta < .164$, $p < .01$) and other qualifications ($\beta < .178$, $p < .01$) were more likely to exhibit OCBE as compared to those who possess SPM qualification. In addition, those who do not ($\beta < -.264$, $p < .001$) and sometimes ($\beta < -.136$, $p < .05$) practice recycling at home were less likely to perform OCBE compared to those who often practice recycling.

In the second step, the Big Five personality traits were added to the regression model. This additional block of predictors significantly improved the prediction of OCBE with total variance explained of 14.4%, beyond the contribution of demographic variables. The change in variance accounted for (ΔR^2) was equal to .062, which was significantly different from zero ($F_{(5, 341)} = 4.557$, $p < .001$, Among the Big Five traits, only conscientiousness was a significant predictor of OCBE ($\beta < .153$, $p < .05$).

Table 2
Pearson and point biserial correlations between demographics, big five traits and OCBE.

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. OCBE	5.36	.92										
2. Extraversion	19.32	2.89	.18***									
3. Agreeableness	21.67	3.23	.02***	.34***								
4. Consientiousness	20.72	2.89	.28***	.33***	.54***							
5. Neuroticism	16.18	3.23	-.21***	-.28***	-.49***	-.44***						
6. Openness	18.59	2.03	.26	.26***	.10	.19***	.10					
7. Academic (STPM/Pre-U)	-	-	.05	-.08	-.04	.51	.04	-.07				
8. Academic (Bachelors)	-	-	.03	.10*	.12*	.10	-.02	.11*	-.37***			
9. Academic (Masters)	-	-	.11*	.15**	.06	.03	-.07	.03	-.16**	-.22***		
10. Academic (Others)	-	-	.11*	.03	.12*	.14**	-.06	.05	-.17**	-.23***	-.10	
11. Recycle (No)	-	-	-.23***	-.14*	-.10	-.08	.11*	-.09	-.04	-.02	-.07	-.01
12. Recycle (Sometimes)	-	-	.02	.03	.10	.00	-.01	.08	.00	.13*	-.02	-.00
13. Marital (married w/o children)	-	-	.02	-.05	-.16**	-.05	.10	.01	.03	-.02	-.02	-.06
14. Marital (married with children)	-	-	-.02	.03	.08	.09	-.20***	-.08	.01	-.18***	-.08	.15**
15. Gender	-	-	.11*	-.08	.09	.09	-.05	-.02	.11*	-.08	-.07	.09
16. Age (31-40)	-	-	-.03	.02	-.07	-.05	-.03	-.02	-.03	.03	-.06	-.01

17.	Age (41-50)	-	-	.02	.01	.08	.11*	-.04	-.04	.02	-.16**	-.02	.08
18.	Age (51-60)	-	-	-.08	-.08	.05	.10	-.09	.04	.01	-.14**	-.02	-.00

	11	12	13	14	15	16	17
11. Recycle (No)							
12. Recycle (Sometimes)	-.49***						
13. Marital (married w/o children)	-.00	-.00					
14. Marital (married with children)	.00	-.12*	-.41***				
15. Gender	-.04	.02	-.15**	.02			
16. Age (31-40)	-.06	.07	.05	.14**	-.01		
17. Age (41-50)	.06	-.14**	-.03	.18***	.11*	-.42***	
18. Age (51-60)	.07	-.16**	-.05	.16**	-.08	-.27***	-.16**

Note: OCBE: Organisational Citizenship Behaviour for the Environment
*$p < .05$, **$p < .01$, ***$p < .001$

Table 3
Results of hierarchical regression for predictors of OCBE

Predictor variables	Model 1	Model 2
Gender (base: male)	.098	.080
Education (base: SPM)		
STPM/Pre-U	.145*	.099
Bachelor	.170**	.083
Masters	.164**	.109
Others	.178**	.120*
Age (base: 21-30)		
31-40	-.058	-.078
41-50	-.021	-.068
51-60	-.069	-.114
Marital Status (base: single)		
Married w/o children	.061	.070
Married with children	.026	.000
Recycling (base: yes)		
Does not recycle	-.264***	-.236**
Sometimes	-.136*	-.133*
Extraversion		.043
Agreeableness		.074

Conscientiousness		.153*
Negative Emotionality		-.076
Open-mindedness		-.035
Adjusted R^2	**.093**	**.144**
R^2 change	**-**	**.062**
F	**4.066**	**4.557**
Sig	**.001**	**.001**

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Discussion and Implications

The findings highlight the significance of education levels in predicting employees' Organisational Citizenship Behaviour towards the Environment (OCBE). Employees with higher educational qualifications may possess greater knowledge about environmental issues and sustainability practices, leading to a higher likelihood of engaging in OCBE. This finding aligns with previous research, such as Gifford and Nilsson (2021) and Wang et al. (2021), which demonstrate that higher education levels are positively associated with environmental concern and sustainable behaviour. This suggests that investing in educational opportunities for employees, such as providing access to training programmes or tuition reimbursement for further education, could be beneficial for promoting environmentally responsible behaviour within the organisation.

Furthermore, the results underscore the importance of individual behaviours outside the workplace, particularly in relation to recycling practices at home, in influencing OCBE. The observed association between recycling practices at home and OCBE reveals the interconnectedness of personal and professional behaviours. This finding supports the work of Baker et al (2021), and Wang et al (2023), who found that personal recycling habits correlate with broader pro-environmental behaviours. Employees who prioritise environmental conservation in their personal lives may carry these values into the workplace, leading to increased engagement in OCBE. Consequently, organisational efforts to promote sustainability should extend beyond the workplace to encompass employees' lifestyles and daily habits. Employers could consider implementing initiatives to encourage and support environmentally friendly behaviours both at home and at work, such as providing resources for recycling and waste reduction.

The inclusion of Big Five personality traits in the regression model significantly enhanced the prediction of OCBE beyond the demographic variables. Specifically, conscientiousness emerged as the only significant predictor among the Big Five traits. Conscientious individuals are characterised by their reliability, organisation, and attention to detail, traits that may predispose them to actively participate in environmental initiatives within the organisation. Organisations may consider incorporating assessments of conscientiousness into their recruitment and selection processes to identify employees who are more likely to engage in environmentally responsible behaviours. The finding that conscientiousness is a significant predictor of OCBE aligns with Barrick et al (2001), and Moqbel and Panuwatwanich (2021b), who highlighted the importance of the trait in driving environmentally responsible behaviour. Recognising the influence of personality traits on OCBE, organisations could incorporate personality assessments into talent management practices to identify individuals with the propensity for environmental stewardship.

Moreover, fostering a work environment that values conscientiousness and rewards pro-environmental behaviour may further encourage employees to engage in OCBE.

In essence, promoting OCBE requires a multifaceted approach that addresses individual characteristics, educational opportunities, and organisational practices. By examining how education level and recycling habits influence OCBE, alongside the role of conscientiousness, the research offers a holistic view of the factors driving pro-environmental behaviour in organisations. The findings align with existing literature linking higher education with greater environmental awareness and emphasise the importance of personal behaviours outside the workplace, such as recycling, in shaping professional environmental actions.

Furthermore, the identification of conscientiousness as a significant predictor of OCBE reinforces the role of personality traits in driving pro-environmental behaviour. This study extends theoretical models by confirming the relevance of conscientiousness and suggesting practical applications for organisational practices, such as incorporating personality assessments in recruitment and investing in educational opportunities. Overall, the research bridges theoretical perspectives with practical implications, enhancing our understanding of how diverse factors contribute to sustainable behaviour in organisational settings.

Limitations and Future Directions
While this study contributes valuable insights to the field, it is not devoid of limitations, a characteristic shared with many other research endeavors. Given the cross-sectional nature of the data collected, causal relationships were not explored in the current study. Therefore, future investigations could address these limitations by conduct longitudinal studies to examine the stability and long-term effects of education, personal practices, and personality traits on employees' engagement in OCBE. Tracking individuals over time can provide insights into how these factors evolve and interact with each other over the course of employees' careers. Additionally, longitudinal studies can elucidate the long-term effects of OCBE on organisational outcomes and sustainability performance.

Apart from this, researchers could supplement quantitative findings with qualitative investigations to gain a deeper understanding of the underlying motivations and barriers influencing employees' OCBE. Qualitative research methods, such as interviews or focus groups, can elucidate the complex interplay of individual beliefs, values, and experiences shaping environmental behaviour. Finally, this study did not consider intervening variables in the relationship between Big Five traits and OCBE. Future research could investigate mediating variables, such as environmental attitudes or perceived organisational support, can shed light on the processes through which education, personal practices, and personality traits influence employees' behaviour.

Acknowledgement

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