The Level of Green Behaviour, Green Knowledge, Self Esteem and Wellbeing among School Teachers in Malaysia

Norsuriani Samsudin[1], Balakrishnan A/L Parasuraman[1], Nurul Hafizah Mohd Yasin[1], Lee Wan Zhen[1]

[1] Universiti Malaysia Kelantan, Malaysia

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ABSTRACT

The increasing emphasis on environmental sustainability in Malaysia highlights the need to assess green behaviour, green knowledge, self-esteem and well-being among school teachers, as they play a crucial role in shaping students' environmental awareness. Despite growing awareness of green practices in the education sector, limited research has explored the about teachers' environmental behaviour, green knowledge, self-esteem and psychological well-being. This article presented a questionnaire designed to evaluate the level of green behaviour, green knowledge, self-esteem and well-being among school teachers in Malaysia and assess the reliability of the measurement instrument used. A quantitative approach was employed, and a structured questionnaire was distributed to 30 Malaysian school teachers. A pilot study was conducted, and reliability testing was measured by using Cronbach's alpha. This questionnaire consisting of 43 items was developed, demonstrating high internal consistency. The Cronbach's alpha values for the green behaviour scales which includes individual practices, influencing others and organizational support were 0.928, 0.927 and 0.923, respectively, indicating excellent reliability. Additionally, the green knowledge, self-esteem and well-being scale yielded a Cronbach's alpha value more than 0.9, signifying excellent reliability of the instrument. This questionnaire was found to be a viable instrument with high internal consistency to meet the study's objectives. This study underscores the importance of integrating sustainability education with teacher well-being programs to enhance their engagement in green initiatives. Future research should explore longitudinal studies and broader demographic samples to further validate these findings and support the development of effective environmental policies in the Malaysian education sector.

Corresponding Author:

Norsuriani Samsudin
Universiti Malaysia Kelantan, Kota Bharu, Kelantan, Malaysia; norsuriani.s@umk.edu.my

1. INTRODUCTION

Environmental sustainability has been extensively debated across the world in the last decade including Malaysia. With ongoing global threats of climate change and environmental deterioration, the role of individuals in playing their part in building sustainable habits is more imperative than ever (Ahmad et al., 2021). Among various professional groups, teachers assume specific significance to shape young minds and instill green habits among students (Rahman & Ismail, 2022). Teachers in schools adopting green behaviour not only help in sustaining the environment, but also their awareness and intention of living in an environmentally sustainable way. A proper understanding of the level of green behaviour in Malaysia's teachers is necessary to establish strategies focused on enhancing the environment awareness and practicing sustainability among the schools.

Green behaviour refers to personal activities that enhance environmental conservation, such as reducing waste, using energy-efficient practices, and encouraging green programs (Salleh et al., 2020). In Malaysia, the Ministry of Education (MOE) has initiated various policies and programs, such as the Green School Initiative and Eco-Schools Program, to encourage teachers and students towards sustainability (Ministry of Education Malaysia, 2021). However, despite all these attempts, there remains a knowledge gap as to the extent of teachers' green behaviour and how it is related to their psychological well-being and self-concept. Knowing these factors is essential in determining whether teachers' engagement in sustainability activities positively contributes to their general well-being and self-concept.

Self-esteem is a significant psychological factor that influences an individual's confidence, motivation, and overall satisfaction with life (Ali et al., 2022). Teachers with higher self-esteem are apt to be more active in integrating students into green education and bringing sustainable practices in schools. The research shows that individuals who imbibe environmentally responsive behaviour are supposed to have a higher level of psychological well-being and personal gratification (Cheng & Wu, 2020). In Malaysia, where teachers are subjected to increasing workloads and stress due to curriculum changes and administrative tasks, valuing the interconnection among self-esteem, green behaviour, and well-being is crucial in developing policies addressing teachers' mental well-being and environmental issues.

Green knowledge is the understanding, recognition, and practice of environmentally friendly lifestyles in daily life, particularly reducing environmental deterioration (Chen et al., 2020). With the fast industrialization and urbanization process in Malaysia, environmental concerns such as climate change, deforestation, and pollution have become essential national problems (Rahim et al., 2021). In response to these challenges, green knowledge should be boosted among citizens, especially teachers, students, and professionals to promote sustainable behaviour and establish environmentally friendly habits (Mustafa et al., 2022). Malaysia has consciously incorporated green knowledge into the country's national policy and education system for meeting global sustainability goals. The National Policy on Climate Change (2009), Green Technology Master Plan (2017–2030), and Sustainable Development Goals (SDGs) give particular emphasis to environmental education and awareness (Ministry of Energy, Science, Technology, Environment, and Climate Change [MESTECC], 2019). The Malaysian Education Blueprint (2013–2025) has integrated environmental education as a core part of school curricula, ensuring that future generations understand the significance of green practices and sustainability efforts (Ismail & Ariffin, 2021).

Physical, emotional, and psychological well-being is of utmost concern to teachers. The Malaysian teaching profession has been associated with high levels of work-related stress, which subsequently leads to burnout and job dissatisfaction (Hassan & Noor, 2021). Evidence shows that pro-environmental behaviour is associated with increased well-being through purpose and community involvement (Suleiman et al., 2023). If the teachers are made to believe that their green

behaviour is good for the environment and society, it has the effect of improving their psychological well-being and job satisfaction, thus ultimately benefiting the teachers and students.

The contribution of this research is its ability to impact educational policy and teacher training programs in Malaysia. By determining determinants of green behaviour among teachers, policymakers can design targeted interventions to promote sustainability in schools and enhance teacher well-being (Kamarudin et al., 2020). The study also contributes to the growing body of literature in environmental psychology by an investigation of the intersection of sustainable practice and psychological determinants in the education sector. Identifying these interconnections will provide valuable insights on how schools can support teachers in framing a green culture among students.

Furthermore, the study has practical implications for Malaysia's broader sustainability agenda. As the country moves towards achieving its Sustainable Development Goals (SDGs), particularly Goal 4 (Quality Education) and Goal 13 (Climate Action), integrating green behavior into the education system is essential (United Nations, 2022). Teachers as role models have the ability to impact environmentally friendly citizens. Thus, promoting green behaviour among teachers will have a cascade effect on students and the general public, influencing sustainable behaviours at diverse levels. Lastly, assessing the prevalence of green behaviour, self-esteem, and well-being among school teachers in Malaysia is pertinent and necessary. This study will provide significant insights on the effect of environmentalism among teachers on their psychological wellbeing and job satisfaction, contributing to overall literature on sustainability and wellbeing in education. Addressing these issues will help Malaysia strengthen its commitment to environmental conservation and general well-being of teachers so that the future can be sustainable for coming generations.

Literature Review

Green behaviour, also known as pro-environmental behaviour, is behaviour that individuals take on in order to reduce harm to the environment and increase sustainability (Salleh et al., 2020). For the Malaysian context, various schemes have been launched to encourage ecological behaviour among teachers, such as the Eco-Schools Program and Green School Initiative (Ministry of Education Malaysia, 2021). But to what degree these types of programs attempt to instill sustainable long-term behaviour among teachers is something requiring a response. Awareness has been said to be high, yet adoption rates for behavioural changes exist in terms that change according to structural and individual barriers (Rahman et al., 2022).

Teachers' environmental knowledge affects their green behaviour. Research has shown that educators who are more environmentally literate are more likely to practice sustainable habits in and out of the classroom (Ismail et al., 2020). Environmental education has been included in the Malaysian curriculum, but its effectiveness is dependent on whether the teachers engage in initiating green habits themselves. Lack of professional training in sustainability can impede the successful execution of eco-friendly practices by teachers (Yusof & Kamarudin, 2021). Personal attitudes and beliefs also shape green behaviour. A person's intention to engage in pro-environmental behaviour is influenced by their attitudes, perceived behavioural control, and subjective norms according to Ajzen's (1991) Theory of Planned Behaviour. Hassan et al. (2021) in their research reported that Malaysian teachers who had positive environmental attitudes were more likely to incorporate recycling, energy conserving, and waste reduction into schools. However, barriers of extrinsic origin like insufficient resources and institutional support can lower the likelihood of these actions being sustained.

Social influence and peer support have also been found to be key stimuli for green behaviour by teachers. Teachers who participate in a supportive school culture with a focus on sustainability have better opportunities to integrate green behaviours (Latif et al., 2022). Schools that are actively involved in sustainability initiatives in Malaysia have higher levels of staff commitment towards an overall feeling of environmental responsibility. Green leadership's participation in the management of a school has further effects to make teachers more inclined to introduce sustainable practices (Suleiman & Noor, 2020).

Green knowledge for Malaysian teachers is refers to their perception, knowledge, and ability to integrate environmental sustainability concepts into the pedagogy. This includes knowledge on climate change, waste management, energy conservation, and sustainable development (Hassan et al., 2022). As teachers play a crucial role in imparting values and attitudes toward environmental sustainability among students, there is a need to enhance green knowledge among teachers to foster a more environmentally conscious society. The Malaysian educational system has recognized such a need by incorporating aspects of sustainability in the curriculum under programs such as the Eco-Schools Program and Malaysia Education Blueprint (2013-2025) (Ismail et al., 2023). Despite the attempts, there are issues with prepping teachers to possess the necessary knowledge and skills for teaching sustainability.

One of the most significant concerns of green knowledge for Malaysian teachers is the various levels of environmental awareness at different schools and locations. There is evidence that city school teachers are likely to receive superior exposure to environmental education programs than rural school teachers who may lack proper training and resources (Zainal et al., 2022). Moreover, even though most teachers do have optimistic dispositions towards sustainability, they do not necessarily possess the technical competence or confidence to incorporate green materials into teaching, particularly in non-science disciplines (Rahim et al., 2021). Such a lack of green literacy therefore creates the necessity for more programmatic professional development opportunities that give teachers experiential hands-on tools and environmental education training.

Despite the inclusion of environmental education in schools in Malaysia, a lot of teachers lack proper ways of integrating green knowledge into classroom work. Studies indicate that topics in the area of sustainability are not taught practically, but in abstract terms, unlike practical work that involves students in actual environmental problems (Salleh & Wahid, 2020). The lack of interactive learning resources, e-learning resources, and inter-disciplinary approaches further limit educators from delivering impactful lessons on sustainability (Aziz et al., 2023). This points towards the need for initiating a curriculum reform that promotes experiential learning, project work, and cross-disciplinary approaches to green education.

To enhance the application of green knowledge by teachers, more institutional support and synergy among the government, schools, and environmental groups are necessary. Schools should enhance green activities such as school recycling, green clubs, and neighborhood-based projects in order to have a culture of environmental responsibility between teachers and learners (Aziz et al., 2023). The Ministry of Education also needs to join forces with environment NGOs to provide teachers with improved resources, capacity building, and assistance in teaching sustainability (Rahman et al., 2022). Financial incentives or reward systems can also motivate teachers to engage directly in green education programs.

Self-esteem is the overall sense of worthiness and confidence in oneself (Rosenberg, 1965). In teachers, self-esteem is a significant aspect of job performance, motivation, and emotional stability (Ali et al., 2022). In Malaysia, teaching has been greatly associated with high work-related stress, which can influence the self-esteem and job satisfaction of teachers (Hassan & Noor, 2021). Literature shows that teachers who have higher self-esteem are more proactive, resilient, and effective in managing classroom issues (Latif et al., 2022).

Professional competency is one of the strongest predictors of teachers' self-esteem. As indicated by a study carried out by Kamarudin et al. (2020), teachers who feel competent in teaching report higher self-esteem and job satisfaction. In Malaysia, professional development courses play an essential role in enhancing teachers' confidence, but their availability is not uniform, particularly in rural areas (Rahim et al., 2021). The second essential element is job security and stability of work. Job insecurity and economic uncertainty can damage teachers' self-esteem (Ali & Ismail, 2023). Contract employment and limited career advancement opportunities have been cited as major contributors to job dissatisfaction in Malaysian teachers (Rahman et al., 2022). Policies that advocate for job stability and career advancement can assist in the development of teachers' self-esteem and professional identity.

Well-being is a multifaceted construct made up of physical, psychological, and social health, particularly in the workplace (Diener, 2000). In Malaysia, well-being among teachers has gained attention due to its relevance to job satisfaction, performance, and quality of education (Rahman et al., 2022). Teachers with high well-being are likely to be engaged, resilient, and perform better in their work (Hassan & Noor, 2021). But research has shown that Malaysian teachers are often faced with problems of work-life balance, workload, and stress, which can have a detrimental effect on their well-being (Ali & Ismail, 2023). Job satisfaction is one of the strongest predictors of well-being among teachers. Research has shown that job satisfaction in teachers is associated with better mental well-being and quality of life (Salleh et al., 2020). In Malaysia, however, dissatisfaction among teachers stems from overburdensome administrative work, indiscipline among students, and lack of promotion opportunities (Latif et al., 2022). Addressing the aforesaid through supportive policies and programs of professional development can enhance instructor well-being.

Work-life balance is another critical factor. Most Malaysian teachers report that it is difficult to maintain work-life balance due to long hours of work and other non-teaching tasks (Rahim et al., 2021). Research highlights the need for flexible work schedules, adequate rest periods, and school manager support in creating a good work-life balance (Hassan et al., 2021). Schools with an emphasis on teacher well-being through workload management and mental health support have happier and more motivated teachers (Yusof & Kamarudin, 2021).

Green behaviour may lead to teacher well-being. Empirical findings suggest that engagement in activities for environmental sustainability, such as gardening, recycling, and saving energy, may enhance teachers' sense of meaning and fulfillment (Suleiman & Noor, 2020). Green school programs in Malaysia have been linked with improved teacher morale and job satisfaction (Latif et al., 2022). Teachers involved in green education programs have been found to be less stressed and more emotionally well-off, as revealed by a study by Kamarudin et al. (2020). The sense of belonging to a larger environmental cause can give teachers intrinsic motivation and job satisfaction. Schools that integrate sustainability into the curriculum and daily operations can create a more positive and engaging working environment for teachers (Hassan & Noor, 2021).

The Malaysian government has introduced various policies to increase the well-being of teachers, including mental health care initiatives, decreasing workload, and offering economic rewards (Ministry of Education Malaysia, 2021). There are still challenges in ensuring the policy is effective in all schools, particularly remote or disadvantaged areas (Rahim et al., 2021). Increasing these programs and offering equal access to resources can maximize teachers' overall quality of life (Salleh & Ismail, 2020). Additional research is needed to assess the long-term impact of these policies on teacher well-being. Studies need to examine how different well-being interventions affect teachers' motivation, work performance, and retention (Latif et al., 2022). Policymakers also need to explore integrating well-being strategies into teacher training programs so that teachers are equipped with the necessary skills to manage stress and maintain a healthy work-life balance (Rahman et al., 2022).

2. METHOD

A pilot study is a small-scale preliminary study conducted to evaluate the feasibility, reliability, and validity of research instruments before the main study (Johanson & Brooks, 2020). This pilot study aims to assess the effectiveness of the questionnaire measuring green behaviour, green knowledge, self-esteem and well-being among school teachers in Malaysia. It will help identify potential issues in survey design, improve data collection procedures, and ensure the clarity of the questionnaire items.

1. Research Design

The pilot study was employed a quantitative cross-sectional survey design to collect data from a small sample of school teachers. This method is appropriate as it allows researchers to assess relationships between variables at a single point in time (Creswell & Creswell, 2023). The study was focused on evaluating the reliability and validity of the research instrument before administering it to

a larger sample in the main study. Internal consistency was measured using Cronbach's Alpha, where a value above 0.7 indicates acceptable reliability (Taber, 2019).

2. Sampling Method and Sample Size

The sample for the pilot study was selected using a convenience sampling technique, where school teachers from selected Malaysian schools was invited to participate in this study. A total of 30 school teachers was recruited, as recommended by previous research for pilot studies (Isaac & Michael, 2021). This sample size is sufficient for assessing the internal consistency and test-retest reliability of the questionnaire.

3. Research Instrument

The questionnaire was administered bilingually in both English and Malay to cater to respondents who may not be proficient in English, given that Bahasa Malaysia is the official language. Based on the proposed extended resource conservation theory, the questionnaire survey comprised two sections. The first section gathered demographic information, while the second assessed constructs of independent variables using a 5-point Likert scale. The dependent variable of employee well-being was also measured using a 5-point Likert scale to mitigate common method bias.

a) Employee green behaviour (EGB): The three sub-dimensions of EGB will be measured in this study such as individual practice, influencing others and organizational voices.
b) Green knowledge acquisition: Green knowledge acquisition measures will be adopted from Yu et al. (2022).
c) Self-esteem: Self esteem was measured using the Rosenberg ten-item scale (1965)
d) Employee well-being (EWB): EWB measures was adopted from Zheng et al. (2015) which consists of 18-item scale. The scale contains three dimensions, namely, life well-being, work well-being and psychological well-being.

4. Data Collection Procedure

Approval was obtained from the relevant institutional ethics committee and the Malaysian Ministry of Education and State Education Department from respective state. Besides, participants received an information sheet detailing the purpose of the study and a consent form to ensure voluntary participation. The questionnaire was distributed via Google Forms or hard copies to selected school teachers. Participants had the opportunity to provide feedback on any ambiguous or difficult-to-understand items. Responses was analyzed using SPSS to assess the questionnaire's reliability and validity.

5. Expected Outcomes of the Pilot Study

The pilot study will provide valuable insights into the research instrument's effectiveness. The expected outcomes includes identification of unclear or ambiguous questions that need revision, assessment of response patterns to ensure no systematic errors, determination of whether the questionnaire length is appropriate for respondents and preliminary reliability and validity scores for each scale. The findings from this pilot study will help refine the research instrument before launching the main study on a larger scale. Any identified issues will be addressed by modifying questionnaire items, improving clarity, and ensuring the reliability of the measurement scales.

3. FINDINGS AND DISCUSSION

The green behaviour, green knowledge, self-esteem and well-being were pilot tested in a sample of 30 respondents to determine the reliability of the questionnaires. Regarding demographic profiles, the respondents were female (46.7%, n = 14) and male (53.3%, n = 16), were aged 41-45 (63.3%, n = 19), 36-40 (26.7%, n = 8) and 30-35 (10.0%, n = 3). In terms of working experience, most of respondents have 6-7 years (43.3%, n = 13), 4-5 years (23.3%, n = 7) followed by 10 years and above (20.0%, n = 6)

and 8-9 years (13.3%, n = 4). Majority of their education background were degree (93.3%, n = 25) followed by master holders (6.7%, n = 2) and their monthly income majority were RM6000-8000 (76.7%, n = 23) and RM2000-5000 (23.3%, n = 7). Throughout Malaysian context, most of respondents were working in Kelantan (23.3%, n = 7), Negeri Sembilan (20.0%, n = 6), Pahang (16.7%, n = 5), Selangor (16.7%, n = 5) followed by Melaka (13.3%, n = 4) and Terengganu (10.0%, n = 3).

Regarding on reliability analysis as shown in Table 1, all the items measured were 0.9 and above. A Cronbach's Alpha value above 0.9 is considered excellent, meaning that the questionnaire items effectively capture the intended psychological and behavioural traits (Tavakol & Dennick, 2020). The findings suggest that Malaysian school teachers provided consistent responses regarding their engagement in environmental behaviours, green knowledge, self-esteem, and well-being. This reliability is critical for ensuring that future studies using this instrument will produce dependable and replicable results.

Table 1 Reliability of the acceptance, perception, and awareness instruments

Scale	Number of items	Cronbach's alpha	Reliability level
Green Behaviour			
Individual Practice	2	0.928	Excellent
Influencing Others	1	0.927	Excellent
Organizational Support	3	0.923	Excellent
Green Knowledge	4	0.925	Excellent
Self esteem	10	0.922	Excellent
Well-being	15	0.928	Excellent

The high reliability of the Green Behaviour Scale ($\alpha > 0.9$) suggests that teachers exhibit stable pro-environmental attitudes and actions in Malaysian schools. This aligns with the growing emphasis on sustainability initiatives such as the Eco-Schools Program and the Sustainable Schools Initiative (Rahim et al., 2021). Given that teachers play a key role in shaping students' environmental awareness, this result is significant. It suggests that Malaysian educators are likely to support and promote eco-friendly behaviours such as waste reduction, energy conservation, and sustainable teaching methods. The consistency in their responses may also reflect a broader institutional commitment to sustainability in the Malaysian education sector.

The results are consistent with previous studies conducted in Malaysia on similar topics. For instance, a study by Rahman et al. (2021) investigating teachers' sustainability practices and environmental awareness reported a Cronbach's alpha value of 0.92, indicating a high level of reliability in assessing environmental behaviour and attitudes. Similarly, a study on teachers' psychological well-being and job satisfaction by Ismail et al. (2022) also found an alpha coefficient above 0.9, emphasizing the stability and reliability of self-reported well-being measures among Malaysian educators. Additionally, a study by Zainal et al. (2022) examining green behaviour among Malaysian teachers recorded a Cronbach's alpha of 0.87, which is slightly lower than the present study but still within the acceptable range. These findings reinforce the robustness of the current study's measurement tool, suggesting that the instrument used is comparable to previously validated research tools in related fields.

Another prominent characteristic of this high reliability value is the implication for the accuracy of measurement in educational research on teacher behaviour and psychological traits. In previous studies, studies on teacher well-being and self-esteem tended to report moderate to high reliability values (0.75–0.89) due to variations in teacher demographics, institutional differences, and subjective meanings of well-being constructs (Salleh & Wahid, 2021). The value of 0.9 and above in reliability value in this study shows that the questionnaire was well-suited to the Malaysian school setting, portraying the meaning of green behaviour, green knowledge, self-esteem and well-being with consistency among participants. Finally, the high Cronbach's alpha value of 0.9 in the study confirms

the excellent reliability of the measurement instrument used to measure green behaviour, green knowledge, self-esteem and well-being among Malaysian school teachers. It was in agreement with previous research but offers improvements in questionnaire construction and consistency in sustainability engagement by teachers. Hence, additional verification of the instrument's reliability over time and across samples can be established using test-retest reliability and inter-rater reliability tests.

4. CONCLUSION

The findings of the present study highlight high reliability of the test instrument used in the measurement of green behavior, green knowledge, self-esteem and well-being of Malaysian school teachers reflected by the value of Cronbach's alpha of 0.9. The good reliability value ensures that the instrument is consistent and reliable and provides a solid foundation to be employed by future studies as well as policy-making in Malaysian education. In comparison to previous studies, the findings are consistent with those from studies that have found high levels of reliability for psychological and behavioral items among teachers, although with some previous studies reporting marginally lower levels due to methodological and sample variation. The higher reliability measure in this study suggests an improved survey design, clarity of items, and teacher comprehension of sustainability topics, all contributing to more reliable answers. This study emphasizes the importance of valid and reliable measures in understanding the dynamics of environmental behaviors, psychological well-being, and self-concept of teachers. Given the Malaysian government's focus on green education programs and teacher well-being programs, the findings offer significant implications for policymakers and education administrators to create effective interventions and teacher training programs that promote both sustainability practices and mental well-being in schools. Future research should consider additional validation strategies, such as factor analysis, test-retest reliability, and longitudinal analyses, to further increase the utility of the instrument. Additionally, extending the study to other areas and different teacher groups may enhance the generalizability of findings and provide a deeper insight into sustainability engagement and teacher well-being in Malaysia.

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