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EXPLORING OBSTACLES TO RECYCLING PRACTICES AMONG UNIVERSITY STUDENTS: A CASE STUDY OF STUDENTS AT UiTM SEREMBAN

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Abstract:

This research aims to attain a comprehensive understanding of the barriers influencing recycling behaviour among university students, with a specific focus on the student community at Universiti Teknologi MARA (UiTM) Seremban. Concentrating on four key factors—Awareness of UiTM Seremban Students, Convenience of Recycling Facilities at UiTM Seremban, Social Norms at UiTM Seremban, and Perceptions of UiTM Seremban Students—the study aims to delve into the intricate dynamics that hinder recycling behaviour within this academic setting. To collect data, a questionnaire survey was employed as the research instrument, utilizing Convenience Sampling to select a representative sample of 357 UiTM Seremban students. The distributed questionnaires facilitated the collection of comprehensive data, subsequently analysed through both descriptive and inferential statistics, employing SPSS to explore relationships between variables and gain insights into the barriers affecting recycling behaviour among university students. The research findings provide valuable insights into understanding recycling behaviour within the university context and shed light on the broader implications of sustainable practices. This study contributes to the development of effective strategies fostering a culture of recycling and environmental responsibility at the university level. It serves as a significant resource, offering findings to inform and guide future interventions and initiatives aimed at promoting sustainable practices.

Keywords:

Awareness, Perception, Recycling Behavior, Social Norms, University Students

Introduction

The rise of industrialization and improved living standards has led to the substantial production of waste, which regrettably contributes to environmental issues such as climate change, adverse effects on wildlife and plants, and, ultimately, repercussions on human health (Gherheș, Fărcașiu, & Para, 2022). At present, it is undeniable that global attention is intensifying concerning the depletion of natural resources, propelling a heightened focus on environmental conservation and sustainable practices worldwide. Addressing the critical problem of natural resource depletion is imperative on a global scale, reaching every community level (Xu & Zhao, 2023). Recognizing the urgency of this matter might be challenging for some individuals due to a lack of understanding or exposure, making it crucial to instil concepts of sustainable practices early in life. Initiating sustainable practices during the formative years could serve as a foundational step in fostering a community committed to mitigating the depletion of natural resources.

Recycling stands out as a highly effective method in safeguarding the Earth's environment. Opting for the reuse of materials instead of their disposal significantly reduces waste production and conserves vital natural resources for the future. Beyond mitigating landfill waste, recycling plays a pivotal role in shielding our water and air from pollution, contributing to environmental preservation and public health. Notably, the economic benefits of recycling solid waste align with its substantial environmental advantages, as emphasized by Lamma (2021). In the research context, universities emerge as ideal settings for fostering sustainable behaviours and nurturing environmentally conscious individuals destined to be future leaders. This research is motivated by the acknowledgment of universities' unique role in cultivating sustainability and environmental awareness among students. By delving into the barriers to recycling behaviour among UiTM Seremban students, this study aims to bridge a critical gap in understanding recycling behaviour within a university context, contributing valuable insights to existing knowledge.

Literature Review***Main Hindrances to Recycling Conduct Among University Students***

There are four primary obstacles that hinder recycling behaviour among university students, namely:

a) Lack of Awareness and Knowledge

Lack of awareness and knowledge, highlighted by Ahmad, Juhdi & Awadz (2010), plays a pivotal role in shaping recycling behaviours among university students. Consumer research emphasizes that knowledge significantly influences decision-making processes, serving as a crucial element in creating awareness about recycling. Recycling behaviour is substantially impacted by the source knowledge of sorting and choosing. To cultivate recycling behaviour, it is essential to implement knowledge, enabling individuals to understand the benefits of recycling for themselves, the environment, and future generations (Jalil et al., 2016).

Environmental knowledge, outlined by Laroche et al. (2001), empowers students to recognize behavioural patterns and concepts that contribute to environmental protection.



Figure 1: Type of Recyclable Items

b) Convenience and Accessibility

Convenience plays a crucial role in enhancing recycling rates, particularly in specific regions. The accessibility of convenient recycling options positively correlates with increased recycling rates. Williams and Cole (2013) emphasize the significance of convenient recycling regulations for both recyclers and non-recyclers, encompassing aspects such as drop-off sites, curbside recyclable collection, and participation in awareness programs. Announcing these recycling regulations to the wider community is essential to ensure students are well-informed about proper recycling methods. Furthermore, Abbott et al. (2011) highlight the impact of recycling behaviour by considering the practical aspects managed by scheme operators, including the provision of recycle bags, extra bins, pick-up services, and timely waste collection. These convenience-oriented measures are crucial in influencing and encouraging effective recycling practices (Jalil et al., 2016).



Figure 2: Trash Bin for Separating Waste

c) Social Norms

Zelezny et al. (2000) conducted research in 1990, revealing that women exhibit a greater inclination towards pro-environmental behaviour. This suggests that women are more environmentally conscious and dedicated to preserving the Earth, resulting in a higher rate of recycling behaviour compared to men. However, contrasting findings from Diamantopoulos et al. (2003) indicate that men possess more knowledge about environmental issues than women. This discrepancy may stem from men's greater familiarity with environmental concepts, but the practical application and commitment to pro-environmental behaviour are observed more in women, as highlighted by existing studies (Izagirre-Olaizola et al., 2015).



Figure 3: Women Exhibit Pro-Environmental Behavior

d) Attitudes

As stated by McCarty and Shrum (2001), there are two personality factors influencing recycling behaviour: general attitude towards recycling and views on inconveniences associated with it. The writer demonstrates a direct and indirect relationship between recycling behaviour and an individual's attitude towards recycling. According to Tilikidou (2007), individuals with pro-environmental views are expected to align their behaviour with their beliefs.

An attitude, as Sulaiman, Chan, & Ong (2019) define it, is essentially a sentiment or viewpoint towards a person, thing, or behaviour. It represents an individual's perception of the advantages and disadvantages associated with engaging in a particular conduct. Attitudes are considered beliefs or views on certain matters, underscoring their relevance to recycling behaviour. Armitage & Conner (2010) suggest that individuals are more likely to engage in a behaviour if they possess a favourable perspective on it, driven by motivation and positive views. For example, someone with a willingness to care for the environment will develop a positive attitude towards recycling, aiming to increase recycling rates for Earth's preservation. Milfont and Duckitt (2010) describe attitudes towards the environment as psychological inclinations reflected in favourable or unfavourable judgments of the natural surroundings. The shaping of practical behaviours depends on an individual's preferences in how they view the environment.

Research Methodology

In academia, the research methodology acts as a roadmap, guiding scholars through the complexities of data collection and analysis. This study delves into understanding the recycling

behaviours of UiTM Seremban students, employing analytical methods and the cross-sectional research design (Creswell, 2014). The primary aim is to unearth crucial information and explore the factors influencing recycling habits among students. Figure 4 shows the Flow Chart of the Study, starting from defining the research problem and ending with drawing conclusions.

The researchers opted for a robust quantitative approach, relying on numbers and statistics to gather information from students (Roopa & Rani, 2012). They achieved this through surveys presented as questionnaires, ensuring systematic and consistent data collection for reliability. The survey questions were thoughtfully adapted to align with existing knowledge, fortifying the study's foundation. It covered six sections, addressing demographics, awareness of recycling, convenience of recycling facilities on campus, social norms about recycling, perceptions of recycling practices, and actual recycling behaviours. This study embraced digital platforms like Email, WhatsApp, and Telegram to reach students. This decision was intentional, streamlining data collection, resolving logistical challenges, and enhancing the study's practicality. It also proved cost-effective, aligning with the goal of resource efficiency.

The study encompassed all UiTM Seremban students, estimated at around 5000. To ensure accuracy, the researchers determined a sample size of 357 students using the Krejcie and Morgan method (1970). Although not inclusive of the entire population, the chosen sample size was statistically significant, ensuring trustworthy results. In participant selection, convenience sampling was chosen, prioritizing speed and cost-effectiveness, especially essential when dealing with a large and diverse student group. The calculated sample size played a crucial role in enabling the researchers to draw reliable conclusions about recycling behaviours among UiTM Seremban students. Additionally, the researchers employed the Statistical Package for the Social Sciences (SPSS), a tool designed for advanced statistical analysis, to examine the correlation results. Specifically, the study uses Pearson Correlation Coefficient Analysis in SPSS to find meaningful relationships between different factors. Specifically, the study employs Pearson Correlation Coefficient Analysis in SPSS to identify relationships between different factors, unveiling the complex web of influences on recycling behaviours among UiTM Seremban students. The dependent variable in this research is the Recycling Behaviour of UiTM Seremban Students, while the independent variables include Awareness of UiTM Seremban Students, Convenience of Recycling Facilities at UiTM Seremban, Social Norms at UiTM Seremban, and Perceptions of UiTM Seremban Students (see Figure 5).

Although the study on UiTM Seremban students' recycling behaviours provides valuable insights, it is important to acknowledge its limitations. One significant limitation lies in the use of convenience sampling, which may introduce bias into the study. Convenience sampling does not ensure a representative sample of the entire student population. Consequently, the findings might not be generalizable to all students at UiTM Seremban or to other universities. This lack of representativeness can affect the validity of the conclusions drawn from the data, as the sample might not accurately reflect the diversity of the larger population's recycling behaviours and attitudes.

1. Define Research Problem

- Understanding the recycling behaviours of UiTM Seremban students

2. Review Literature

- Existing research on recycling behaviours and influential factors

3. Develop Research Design

- Cross-sectional design (Creswell, 2014)
- Quantitative approach (Roopa & Rani, 2012)

4. Define Variables

- Dependent Variable: Recycling Behaviour
- Independent Variables: Awareness, Convenience of Facilities, Social Norms, Perceptions

5. Design Survey Questionnaire

- Six sections: demographics, awareness, convenience, social norms, perceptions, behaviours

6. Determine Sample Size

- Total population: 5000 students
- Sample size: 357 students (Krejcie & Morgan, 1970)

7. Select Sampling Method

- Convenience sampling

8. Data Collection

- Digital platforms: Email, WhatsApp, Telegram

9. Data Analysis

- Use SPSS for statistical analysis
- Pearson Correlation Coefficient Analysis

10. Interpret Results

- Identify relationships between factors and recycling behaviours

11. Draw Conclusions

- Summarize findings and implications

Figure 4: Flow Chart of the Study



Figure 5: Conceptual Framework of The Study

Research Findings and Discussion

The research findings reveal significant relationships between various factors and the recycling behaviour of UiTM Seremban students:

Awareness and Knowledge (Correlation: 0.737)

The positive correlation between Awareness and Recycling Behaviour (0.737) suggests that as the awareness of recycling increases among UiTM Seremban students, their recycling behaviour also tends to improve. This aligns with the research findings of Ahmad, Juhdi & Awadz (2010), emphasizing the pivotal role of knowledge in decision-making. According to Ahmad et al., consumer research has consistently identified knowledge as a crucial factor influencing various stages of decision-making. In the context of recycling, this implies that a well-informed individual is more likely to engage in positive recycling behaviours. The correlation underscores the importance of creating awareness and disseminating knowledge about recycling practices to encourage environmentally conscious behaviours among students.

Convenience and Accessibility (Correlation: 0.526)

The substantial correlation between Convenience of Recycling Facilities and Recycling Behaviour (0.526) indicates that the convenience and accessibility of recycling facilities play a significant role in shaping recycling behaviours among UiTM Seremban students. This finding resonates with the insights of Williams and Cole (2013), who highlight the importance of convenient recycling regulations and accessible provisions in promoting recycling. Williams and Cole suggest that both recyclers and non-recyclers benefit from convenient recycling regulations, including easily accessible drop-off sites, curbside recycling, and awareness programs. The correlation underscores the need for well-structured and easily accessible recycling facilities to encourage students to participate in recycling activities.

Social Norms (Correlation: 0.759)

The strong correlation between Social Norms and Recycling Behaviour (0.759) indicates that social norms significantly influence recycling behaviours among UiTM Seremban students. This aligns with sociodemographic predictors discussed by Diamantopoulos et al., (2003) and Zelezny et al. (2000). The research suggests that factors such as gender, age, education, and family income can contribute to favourable attitudes and behaviours related to recycling. Specifically, the correlation suggests that the social environment, including peers and societal expectations, plays a crucial role in shaping recycling behaviours. Students are more likely to engage in recycling when it aligns with prevailing social norms, emphasizing the importance of creating a supportive social context for sustainable behaviours.

Attitudes/Perceptions (Correlation: 0.792)

The impactful correlation between Perceptions of UiTM Seremban Students and Recycling Behaviour (0.792) indicates a strong connection between individuals' attitudes or perceptions and their recycling behaviours. This alignment with the research on attitudes and practical recycling by Milfont and Duckitt (2010), Sulaiman, Chan, and Ong (2010), McCarty and Shrum (2001), and Tilikidou (2006) suggests that individuals with positive attitudes toward the environment and recycling are more likely to engage in recycling behaviours. Attitudes, in this context, refer to individuals' sentiments or viewpoints regarding environmental issues, and these attitudes shape their practical behaviours. The correlation highlights the importance of fostering positive attitudes and perceptions toward recycling to enhance recycling behaviours among UiTM Seremban students.

Thus, these correlations provide nuanced insights into the intricate relationships between Awareness, Convenience, Social Norms, Perceptions, and Recycling Behaviour, offering valuable guidance for interventions and initiatives aimed at promoting sustainable behaviours among university students.

Recommendations**Recommendations**

In light of the research findings on recycling behaviours among UiTM Seremban students, several recommendations emerge to enhance sustainable practices on campus. Table 1 shows targeted areas and recommendations encompass efforts and strategies aimed at enhancing individuals' understanding, knowledge, and consciousness regarding environmental issues, including the importance of recycling.

Table 1: Recommendations for Enhancing Recycling Practices among UiTM Seremban Students

TARGETED AREAS	EFFORTS AND STRATEGIES
1. Boosting Awareness and Knowledge	a) Launch targeted awareness campaigns: Develop initiatives that educate students on the significance of recycling, emphasizing environmental benefits and the role of individual actions. b) Integrate recycling education into curriculum: Collaborate with academic departments to weave recycling-related topics into the academic curriculum, ensuring a consistent and

	structured approach to sustainability knowledge.
2. Enhancing Convenience and Accessibility	<ul style="list-style-type: none"> a) Improve on-campus recycling infrastructure: Invest in additional and strategically placed recycling bins, particularly in high-traffic areas and near student accommodations. b) Introduce mobile recycling initiatives: Implement programs that bring recycling stations to different parts of the campus regularly, providing flexibility and convenience for students.
3. Influencing Social Norms	<ul style="list-style-type: none"> a) Foster a culture of sustainability: Engage student organizations and influencers in promoting recycling as a socially desirable behaviour, cultivating a positive social norm. b) Implement peer-led initiatives: Develop programs where peers influence each other positively, leveraging social networks to disseminate information on sustainable practices.
4. Shaping Attitudes and Perceptions	<ul style="list-style-type: none"> a) Conduct awareness workshops: Organize workshops that focus on changing attitudes toward recycling, emphasizing the positive impact of individual actions. b) Highlight success stories: Share narratives of individuals or groups actively contributing to recycling efforts, providing positive role models and reinforcing the commandability of recycling behaviour.
5. Implement Rewards and Recognition	<ul style="list-style-type: none"> a) Introduce incentive programs: Establish systems that reward or recognize students for consistent recycling activities, offering tangible benefits such as store discounts or certificates of recognition. b) Gamify recycling initiatives: Create competitions that gamify recycling efforts, fostering friendly rivalry and a sense of achievement among students.
6. Collaborate with Academic Departments	<ul style="list-style-type: none"> a) Encourage interdisciplinary projects: Facilitate collaboration between environmental science departments and other disciplines to explore innovative ways of promoting sustainable behaviours and recycling. b) Support research-led initiatives: Back research projects focusing on behavioural interventions for sustainable practices, offering practical insights and contributing to the university's sustainability goals.

7. Regular Assessment and Feedback	<ul style="list-style-type: none">a) Conduct continuous surveys: Implement regular surveys to assess changes in awareness, attitudes, and behaviours, using the feedback to refine and adapt recycling programs.b) Establish a feedback mechanism: Create a platform for students to provide input on existing recycling initiatives, ensuring their perspectives are considered for future planning.
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Source: (Self-developed Table)

By implementing these recommendations, UiTM Seremban can foster a comprehensive approach to sustainability, promoting a culture of recycling and environmental stewardship among its student body. These initiatives can be tailored to the unique characteristics and context of the university, ensuring maximum effectiveness in driving positive behavioural change.

Conclusion

In conclusion, this study on UiTM Seremban students' recycling behaviours reveals vital connections between awareness, convenience, social norms, and attitudes. The positive link (0.737) between awareness and recycling behaviour emphasizes the need for educational initiatives. A substantial correlation (0.526) indicates that convenient recycling facilities significantly impact behaviour, suggesting improvements in on-campus infrastructure. The strong correlation (0.759) between social norms and recycling behaviour underlines the importance of fostering a sustainable culture. Finally, the impactful correlation (0.792) between students' perceptions and recycling behaviour highlights the role of attitudes. Based on the correlations found between awareness, convenience, social norms, attitudes, and recycling behaviours, it is evident that the objectives have been achieved. The study successfully identified significant relationships between these factors and provided insights into how they impact recycling behaviours. Recommendations include educational programs, infrastructure enhancements, and efforts to shape positive social norms and attitudes. Implementing these insights could lead to a more recycling-friendly campus at UiTM Seremban, fostering a culture of sustainability among students. Regular assessments will ensure the ongoing effectiveness of these initiatives.

While shedding light on recycling behaviours among UiTM Seremban students, this study has its limitations. Firstly, the reliance on a cross-sectional design may restrict the establishment of causal relationships. The sample size, although statistically significant, represents a fraction of the entire student population, potentially limiting generalizability. Additionally, the study predominantly focuses on quantitative data, leaving room for a more in-depth exploration of qualitative factors influencing recycling behaviours. Future research could delve into the nuanced dynamics of cultural and contextual elements impacting recycling habits. Longitudinal studies would offer a more comprehensive understanding of behavioural changes over time. Lastly, exploring interventions and their effectiveness in promoting sustainable practices among students could provide valuable insights for university administrators and policymakers.

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