

STUDENTS' AWARENESS AND UNDERSTANDING OF SUSTAINABLE HOUSING PRACTICES

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ABSTRACT: This study examines the knowledge and awareness of sustainable housing practices among UTAR students. Recognising the role of future professionals in shaping sustainable living, the study investigates the relationship between key influencing factors, such as the level of education, attitude toward sustainability, environmental awareness, and peer influence and the students' understanding of sustainable housing. Grounded in the Knowledge, Attitudes, and Practices (KAP) model, the study employed a quantitative approach, surveying 100 respondents through structured questionnaires. Spearman's correlation analysis indicated varying degrees of association among the factors, with attitude and environmental awareness emerging as stronger influences. However, overall analysis revealed no statistically significant relationship across all four factors. The study is limited by its small sample size and narrow scope, which focus only on UTAR students, thereby restricting broader generalisation. Despite this, the findings underscore the need for targeted educational interventions and awareness campaigns to nurture a sustainability-conscious student community. Future research should consider larger, more diverse samples across multiple institutions, as well as the inclusion of additional variables such as socio-economic background and institutional policies to provide a more comprehensive understanding of sustainable housing practices.

Keywords: *Sustainable Housing Practices, Environmental Awareness, Attitude toward Sustainability, Sustainability Knowledge, Peer Influence, University Students, KAP Model*

1. Introduction

Sustainable housing practices are crucial to minimising environmental impacts while enhancing residents' quality of life [1]. This involves implementing various strategies, including principles such as energy efficiency, the use of environmentally friendly building materials, water conservation, waste reduction, improved indoor air quality, and the integration of renewable energy sources. Homebuyers, particularly those purchasing for the first time, tend to prioritise dwellings that promote healthy living while accommodating functions such as learning, work, and leisure [1]. Sustainable housing that emphasises long-term viability also considers factors such as adapting to changing climate conditions and promoting a healthy and community-oriented lifestyle [1]. By adopting sustainable housing practices, individuals and communities have contributed to protecting natural resources, reducing greenhouse gas

emissions, and establishing a flexible and harmonious living environment that can withstand current and future challenges. Malaysia, with its unique environmental challenges and rapid urbanisation, has adopted sustainability frameworks such as the Green Building Index (GBI) and MyCREST to address urban growth and climate resilience [2]. However, limited understanding among younger populations, especially university students, impedes the mainstreaming of sustainable practices [3].

This study focuses on UTAR students. This study aims to:

- To identify the relationship between factors influencing knowledge and awareness about sustainable housing
- To evaluate the most influential relationship between the factor of knowledge and the awareness level about sustainable housing.

The research seeks to fill the gap in existing literature by providing empirical insights into the

sustainability knowledge and attitudes of Malaysian university students, a group whose behaviours and practices will significantly shape the nation's future housing and environmental outcomes.

2. Literature Review

Sustainable housing integrates energy efficiency, eco-friendly materials, water conservation, and social well-being. Global benchmarks such as the Sustainable Development Goals (SDGs), particularly Goals 7, 11, and 12, as shown in Figure 1 [4] Reinforce the importance of sustainable living environments. Malaysia's GBI and MyCREST tools are practical guides for environmentally responsible construction.



Figure 1 Sustainable Development Goals

Achieving the Sustainable Development Goals requires not only the cooperation of countries but also the active participation of local communities, enterprises, civil society, and individuals. Achieving sustainable development goals requires policies, investments, and actions that are consistent with the principles outlined in these goals. They represent a shared vision for a fairer and more sustainable future, becoming a rallying point for collective efforts to address global challenges such as poverty, inequality, environmental degradation, and climate change. As we work towards the 2030 deadline, there is a hope that the Sustainable Development Goals can catalyse profound changes, leave a positive legacy for future generations, and help build a more inclusive, flexible, and environmentally responsible world.

The theoretical foundation of this research is the Knowledge, Attitudes, and Practices (KAP) model [5] as shown in Figure 2.

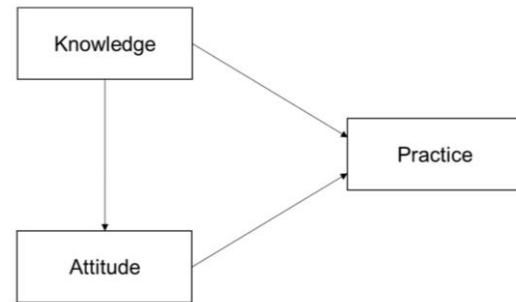


Figure 2 Conceptual model of knowledge, attitude and practice

States that knowledge influences attitudes, and together they shape behaviour. Variables studied include:

- Level of Education: Higher education levels are associated with greater exposure to sustainability-related topics [6];
- Attitude toward Sustainability: A student's values and beliefs can significantly influence sustainable behaviour [7];
- Environmental Awareness: Awareness of ecological challenges enhances engagement with sustainability issues [8];
- Peer Influence: Social interactions can shape perceptions and knowledge-sharing among students.

By using the KAP model, this study aims to conduct a comprehensive and overall analysis of UTAR students' knowledge and awareness levels regarding sustainable housing practices.

It aims to identify potential knowledge gaps, misunderstandings or differences between knowledge, attitude and practice [9]. These insights are highly valuable for educational institutions like UTAR, helping to design targeted publicity activities, curriculum improvements, or sustainable housing plans to bridge these gaps and cultivate a more sustainable life spirit among students [10].

In addition, this study may contribute to a broader discussion of sustainable education and its role in shaping future generations' attitudes and behaviours towards sustainable housing practice, to solve pressing environmental problems in the broader scope

3. Methodology

This study employed a quantitative descriptive research design, targeting UTAR students aged 18 and above. A structured questionnaire consisting of 31 items was distributed online using convenience sampling. The final sample size of

100 was determined using the Taro Yamane formula at a 90% confidence level. The questionnaire included:

- Demographic data: Respondents provided background information, including gender, age, race, marital status, income level, and prior awareness of sustainable housing practices. A total of 100 valid responses were collected.
- Main construct: Twenty-five (25) items measured knowledge, education level, attitudes, environmental awareness, and peer influence on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).

The questionnaire items were adapted from previous studies and refined through expert consultation to ensure content validity. Before distribution, the instrument was pilot-tested with a small group of students to check clarity and reliability.

Data were analysed using the Statistical Package for the Social Sciences (SPSS). The reliability test using Cronbach's Alpha yielded a score of 0.769, as shown in Figure 3, indicating acceptable internal consistency. Spearman's correlation analysis was conducted to examine the relationships between variables.

Reliability Statistics	
Cronbach's Alpha	N of Item
0.769	25

Figure 3 Reliability Analysis of the Survey

Participation was voluntary, with students informed of their right to withdraw at any time. Informed consent was obtained electronically after explaining the study's purpose. No personal identifiers were collected, and all responses remained anonymous and used solely for research, in line with standard ethical guidelines.

Convenience sampling was employed for practical data collection; however, this method may introduce bias and limit the representativeness of the results. As such, the findings cannot be generalised beyond the sampled UTAR students and should be interpreted with caution.

Meanwhile, the survey was conducted between October and November 2023 during the academic semester to ensure accessibility, minimise disruptions, and improve response rates.

4. Result and Discussion

4.1 Demographic Profile

4.1.1 Gender

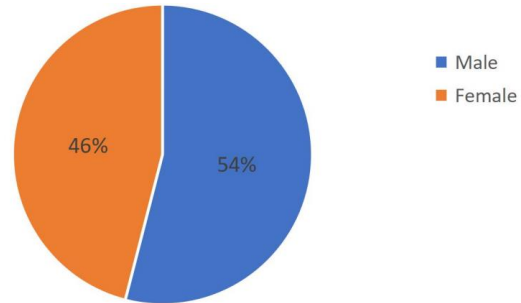


Figure 4 Descriptive Analysis - Gender

Figure 4 shows that among all the respondents, 54% are male (54 respondents) and 46% are female (46 respondents). Obviously, the number of male respondents is higher than that of female respondents.

4.1.2 Age

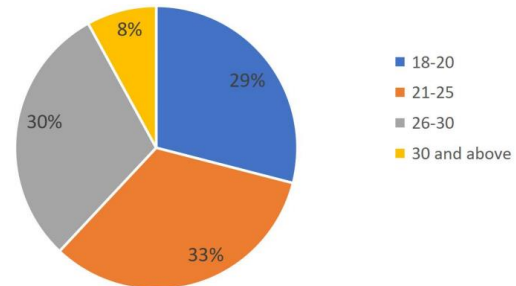


Figure 5 Descriptive Analysis – Age

Referring to Figure 5, 33 respondents (33% of the total) are between 21 and 25 years old. The age group between 26 and 30 years old accounted for 30% (30 respondents), while the age group between 18 and 20 years old accounted for 29%. In addition, the remaining eight respondents (8%) are over 30 years old.

4.1.3 Race

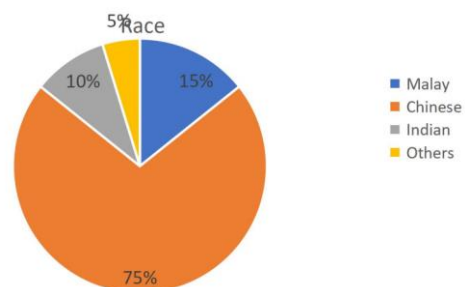


Figure 6 Descriptive Analysis – Race

Referring to Figure 6, the majority were Chinese (75%), followed by Malays (15%) and Indians (10%);

4.1.4 Marital Status

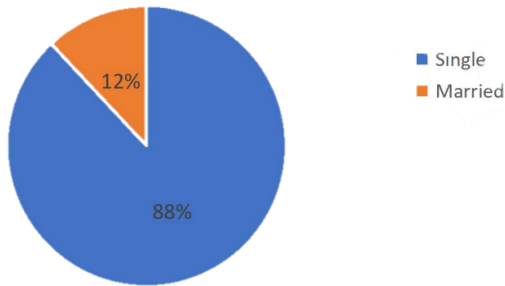


Figure 7 Descriptive Analysis – Marital Status

Figure 7 shows that only 12% of the respondents (12 respondents) are married, compared with 88% of the respondents (88 respondents) who are single. Obviously, we can see that most of the respondents are single because they are students.

4.1.5 Income Level

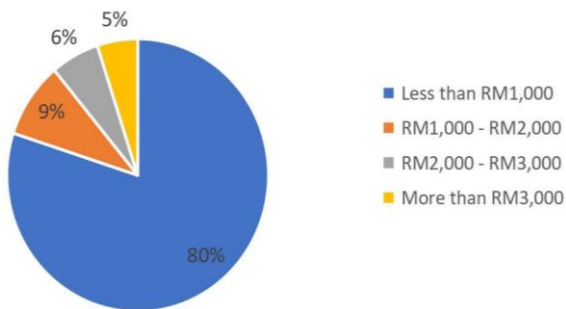


Figure 8 Descriptive Analysis – Income Level

As can be seen from Figure 8 above, 80% of the respondents, that is, 80 respondents, earn less than RM1,000 per month.

4.2 Knowledge and Awareness

Students demonstrated moderate understanding, with many unfamiliar with sustainable housing practices' technical components and long-term benefits [7].

4.3 Scale Measurement

Normality tests (Kolmogorov-Smirnov) revealed non-normal data distribution. Cronbach's Alpha confirmed scale reliability

4.4 Correlation Analysis

Spearman's correlation is shown in Table 1.

Table 1 Spearman's Correlation Strength (ρ)

Variable	ρ	Strength
Level of Education	0.26	Low to Moderate
Attitude toward Sustainability	0.52	Strong
Environmental Awareness	0.47	Moderately Strong
Peer Influence	0.33	Moderate

The correlation analysis revealed varying degrees of association between the four factors and students' awareness of sustainable housing. Level of education showed a low to moderate positive relationship ($\rho = 0.26$), suggesting that while higher education levels provide more exposure to sustainability-related content, they do not strongly translate into higher awareness. This weaker correlation may reflect that sustainability topics are not consistently embedded across curricula, limiting education's direct influence on behaviour.

In contrast, attitude toward sustainability demonstrated a strong positive relationship ($\rho = 0.52$). Students with stronger pro-sustainability values were significantly more likely to engage in sustainable behaviours, underscoring the central role of personal commitment in shaping awareness. Environmental awareness also showed a moderately strong correlation ($\rho = 0.47$), reinforcing findings from [8] and [9], which similarly emphasised the importance of ecological consciousness in influencing sustainable practices among students.

Peer influence displayed a moderate positive correlation ($\rho = 0.33$), indicating that social networks play a meaningful role in knowledge sharing and shaping behavioural norms, though not as strongly as personal attitudes or environmental awareness. This aligns with previous studies highlighting peers as essential but secondary drivers of sustainability-related behaviour.

Overall, these findings highlight that personal values and ecological awareness are stronger determinants of sustainable practices

than formal education alone. However, the statistical tests indicated that the correlations, though positive, were not significant at conventional levels. This explains the conclusion that no significant relationship was established across the four factors. The observed associations suggest trends worth further exploration but require larger and more diverse samples to confirm.

5. Conclusion

In conclusion, the research objectives have been successfully achieved. The analysis revealed positive correlations between education level, attitude, environmental awareness, and peer influence with students' understanding of sustainable housing. However, these correlations were not statistically significant at conventional levels, meaning that the apparent relationships should be interpreted as indicative trends rather than conclusive evidence. This clarification helps explain the contrast between the observed correlation strengths and the overall finding of no significant relationship.

These results highlight the need for further exploration and consideration of additional variables to address the research question comprehensively. Future studies should expand the sample size, include participants from multiple institutions, and explore other potential determinants such as socio-economic background, cultural factors, and institutional policies. Doing so would provide a more robust understanding of the complex dynamics influencing students' knowledge and awareness of sustainable housing practices.

5.1 Limitations

This study has several limitations worth considering. First, the sample size used in this study may be regarded as too small to draw universally applicable conclusions. The limited sample size may compromise the universality of the research results and fail to accurately represent the diverse views of the larger UTAR student population. This limitation should be acknowledged when interpreting the results of this study, and caution may be necessary when extrapolating the results to a broader context.

Secondly, the survey's target scope may be considered too narrow. Focusing solely on UTAR students may limit the research opinions' broad applicability, as the experiences and opinions of

students in this institution may not fully represent the diversity of the wider population in different educational backgrounds. If more diverse and inclusive participants are included, including students from various disciplines and institutions, the research results may be more convincing.

In addition, this study is limited to four factors: the level of education, attitude towards sustainability, environmental awareness, and peer influence. Although these factors undoubtedly have an impact on the practice of forming sustainable housing, focusing solely on them may overlook other related variables that can help to understand the theme more comprehensively. The results of this study should be interpreted in the context of these specific factors, and future research may benefit from exploring additional variables that can enhance the depth and breadth of the investigation.

Finally, although this study has made valuable contributions to understanding sustainable housing practices among UTAR students, it should also acknowledge its limitations, including a small sample size, a narrow target area, and a focus on only a few limited factors. These limitations present opportunities for future research efforts to expand and enhance the scope of the survey, ensuring a more nuanced and representative exploration of sustainable housing practices within a broader academic context.

5.2 Implications

This research examines the relationship between factors influencing the knowledge and awareness levels of UTAR students regarding sustainable housing practices. Promoting UTAR students' understanding of sustainable housing practice is of great significance for cultivating a sustainable culture on campus. Education level plays a vital role, which shows that the higher the education level, the deeper the understanding of sustainability. To solve this problem, integrating sustainable development into the curriculum, offering specialised courses and holding seminars can provide a comprehensive educational method.

A positive attitude towards sustainable development is crucial, as it influences positive behaviours and choices. Therefore, awareness-raising campaigns and workshops that emphasise the benefits of sustainable housing, such as cost savings and environmental impact, can form a positive attitude. Environmental awareness is another factor that can be improved through publicity activities, eco-friendly campus policies,

and practical demonstrations of sustainable technologies.

In addition, it is crucial to recognise the influence of peer influence, which requires efforts to create a sense of community through peer-led initiatives, positive social norms and the use of social media platforms to spread eco-friendly information. Combining these factors will produce synergy, encourage interdisciplinary cooperation, establish sustainable development clubs, and advocate institutional policy changes. Regular monitoring and evaluation ensure the effectiveness of various initiatives, allowing them to be improved. By comprehensively addressing these factors, UTAR can help cultivate a generation of environmentally conscious individuals who are proficient in sustainable housing practices, aligning with its broader commitment to environmental sustainability.

5.3 Future Research

Building on the limitations of this study, future research should prioritise larger and more diverse samples to strengthen the robustness and generalisability of findings. A broader participant pool, including students from different disciplines and academic levels within UTAR, would provide richer insights into variations in awareness and behaviour. Expanding beyond a single university to include students from other institutions or even non-student groups would enhance external validity and enable meaningful comparisons across different educational and demographic contexts.

To capture the complexity of factors influencing sustainable housing awareness, future studies should also consider variables beyond education level, attitude, environmental awareness, and peer influence. Additional determinants such as socio-economic background, cultural values, and institutional policies may provide a more comprehensive understanding of the drivers of sustainable practices.

Clarifying the distinction between observed correlations and statistical significance is also critical for future investigations. While this study identified positive associations among several factors, these were not statistically significant. Future research with larger datasets could determine whether these trends persist and achieve significance, thereby resolving the inconsistency observed in the current findings.

In summary, future work should (i) increase sample size for greater statistical power, (ii) broaden the research scope across institutions and populations, and (iii) incorporate additional contextual factors. By addressing these areas, researchers can develop a more nuanced understanding of how knowledge and awareness of sustainable housing are shaped, thereby advancing the literature on sustainability in higher education.

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