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WHAT MOTIVATES RESIDENTS' RECYCLING BEHAVIOUR IN DIFFERENT AREAS? A STUDY OF RESIDENTS IN CITY AND SEMI DENSE AREAS IN JOHOR

Muhammad Majid¹, Mohamad Faizal Ramli^{2*}, Ahmad Syahmi Ahmad Fadzil³, Nur Fatihah Shaari⁴,
Basri Badyalina⁵, Mohd Danial Afiq Khamar Tazilah⁶

¹ Faculty of Business and Management, Universiti Teknologi MARA, Cawangan Johor, Kampus Segamat, Malaysia
Email: muhdmajid@uitm.edu.my

² Faculty of Business and Management, Universiti Teknologi MARA, Cawangan Johor, Kampus Segamat, Malaysia
Email: faizalramli@uitm.edu.my

³ Faculty of Business and Management, Universiti Teknologi MARA, Cawangan Johor, Kampus Segamat, Malaysia
Email: syahmifadzil@uitm.edu.my

⁴ Faculty of Business and Management, Universiti Teknologi MARA, Cawangan Johor, Kampus Segamat, Malaysia
Email: fatihahshaari@uitm.edu.my

⁵ Faculty of Computer and Mathematical Sciences., Universiti Teknologi MARA, Cawangan Johor, Kampus
Segamat, Malaysia
Email: basribdy@uitm.edu.my

⁶ Faculty of Business and Finance, Universiti Tunku Abdul Rahman, Malaysia
Email: afiqk@utar.edu.my

* Corresponding Author

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Abstract:

All residents must receive recycling education because environmentally conscious residents are more likely to become environmentally conscious citizens. In addition, recycling is known to be one of the strategies used to reduce reliance on landfills; this is important because further inaction will lead to landfills reaching maximum capacity. The study intends to explore the factors affecting the recycling behaviour among residents in the city and semi-dense areas in Johor, Malaysia. In this study, 400 respondents who live in highly dense areas (city) and semi-dense areas in Johor, Malaysia, will be surveyed. Multistage sampling will be utilised to choose the sample (recycling and non-recycling residents), and a questionnaire with closed-ended questions will be developed to gather study data. Regression, correlation, and descriptive statistics will examine the acquired data. These findings are expected to offer policymakers like district offices, municipal councils, city councils, and non-government organizations (NGOs) helpful information to plan and develop a more effective recycling policy and activities in Malaysia.

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**Keywords:**

Environmental Views; Environmental Attitudes; Recycling; Environmental Education; Semi-Dense Areas, Highly Dense Areas

Introduction

Solid waste generation is rising worldwide, burning, or dumping waste in landfills. However, due to the rising amount of garbage produced, both methods are ineffective, resulting in pollution and contamination of land and aquatic. Speaking of Malaysia, it was stated in 2019 that the nation produced 38 000 tonnes of waste each day, of which only 24% was recycled or segregated and, incredulously, 76% was dumped in landfills (Noordin, 2020). Additionally, even though most Malaysians are aware of the risks associated with single-use plastics, they believe that the government should be in charge of preventing environmental issues (Yusof, Mazni & Kadir, 2019).

Surprisingly, according to a survey by Ipsos Malaysia, 56 percent of respondents were concerned about the issue of plastic usage and sustainability and wanted to see measures to address it. Despite this, only 44% of Malaysians were aware of the initiative's "Roadmap toward Zero Single-Use Plastic." organized by the Ministry of Energy, Science, Technology, and Climate Change (MESTECC) in Malaysian (Yusof et al., 2019). The government has long been responsible financially and administratively for waste management challenges. On the other hand, the system appears inadequate and unable to address the growing use of plastic and packaging generation (Lee, 2021).

According to Associate Professor Dr. Wan Mohd Faizal Wan Ishak of the Universiti Malaysia Kelantan (UMK) Faculty of Biochemistry and Technology (FBKT), the government's waste segregation initiative has not yet yielded any results, and the execution needs to be simplified to achieve the goal (NST, 2020). Furthermore, Malaysians' awareness of recycling is insufficient (Mokhtar, 2016). The government and the corporate sector must make more efforts to raise recycling awareness. Several studies have investigated recycling intentions in large cities or highly dense areas, such as Hong Kong (Aboelmaged, 2020; Chan & Bishop, 2013; Wan et al., 2013, 2017, 2021; Zhang et al., 2019) and semi-dense areas (Majid et al., 2021). However, few studies have focused on highly dense and semi-dense areas. Therefore, the purpose of this study is to investigate the effects of respondents' occupations, levels of education, participation in environmental programmes, participation in programmes that emphasise recycling, family members who recycle, desire for more information about recycling, and attitudes toward recycling in a highly and semi-dense area of Johor, Malaysia.

Furthermore, it is intended that this research shed light on Malaysians' recycling intents in dense and semi-dense locations, which will aid policymakers in developing policies and programmes. Hence, this study wishes to investigate the impact of occupation, education level, participation in environmental programs, participation in environmental programs focusing on recycling, members of residents' families performing recycling, desire for more information related to recycling, and environmental attitudes on recycling intentions in highly dense and semi-dense areas. The objectives and the research questions of this study are as follows:

Research Questions:

1. What are the factors that influence recycling behaviour among residents in selected high-density (city) and semi-density areas in Johor.
2. What is the most important factor that influence recycling behaviour among residents in selected high-density (city) and semi-density areas in Johor.

The research questions are as follows:

1. To examine the factors that influence recycling intentions among residents in selected highly dense (city) and semi-dense areas in Johor.
2. To examine the most important factor that influence recycling intentions among residents in selected highly dense (city) and semi-dense areas in Johor.

Literature Review

Solid waste management is the most significant environmental concern in Malaysia and other countries (Omran et al., 2009). Around 80% of the solid waste produced in Malaysia is recyclable. However, most waste ends up in landfills (Moh & Manaf, 2014). By 2020, Malaysia aims to raise the nation's recycling rate to 22% (Periathamby et al., 2009). To achieve the aim, many efforts were made by the local authorities to gain the public's attention through the waste segregation program. The Malaysian government promoted the 3R program: reduce, recycle and reuse (Tenth Malaysia Plan, 2011). In the recent 11th Malaysia Plan (2016-2020), investments in 3R awareness and education programs decided to be continued during the Eleventh Plan to shape better consumption and waste disposal behaviour (Eleventh Malaysia Plan, 2016). Cooperative programs between the government and private sectors also have been launched. Recycling has been stressed out throughout the programs. Unfortunately, only 15 percent of waste in this country is recycled (Bernama, 2016).

Malaysians Waste Segregation and Recycling

Garcés et al. (2002) pointed out that awareness and knowledge impact urban waste segregation and recycling behavior. Moh and Manaf (2017) stated that Malaysian lack knowledge and awareness of waste segregation and recycling. That is why efforts on it were not entirely successful as planned. Based on surveys, some householders were aware of recycling, and some were unaware. As Omran et al. (2009) found, householders are generally aware of recycling; however, they still do not want to participate. The biggest challenge is to make waste segregation a habit. Recycling has not become a universal way of life (Omran et al., 2009; Fauziah & Agamuthu, 2012), and not everyone sees recycling as part of what they should do (Thomas and sharp, 2010). Most householders are not oriented to transform their knowledge into behaviour (Daniel et al., 2006; Mahmud and Osman, 2010) even though awareness of separation and recycling reach 100% (Ministry of Urban Wellbeing, Housing, and Local Government, 2012). People are unable to link the benefit of recycling and the consequences of not recycling (Prestin & Pearce, 2010).

According to Adams (2011), based on a survey conducted in 2013 from 542 selected households, only 36.4% had heard of the segregation strategy and supported it. Most were unaware of it, and it became a challenge to influence the recyclers. Several studies found that conditions or physical surroundings influence recycling behavior. Physical barriers like lack of facilities and distance of recycling facilities are said to be significant factors (Omran et al., 2009; Sarah et al., 2012; Evison and Read, 2001; McDonald and Oates, 2003;). Saphore and Nixon (2014) stated that other than awareness and knowledge, convenience, social norms, and moral considerations influenced recycling behaviour. Boonrod et al. (2015) willingness of

households to separate waste and support infrastructure is essential considering their socioeconomic condition since it will not fit all. An individual's preference for recycling should come from inside rather than outside, i.e., through enforcement of the law (Ministry of Urban Wellbeing, Housing, and Local Government, 2013). Recycling behaviour only will be sustained if one does it voluntarily (Low et al., 2016). Therefore, this study is hoped to close the research gaps from the findings of the previous studies. This study will be examining the factors that can affect recycling behaviour and among the factors that will be examined are:

- i) occupation,
- ii) education level,
- iii) participation in environmental programs,
- iv) participation in environmental programs focusing on recycling,
- v) members of residents' family perform recycling,
- vi) desire for more information related to recycling and
- vii) environmental attitudes.

Methodology

Study Area

The area of study is the selected geographical districts of Johor Bahru – Administrative areas of Majlis Bandaraya Johor Bahru (highly dense areas) and Segamat (semi-dense areas) in which 11 divisions “mukim” are located.

Data Collection

To achieve the objective of the study, a questionnaire will be designed. This study will be adapting items from questionnaire established by Altikolatsi et al. 1. (2021). A structured questionnaire will be used because this type of questionnaire can collect a large volume of information from respondents even though they have different characteristics. In addition, data collection via questionnaire can be performed quickly and promptly.

Questionnaire Design

An introductory note will be written on the top of the first page. This is crucial to provide essential information about the objective of the study. Hence, the questionnaire will state the researchers' names and organizations. This explanation is hoped to avoid any doubts. In addition, the contact details, the objective of the study, and guaranteeing anonymity and confidentiality to the participants will be included on the cover page of the questionnaire.

Sampling

This study involves two districts, Segamat and Johor Baharu (highly dense and semi-dense areas), as the study site. Online and offline questionnaires will be administered to the residents, and it is hoped that questionnaire collection will be completed within two (2) months. In phase one (1), a thorough literature review is essential to understand and explore the residents' recycling readiness. A systematic literature review will be applied for this purpose. Then, a preliminary observation and discussion between researchers and residents will occur. This step is essential to gain communities' support, cooperation, and commitment. Fully commitment from each party involves in this research is crucial. This commitment is to ensure that the data collected is accurate. Online/Offline questionnaires will be distributed among selected residents who live in highly dense and semi-dense areas in Johor. Meanwhile, in phase two (2), digital and offline awareness campaigns with the residents will be conducted before the second

wave's commencement. After the awareness campaigns on recycling, a survey on recycling intention will be distributed to the residents. Finally, in phase three (3), descriptive analysis correlation and linear regression analyses will be performed to report the findings on recycling behaviour and find the trend.

Discussion and Conclusion

Because few studies have been conducted on high-density and semi-density areas, this study is critical in determining the impact of occupation, education level, participation in environmental programmes, and participation in environmental programmes focusing on recycling. Other potential discoveries are on members of residents' families who recycle, the desire for more information about recycling, and environmental attitudes toward recycling intentions in highly dense and semi-dense areas. Moreover, it is intended that this research shed light on Malaysians' recycling behaviour among high-density and semi-density areas in Johor, which will aid policymakers in developing effective policies and programmes. This research could create new waste management policies, develop promising policies and intervention measures, and implement ongoing recycling awareness initiatives. One of the study's most significant outcomes is likely to be the encouragement of new ways of thinking about waste management, resulting in a significant paradigm shift among persons regarding the necessity of recycling and garbage management.

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