

**A STUDY ON THE INTENTION TO FORMALLY  
DISPOSE E-WASTE AMONG RESIDENTS IN TAMAN  
BAHAU, NEGERI SEMBILAN**

FKP

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**A Study On The Intention To Formally Dispose E-Waste  
Among Residents In Taman Bahau, Negeri Sembilan**

by

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A thesis submitted in fulfillment of the requirements for the degree of  
Bachelor of Entrepreneurship (Commerce) With Honours

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2023

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## LIST OF ABBREVIATIONS

E-WASTE	Electric and Electronic Waste
CE	Circular Economy
SN	Subjective Norm
PBC	Perceived Behaviour Control
IV	Independent Variable
DV	Dependent Variable
H <sub>1</sub>	Hypothesis One
H <sub>2</sub>	Hypothesis Two
H <sub>3</sub>	Hypothesis Three
Sig	Significant

# **Kajian Mengenai Hasrat Membuang E-Sisa Secara Rasmi Di Kalangan Penduduk Di Taman Bahau, Negeri Sembilan**

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## **ABSTRAK**

E-sisa telah menjadi isu sedunia yang semakin meningkat setiap hari. Ia termasuk bahan berharga yang boleh dilupuskan untuk keuntungan. Perkakas kecil, perkakas besar, peralatan pertukaran suhu, paparan dan monitor, peranti IT atau telekomunikasi dan lampu adalah sebahagian daripada jenis sisa elektronik. Beberapa kajian telah dijalankan ke atas isi rumah. Kajian ini bertujuan untuk mengkaji keinginan untuk melupuskan e-sisa dalam kalangan penduduk di Taman Bahau, Negeri Sembilan. Ini adalah reka bentuk kuantitatif di mana soal selidik telah digunakan sebagai alat untuk pengumpulan data. Melalui teknik persampelan kemudahan, 137 responden terlibat dalam tinjauan. Analisis deskriptif digunakan untuk menerangkan latar belakang demografi responden, manakala Pearson Correlation telah digunakan untuk menganalisis hubungan pembolehubah menggunakan perisian The Statistical Package for Social Science (SPSS) versi terkini. Dapatan menunjukkan bahawa, sikap, norma subjektif dan kawalan tingkah laku yang dirasakan mempunyai hubungan yang positif dengan keinginan untuk melupuskan e-sisa dengan betul. Dari segi praktikalnya, penyelidikan ini dapat membantu masyarakat dan pihak lain yang berkaitan untuk menjadi lebih sedar tentang usaha menyelamatkan alam sekitar daripada kemusnahan akibat sisa elektronik yang tidak dibuang dengan betul.

**A Study On The Intention To Formally Dispose E-Waste Among Residents In TamanBahau,  
Negeri Sembilan**

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**ABSTRACT**

*E-waste has become a worldwide issue that is increasing every day. It includes valuable materials that can be disposed of for profit. Small appliances, large appliances, temperature exchange equipment, displays and monitors, IT or telecommunications devices, and lamps are part of the types of e-waste. Several studies have been conducted on the households. This study aims to examine the desire to dispose of e-waste among residents in Taman Bahau, Negeri Sembilan. This is a quantitative design where questionnaires have been used as a tool for data collection. Through a convenience sampling technique, 137 respondents involved in the survey. Descriptive analysis was used to describe the demographic background of the respondents, whilst Pearson Correlation has been employed to analyze the relationship of the variables using The Statistical Package for Social Science (SPSS) software latest version. The findings indicate that, attitudes, subjective norms and perceived behavioral control have a positive relationship with the desire to dispose of e-waste properly. As of the practical relevance, this research can help the community and other related parties to become more aware on saving the environment from destruction caused by improperly disposed electronic waste.*

# CHAPTER 1

## INTRODUCTION

### 1.1 Background of The Study

The Circular Economy (CE) is an innovative proposal that can result in positive outcomes such as reduced raw material demand, lower consumption of basic resources, and job creation, as well as avoiding negative consequences associated with natural resource exploitation and processing (Xavier et al., 2021). MacArthur (2022) pointed out the circular economy is one of the frameworks aimed at solving some global challenges. This system was created specifically to address climate change, biodiversity loss, waste, and pollution. In today's economy, humans will take materials from the earth, make products from those materials, and finally dispose of them as waste, which is known as a linear process. Meanwhile, in a circular economy system, it is the opposite, which is to stop waste from being produced in the first place (MacArthur, 2022).

The aims of circular economy (CE) aim for environmental conservation, realizing waste reduction, economic development, and competitive energy efficiency in an environmental strategy. The importance of the CE approach is to do without creating a challenge to the environment and at the same time the promotion of development is requested to give birth to a sustainable economy. Waste management techniques that have added value, cost effective, eco-efficient processes and product production are techniques that are able to dispose, repair and use valuable inputs of industrial waste in a circular economy. Through new job opportunities, better supply chains, proven customer relationships and low resource price volatility have indirectly benefited businesses and society in the circular economy (Singh et al., 2018).

This CE's missions are also in line with the SDGs, which aim to change the world by 2030 by

ensuring well-being, economic prosperity, and environmental protection. The SDGs play a different role from the conventional development agenda, which provide a comprehensive and multifaceted view of development (Pradhan et al., 2017). In general, the CE's missions are related to SDG 12 which is responsible for consumption and production (Murthy & Ramakrishna, 2022). Every consumer of electronic materials must be responsible for ensuring that electronic materials are disposed of in the right way, which is what this study will be focused on. If electronic materials are disposed of in a dangerous manner, such as the extraction of precious metals through burning or open dumping in landfills, it can be harmful to human health and the environment.

Regarding this, this study will focus on managing e-waste in a proper manner among consumers. E-waste is an electronic and electrical equipment that is no longer in use or that is about to reach its End Of Life (EOL). E-waste has become a global problem that is increasing day by day. It contains valuable materials that have a worthwhile value when disposed. The challenges are when the majority of e-waste is managed by an unregulated sector, posing a number of risks to humans and the environment (Kumar et al., 2017). Toxic exposure resulting from informal recycling can particularly affect women and children (Perkins et al., 2014). There are six categories classified in e-waste which are small appliances, large appliances, temperature exchange equipment, screens and monitors, IT or telecommunication devices and lamps. Apart from affecting health and the negative impact on the environment due to the toxic substances it contains, e-waste can also provide important and high economic value because there are fractions in it which are precious metals such as gold, platinum, silver etc (Arain et al., 2022).

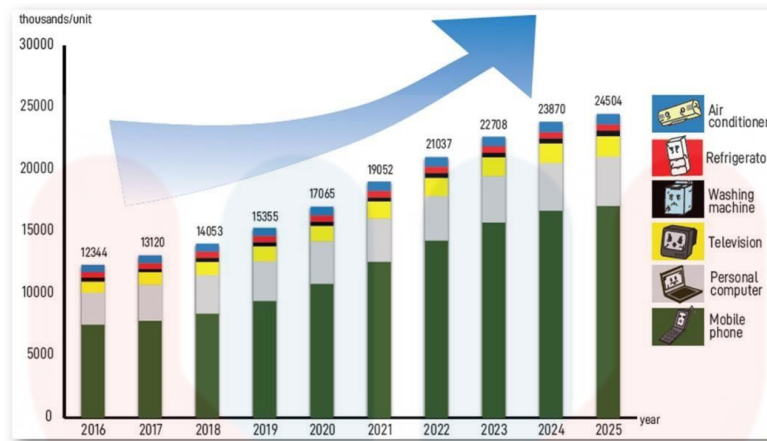
There are many highly hazardous disposal processes for electronic goods in the informal sector, such as disassembling electronic equipment, heating and manually removing components from printed circuit boards, opening burnt cables and wires to recover metal, chips, and melted plastic, wiping toner, and acid dissolving methods to recover precious metals. This informal disposal cycle does not focus on precautions for workers (Wei & Liu, 2012). In addition, consumers are an important driver in the circular economy because they use electrical and



electronic products or materials in their daily lives. Therefore, an increase in consumer understanding of the circular economy is important for conducting this study (Calvo-Porrall & Lévy-Mangin, 2020). Therefore, It is critical to ensure that consumers understand their role in properly managing e-waste in accordance with SDG 12. (Murthy & Ramakrishna, 2022).

This matter has become a concern for the whole world, as well as Malaysia. The increase in electronic waste in Malaysia shows a very significant rate of increase. This matter brings concern to Malaysia because it is possible that in 2025 Malaysia may generate up to 24.5 million pounds of electronic waste, which will have a negative impact on the country (Sekitar, 2020). This matter continues to increase from year to year as a result of the world's growth in the field of technology. The development of increasingly sophisticated technology results in too many technological items being produced, which results in a lot of electronic waste not being disposed of in the right way (Borthakur & Govind, 2017). The consumer of the technology plays an important role in ensuring that the waste from this technology is disposed of in the right way.

Therefore, the best way for a consumer to dispose of electronic waste is to send it to a formal disposal site. Extended producer responsibility (EPR), extended disposal fees, and producer voluntary take-back are all approaches used in the formal sector. The EPR concept requires all formal landfills to be financially responsible for their products' entire life cycle. This can provide security to residents around the formal landfill area because it can prevent any harm to the health of consumers and the environment (Li & Tee, 2012).



**Figure 1.1: Graph for E-waste in Malaysia (2016-2025)**

According to the graph shared by Alam Sekitar (2020), electronic waste in Malaysia is increasing at an alarming rate. This matter brings concern to Malaysia because it is possible that in 2025 Malaysia may generate up to 24.5 million pounds of electronic waste, which will have a negative impact on the country (Sekitar, 2020). There are many highly hazardous disposal processes for electronic goods in the informal sector, such as disassembling electronic equipment, heating and manually removing components from printed circuit boards, opening burnt cables and wires to recover metal, chips, and melted plastic, wiping toner, and acid dissolving methods to recover precious metals. This informal disposal cycle does not focus on precautions for workers (Wei & Liu, 2012).

## 1.2 Problem Statement

Several issues must be addressed in research to assist residents in disposing of electronic waste. Among them is raising awareness about proper electronic waste disposal. Most of the residents do not understand how to dispose of electronic waste because they are unaware of the dangers and significance of electronic waste to the environment (Thi Thu Nguyen et al., 2018). According to Berita Harian newspaper, awareness about e-waste disposal among Malaysians is still at a critical level because they are not yet aware of the importance of proper electronic waste disposal. Most Malaysians take it for

granted and mix electronic waste with solid waste (Alias, 2015).

This study also found that one of the problems that needs to be addressed is the lack of formal disposal convenience in the community (Thi Thu Nguyen et al., 2018). Most residents in residential areas would prefer an e-waste collector who comes to their home rather than having to go to a distant formal recycling point. This also makes it difficult for the elderly to dispose of electronic waste because they are unable to go to a formal disposal site (Zhang et al., 2019). According to the findings of the research, some residents living at remote areas will face difficulties disposing of their electronic waste because formal disposal centres are far from their homes (KataMalaysia, 2019). Because of that, they would rather dispose of electronic waste informally.

Finally, the lack of government and city council pressure on consumers to properly dispose of e-waste in order to avoid pollution is the issue that this research must address. The government and city council's push can give an effect on residents' willingness to dispose e-waste. Therefore, the government plays an important role in ensuring that residents are aware of the significance of properly disposing of electronic waste (Thi Thu Nguyen et al., 2018). According to the newspaper Berita Harian at 2017, the government takes electronic waste laws and regulations seriously because most residents choose to dispose of their electronic waste conventionally and do not comply with the green practises operated by informal electronic waste disposal operators (Noh, 2017).

There are several ways to ensure that each of the above problems can be overcome so that residents properly dispose of their e-waste. Awareness of the population can be achieved by giving them knowledge about the significance of properly disposing of their e-waste, so that they have knowledge about how to dispose of e-waste correctly. Most residents do not properly dispose of e-waste because of a lack of awareness and knowledge about how to properly dispose of e-waste (Borthakur & Govind, 2017). Other than that, in order to ensure that every resident disposes of their e-waste correctly, it is necessary to put social pressure in terms of laws and regulations on all electronic users so that they are more concerned about disposing of e-waste correctly. Many past studies say that social pressure in terms of laws and regulations can encourage consumers to properly dispose of e-waste

(Mohamad et al., 2022). In addition, to make it easier for residents to properly dispose of their e-waste is create a programme with the private disposal sector to collect electronic waste from residents at their homes to make it easier for them to properly dispose of e-waste (Nduneseokwu et al., 2017).

### 1.3 Research Question

Based on intention to dispose e-waste among residents in Taman Bahau, Negeri Sembilan, researchers have developed several research questions: -

- a. What is the relationship between attitudes and intention to formally dispose e-waste among residents in Taman Bahau, Negeri Sembilan?
- b. What is the relationship between subjective norms and intention to formally dispose e-waste among residents in Taman Bahau, Negeri Sembilan?
- c. What is the relationship between perceived behavioral control and intention to formally dispose e-waste among residents in Taman Bahau, Negeri Sembilan?

### 1.4 Research Objective

In relation to the research objective as above, the research questions are proposed as below: -

- a. To study the relationship between attitudes and intention to formally dispose e-waste among residents in Taman Bahau, Negeri Sembilan.
- b. To study the relationship between subjective norms and intention to formally dispose e-waste among residents in Taman Bahau, Negeri Sembilan.
- c. To study the relationship between perceived behavioral control and intention to formally dispose e-waste among residents in Taman Bahau, Negeri Sembilan.

## **1.5 Scope of The Study**

The focus of this study is intention to formally dispose e-waste among residents in term of attitude, subjective norm (SN), and perceived behavior control (PBC) of e-waste. This study also highlights the relationship between these three variables. Besides, the variety of factors that influence residents 's Taman Bahau, Negeri Sembilan to proper e-waste disposal including socioeconomic, demographic, institutional, infrastructure, and ideological in this study (Zhong and Huang, 2016). Respondents for this study included residents living in Taman Bahau, Negeri Sembilan. Quantitative techniques used in this study and responses were collected from at least 387 respondents in selected regions using an online questionnaire as a tool. The obtained data and information were recorded in the Statistical Package for Social Sciences (SPSS) for analysis.

## **1.6 Significant of The Study**

At the conclusion of this research, this study contributed to electronic waste among residents of Taman Bahau. The study of the factors influencing the intention to formally dispose e-waste among residents can provide and advantage to change the society. They can use this study to evaluate residents' knowledge, perception and practice of managing electronic waste. This is due to the fact that knowledge of suitable e-waste is poor in society. As a result, there is need to raise awareness of e-waste in order to prevent its impact on health and the environment.

In addition, researchers that have the same specific objectives as this research which is related to the study of e-waste disposal awareness. This study is to obtain research information related to awareness in the proper disposal of e-waste among the population. This study is very important to the country as it can offer a safe method in dealing with the problem of improper e- waste disposal of consumers as well as manufacturers.

Besides of that, policy makers are one of the ways to improve the country's weaknesses to

ensure that the health of the population is not affected and to restore the environment.

Finally, electronics factory operators can take action by adding knowledge of the dangers of improper disposal of e-waste. Therefore, manufacturers of electronic goods can properly implement e-waste disposal as well as pay more attention to the dangers of improper disposal of e-waste to better deal with the e-waste problem.

**1.7 Definition of Term**

<b>Terms</b>	<b>Definition</b>
E-waste	E-waste is waste generated by electrical and electronic devices that has reached the end of its useful life and contains various valuable materials that have economic value when dispose it (Perkins et al., 2014).
Disposal	E-waste disposal is a technique for disposing of electronic waste that has expired and consists of various disposal techniques such as landfilling, acid bathing, incineration, recycling, and reuse (TechReset, 2022).
Attitude	This is the extent to which a person evaluates the interest's favourable behavior or unfavourably. It entails considering the consequences of engaging in the behavior (LaMorte, 2022).
Subjective norms	This is the perception that the majority of people agree or disagree with the behavior. It is about a person's beliefs about whether his or her peers and significant others believe he or she should exhibit the behavior (LaMorte, 2022).
Perceived behavioural control	Perceived behavioral control refers to a person's perception of how easy or difficult it is to perform the desired behavior. Perceived behavioral control differs across situations and actions, causing a person's perception of behavioral control to shift depending on the situation.(LaMorte, 2022).



## 1.8 Organization of The Proposal

In chapter 1, this study will examine the study's background, the problem statement, the study's objectives, the research questions, the scope of the study, the significance of the study, the definition of terms, and the study's organization. In Chapter 2, conduct a study in terms of a literature review of the journals and articles that are studied. This second chapter covers, in terms of underpinning theory, previous studies, hypothesis statements, conceptual frameworks, and a summary of the literature review. In Chapter 3, will discuss research methods, which will interpret some of the strategies, processes, or techniques that will be used in gathering data or evidence from users to analyses for reveal new knowledge or create a greater specific knowledge of the research topic have done. In addition, in Chapter 4, will discuss data analysis and research findings, which will contribute in terms of knowledge as well as practical and theoretical implications. In Chapter 5, which is the last chapter, will discuss and create conclusions on hypotheses, implications, limitations, recommendations to be used by researchers in the future, to formulate a conclusion on the research conducted. In addition, in Chapter 4 this study will discuss data analysis and research findings, which will contribute in terms of knowledge as well as practical and theoretical implications. In Chapter 5, which is the last chapter, will discuss and create conclusions on hypotheses, implications, limitations, recommendations to be used by researchers in the future to formulate a conclusion on the research conducted.

## CHAPTER 2

### LITERATURE REVIEW

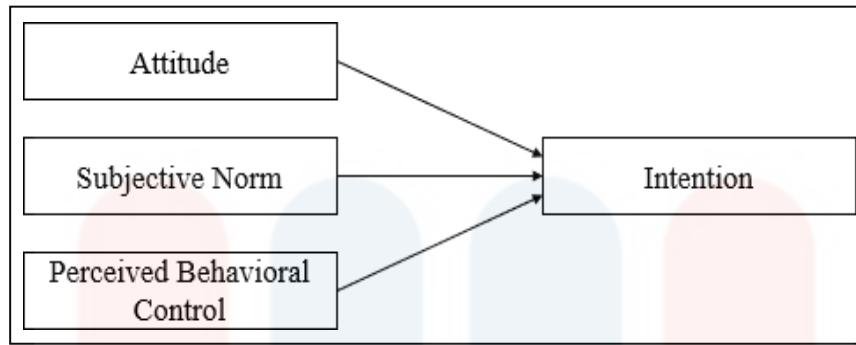
#### 2.1 Introduction

In this chapter, the research will investigate the underpinning theory that will be applied in this study. Chapter 2 also discusses about the literature review on the dependent variables is the intention to formally dispose e-waste among residents in Taman Bahau, Negeri Sembilan, while the independent variables are environmental awareness, laws and regulations, and inconvenience of disposing e-waste. Moreover, the conceptual framework that will be applied for this study will also be explained in this chapter together with the hypothesis statement.

#### 2.2 Underpinning Theory

The Theory of Planned Behaviour (TPB), which was introduced by Ajzen (1980) as a conceptual extension of the Theory of Reasoned Action (TRA) through the incorporation of additional factors, is regarded as effective for predicting the behaviour of individuals under specific conditions. Individual behaviour is determined by an individual's behavioural intention, which is influenced by three conceptually independent constructs: attitude towards behaviour (personal attitude and individual behavior), subjective norms (influence or social pressure to perform a certain behavior), and perceived behavioural control (Thi Thu Nguyen et al., 2018).





**Figure 2.1: Theory of Planned Behavior**

In the theory of planned behaviour (TPB), attitude towards behaviour refers to the extent to which an individual has a favourable or unfavourable opinion or evaluation of performing the target behavior (Mohamad et al., 2022). Attitudes are behavioural views, which are beliefs on the potential outcomes or qualities of other activities. This is due to the fact that a person's mindset has a large positive influence on their propensity to engage in formally dispose activity. Furthermore, attitude appeared as the most significant predictor of disposal intent. The purpose of this study is to determine whether residents' attitudes towards formal e-waste disposal in Taman Bahau, Negeri Sembilan. This relates to whether residents' attitudes on e-waste disposal will have a positive or negative impact on an activity.

Subjective norms are proposed as the second predictor of behavioural intention in the TPB model. Subjective norms are defined by Ajzen (1991) as "the felt social pressure to do or not execute a behaviour." In other words, subjective norms are the views of close persons who influence an individual's decision-making, such as family members, close friends, coworkers, and business partners (Han et al., 2010). As a result, in the context of this study, the laws and regulations of a body responsible for formally controlling e-waste recycling are an important factor that will influence residents' intention to recycle through special campaigns or programmes while also directly applying social pressure to individuals.

The TPB expands by include perceived behavioural control (PBC), which reflects people's

perceptions or "confidence in their ability to accomplish" specific activities, as well as indicators of "available resources and opportunities" (Strydom, 2018). In addition to the intention to act, the performance of a behaviour depends on a person's perception of his or her ability to perform that behaviour - how easy or difficult it is to carry out a particular action.

Thus, PBC exerts pressure not only on the intent to behave, but also on the behaviour itself. In this research, informal dispose is considered as an important factor to interpret the willingness of residents towards the official disposal of e-waste by the residents of Taman Bahau, Negeri Sembilan.

### **2.3 Intention to Formally Dispose E-waste Among Residents**

Borthakur and Govind (2017) examine emerging trends in formally dispose e-waste and conscious behavior, arguing that this behavior is national dynamics and affect by resident's ideology, familiarity or ease with proper e-waste disposal behavior, and their demographic background. Despite widespread belief that household waste disposal behavior and consciousness are core to successful dispose e-waste properly interventions, many people are unconscious of the significance of dispose e-waste properly and the safe disposal plan usable to them (Islam, Dias et al. 2021). In emerging markets, the academic literature is poorly informed about the willingness of households to dispose e-waste properly.

Borthakur and Govind (2017) observed that households in the Western world exhibit strong environmental principles and are more possible to engage in e-waste disposal behavior. The same way there perhaps shortage mainly in countries like China or India (Kumar 2019). A main bottleneck in the dispose e-waste properly and reverse supply chain management in new markets is the household unwilling to participate actively during e-waste disposal. (Zhong and Huang, 2016). A variety of factors have been identified that affect consumer decisions including socioeconomic, demographic, institutional, infrastructure, and ideological (Dindarian et al., 2012). Moreover, all kinds legal, regulations, policies, technology standard promulgated from the government also compel users and producers to properly dispose e-waste (Yu, Williams et al. 2010).

According to Greaves et al. (2013), a people must suppose the dispose e-waste properly is responsible, serious, and convenience to be performed. Apart from that, Wang et al. (2018) claimed that proper e-waste disposal practices can be increased by raising awareness of environmental protection among residents and constantly guiding the residents with proper dispose e-waste attitudes. Wan et al. (2012) believed that properly dispose e-waste could be accomplished via educational and promotional programs. For example, by emphasizing the powerful and influential needs to dispose e-waste and show the people how dispose e-waste behavior can change the beliefs and principles of an individual towards a safer environment.

According to Kochan et al. (2016), since dispose e-waste behavior is more possible to contain elements of ethics and community responsibility, perceptual norms may consider as an important predictor to dispose e-waste properly. (Mohamad, Thoo et al. 2022) stated that subjective norms in the e-waste disposal can be established through the implementation of appropriate e-waste disposal rules and regulations, the behavior and mentality of those around can affect residents' enthusiasm for proper e-waste disposal. Moreover, Dixit and Badgaiyan (2016) state that the person will not engage in e-waste disposal if they are not openly adopted in society, even if the person has strong personal values regarding the issue of e-waste disposal properly.

Echegaray and Hansstein (2017) noted the nearby facilities that dispose of e-waste may affect Perceived Behavioral Control (PBC) for proper e-waste disposal, leading households to believe they are saving time in dispose e-waste properly. In contrast, Wang et al. (2018) indicated that the PBC is mainly assessed on the basis of skills in dealing with e-waste. Therefore, people with e-waste disposal skills are more interested in participating in the proper disposal of e-waste than those without e-waste disposal experience.

Socioeconomic element direct impact the source of personal behavior through the personal information of residents. Previous research has established that socioeconomic drivers can significantly influence trends in the proper disposal e-waste. Adzawla et al. (2019) state the education, position, and per capita income are significant socioeconomic element that decide residents' proper

disposal e-waste. (Debrah, Vidal et al. 2021) found that gender was not associated with proper e-waste disposal, and that people with higher incomes were more easy than those with lower incomes to dispose e-waste properly.

## 2.4 Attitude

Attitude is defined as how a person feels and thinks about something, as it works as a positive or negative psychological emotion about the practices of a person (Jekria & Daud, 2016). A positive attitude has been significantly associated with commitment to a given behaviour (Tandon et al., 2020). According to (Tukiman et al., 2021), an individual attitude is essential since it demonstrates how they react to the knowledge they acquire and how they can implement it.

Residents with a high level of education have a good level of knowledge regarding electronic waste disposal. Knowledge is the facts, descriptions, information and competences on a subject that can be received through education and experience (Babaei et al., 2015). Attitude is what the individual feels and thinks about something (Babaei et al., 2015). Knowledge can affect someone's attitude and a good level of knowledge will lead to a good level of attitude. The attitude cannot be changed easily, but by increasing the level of knowledge, the attitude can ultimately be changed (Desa et al., 2011). Residents with high levels of education tend to encourage family members to manage their e-waste through proper disposal. Desa et al (2011) its depends on psychological and social factors. Residents who have good information and a good knowledge of the facts have a tendency to share information and encourage their families.

According to (Tukiman et al., 2021), many people have not managed to turn their consciousness into a commitment while many people still have an unacceptable attitude towards the environment. Sabouhi et al. (2011) found that attitude consciousness was related. Othman et al (2015), an individual's attitude is essential as it demonstrates how they meet and implement the knowledge they acquire.

**Hypothesis 1: There is a significant relationship between attitude and intention to formally dispose e-waste among residents in Taman Bahau, Negeri Sembilan.**

## **2.5 Subjective Norm (SN)**

Subjective Norms (SN) are social pressures from other individuals or groups to do or not do a certain behavior. This pressure may come from family, peers, neighbors, or anyone else who is personally important (Fauk, Seran et al. 2022). Individuals are more likely to behave in a particular way if they think those closest to them want them to (Priyono, Dwiwarno et al. 2020). SN are based on social pressure or other people's perception of a certain behavior, and their effect is to influence others to do something because others are doing it (Kumar 2019). When it comes to dispose e-waste properly, SN determine ethical choices and social responsibility to do the right thing (Wang et al. 2019).

SN in the TPB model means to a personal's perceived social pressure to act or not to act, derived from societal standard established by someone else (Ang, Wei et al. 2021). When a person look at the physical surrounding of a neighborhood filled with graffito and waste, they may think that destructive behavior such as littering to be acceptable, or even the societal standard for that neighborhood (Liu, Wu et al. 2019). On the contrary, good environmental quality will bring person to have a strong awareness of environmental protection and societal standard, and then generate a willingness to maintain good environmental quality (Si, Shi et al. 2020). When people perceive the quality of the community environment to be good, people tend to participate in the community environment, thus creating an atmosphere conducive to surrounding conservation (Krettenauer and Lefebvre 2021). (Sabbir, Khan et al. 2022) state that subjective norm is energetically predictor of intent to formally dispose e-waste. Furthermore, the empiric effects of (Zhang, Ran et al. 2021) show that social pressure has an important and positive impact on the willingness to properly dispose e- waste. In fact, the important of subjective norms for intention to formally dispose e-waste among residents in Taman



Bahau, Negeri Sembilan is well-documented (Gulzari et al., 2022). In the proper documentation of e-waste disposal, previous academic (Mahmud et al. 2020) confirmed the significance of subjective norms in forecast resident intention. Besides, Kianpour et al. (2017) show that subjective norm has a positive impact on residents' willingness to formally dispose e-waste. Koshta et al. (2022) further assert that subjective norms directly motivate residents' willingness to properly dispose of e-waste. The more residents connect them to important someone else (e.g. family, friends), the greater the impact. Consistent with this, in the context of the current study, it is hypothesized that the activities of other members of society, such as friends, peers, or family members, may exert pressure to increase residents' willingness to dispose e-waste properly.

The SN in this frame also determines how residents' behavior to use new skills will be affected by the consciousness of people in their community group (Püschel, Mazzon et al. 2010). SN is an influential factor in skill adoption because it reduces consumer uncertainty (Purani et al. 2019). Gao et al. (2015) create that community impact has a strong direct influence on residents' willingness to apply for an online proper e-waste disposal unit. Observations from friends and family may help to establish residents' intentions for a particular actions (Mohd Suki and Mohd Suki 2015). In addition, social pressure may come from rules, regulations, and incentives, which may also affect the willingness of residents to formally dispose e-waste (Amankwah-Amoah 2016). According to the literature mentioned above, the higher the subjective norm, the stronger the intention to proper dispose e-waste. Therefore, this assumption will be made:

**Hypothesis 2. There is a significant relationship between subjective norm and intention to formally dispose e-waste among residents in Taman Bahau, Negeri Sembilan.**

## **2.6 Perceived Behavioural Control (PBC)**

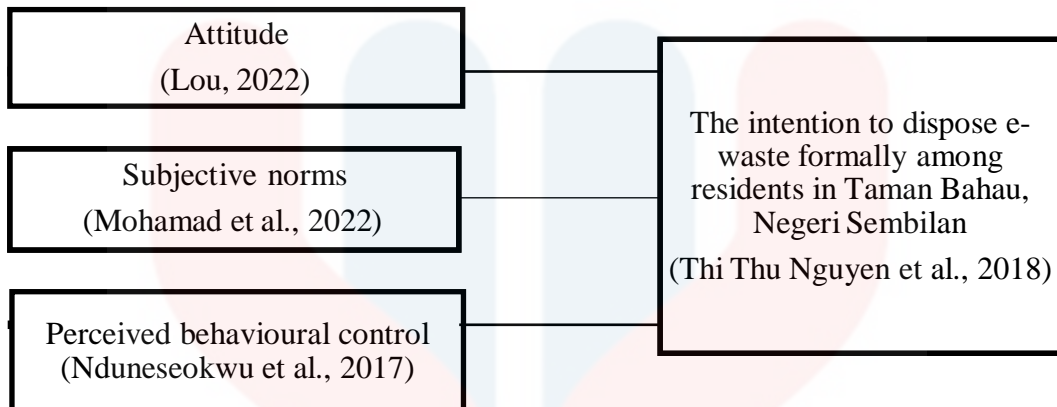
Perceived behavioral control (PBC) is a perception and understanding of a person's ability based on his past experience and the challenges that need to be faced to perform an act (Nur Shafeera

Mohamad et al., 2022). The cognition of behavioral control in recycling behavior includes recycling convenience, storage space, accessibility of recycling facilities, etc., which affects consumers' recycling behavior (Wang et al., 2019). Perceived behavioral control is the reflects past experience, expected obstacles, and obstacles, and it is related to the perceived ease or difficulty of performing the behaviour. (Muniandy & Anuar, 2020).

Based on previous studies, it is stated measured the perceived behavioral that the experience and convenience of disposing of e-waste formally can help residents understand formal disposal methods and formal disposal channels (Wang et al., 2018). Furthermore, perceived behavioral control that can encourage residents to dispose of e-waste in terms of dispose facilities, storage space, and facilities for access to formal disposal sites that can ensure residents dispose of their e-waste formally is in the form of recycling facilities, storage space, and facilities for access to formal disposal sites that can ensure residents dispose of their e-waste formally (Wang et al., 2019). Based on the research that has been found, it is stated that users of electronic goods can save their time to dispose of e-waste if there is a disposal facility near their home that can influence perceived behavioral control to ensure that every resident can save their time to dispose of their e-waste (Nur S. Mohamad et al., 2022). Based on previous studies, it was found that residents will go to the landfill more often if there is a formal landfill around their residential area. This is a perceived behavioral control that can influence residents to dispose of their e-waste at a formal landfill. Residents in an area will also be more motivated if there is an e-waste disposal facility in their place (Afroz et al., 2020). Recycling facilities play an important role in motivating residents to dispose of e-waste. It can be assumed that if there are facilities to dispose of e-waste formally, the residents are more sensitive to disposing of their e-waste formally because there are facilities in their residential areas (Chang et al., 2022). Therefore, the research conducted can summaries that perceived behavioral control is related to the intention of residents to dispose of e-waste formally.

**Hypothesis 3: There is a significant relationship between perceived behavior control and intention to formally dispose e-waste among residents in Taman Bahau, Negeri Sembilan.**

## 2.7 Conceptual Framework



**Figure 2.2: Conceptual Framework**

The independent variable (IV) and dependent variable (DV) that will use in this study can be seen in the figure above. The independent variable is a parameter that plays a big role in the intention to dispose of e-waste among residents. While the dependent variable (DV) is the intention to dispose of e-waste among residents in Taman Bahau, Negeri Sembilan.

Based on the hypothesis conducted, there are three research hypotheses that focus on environmental awareness, disposal costs, and laws and regulations that influence e-waste disposal intentions among residents in Taman Bahau, Negeri Sembilan. The theory created is based on a sample and needs to be tested first.

## 2.8 Summary

At the end of this study, this research came to the conclusion that a variable is an attribute, or, to put it another way, a short statement that will be expressed in a specific way. Based on our observations, a variable is an object of inquiry or study that can be monitored, calculated, or exploited. This research also will use the Theory of Planned Behaviour (TPB) to make an independent variable and dependent variable. In this study, has identified the relationship between the independent variable



(IV) and the dependent variable (DV), as well as the conceptual framework that has been discussed in this section. The researchers found that careful analysis will have a positive impact on resident acceptance in Taman Bahau, Negeri Sembilan. For the final analysis of this study, the independent variable (IV) is closely related to ensuring that the dependent variable (DV) can be implemented successfully.

## CHAPTER 3

### RESEARCH METHOD

#### 3.1 Introduction

This chapter describes the methodology used in this study. This chapter will deal with the various parts of research design, sampling design, data collection methods, research instruments, measurement instruments, and data analysis.

#### 3.2 Research Design

The methodological and strategic structure used by the investigator to integrate varied part of research in a comparatively generic manner in order to effectively solve the research problem is characterized as research design. It provides opinion on "how" to perform a study using a certain technique. This study employs quantitative research as it is further impartial which evaluates and recognizes.

Decisions about the most appropriate research methods stem from the philosophy of science chosen. It reports the way in which theory is applied in study and can adopt two scenarios: deductive and inductive (Saunders et al., 2009). As for this study, it employed deductive research. It is used to explain the causal relationship among certain variables. Therefore, adopting this method is in line with the research objective of this study.

Tool for analysis of data will be performed by using Statistical Package for Social Sciences (SPSS). Descriptive research will be uses in this study. Descriptive statistics, especially frequency, will be used to depict the sociodemographic of the respondents and average scores for the influential

variables. To define the relation and the strength of relationship among the attitude, subjective norm (SN), and perceived behavior control (PBC) and intention to dispose e-waste, bivariate analysis was employed, specifically the Pearson correlation since it is normally distributed. The analysis that involved in this study were descriptive analysis and Pearson Correlation Analysis. The outputs were processed by using Statistical Package for Social Sciences (SPSS) latest version.

### **3.3 Population**

In this study, the population is the residents at Taman Bahau, Negeri Sembilan. The residents of Taman Bahau there are many races consisting of Indian, Malay, Chinese and others. The population consists of male and female genders of different ages. Residents in Taman Bahau have a different status of education, socio-economic status, and have different residential areas. World population review state the number of populations in Bahau, Negeri Sembilan is 14500 - 15000.

### **3.4 Sampling Procedure**

#### **3.4.1 Sample Size**

Sample size can be defined as an observation being made or as direct count of the number of samples measured (Zamboni et al., 2018). For the sample size, have estimated a total of 375 people, representing a total population size of 15000. This study use the Krejcie and Morgan table to calculate the sample size from a given population. For this research, the sample of the study on the intention to dispose e-waste among residents in Taman Bahau, Negeri Sembilan. The sample size for this study was taken in a residential area located in Taman Bahau which is the exact number of residents cannot be identified.

<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	100000	384

Note.—*N* is population size. *S* is sample size.  
Source: Krejcie & Morgan, 1970

**Table 3.1: Krejcie and Morgan Table**

### 3.4.2 Sampling Method

As for the sampling, this study is using a non-probability sampling technique which is convenient sampling Convenience sampling is a method to get answers from a group of respondents who have been targeted and easy to be part of the sample of a study. In this study use this method to obtain a sample from a group of residents in Taman Bahau. It refers to the residents that voluntarily to give the information and their experience about e-waste by using online survey via the internet using Google forms to collect all the required data in a precise, low-cost, and timely manner.

## 3.5 Data Collection Procedure

### 3.5.1 Source of Data

The source of data carried out in this research is using primary and secondary data. In this research, data from primary and secondary are collect. Besides that, the primary data is

collected through focus groups, social media monitoring, while for secondary data were collected from websites, trade publications, government publications (Alison, 2016). Through this data gathering procedure, which academics have already acquired, research can be completed swiftly and easily. This is how the primary and secondary data for this study will be gathered.

### **3.5.2 Pilot Test**

According to (Tracy et al., 2017), suggested that the questionnaires should be a pilot-tested data collection process and that the object of the pre-testing is to narrow down the questionnaire so that respondents will not address any issues when answering questions and there will be no issue with the recording of data for researchers. In this study, Google forms of questionnaires will be distributed to residents in Taman Bahau. The pilot test will take about a week to collect all the reviews and details. The findings and input from the pilot test make it possible for researchers to carry out large-scale analysis and study after the pilot test.

### **3.5.3 Reliability and Validity Test**

Reliability and validity used in research is to assess the quality of research where in reliability and validity shows the extent of the methods, techniques, and tests for measuring things (Price et al., 2015). This suggests that the measurements for these results are considered reliable. Meanwhile, validity refers to how accurately the method of measuring what will be measured (Middleton, 2019). When research has a high degree of validity, it shows that research produces results that correspond to the true nature, characteristics, and variations in the physical or social world.

There are four methodologies, test-retest, internal consistency reliability, split half reliability, and inter-rater reliability. For this study use internal consistency reliability.

The coefficient value of Cronbach's alpha and internal consistency measurement are as follows:

**Table 3.2: Cronbach's alpha Coefficient Value**

<b>Cronbach's alpha</b>	<b>Internal consistency</b>
$a \geq 0.9$	Excellent
$0.9 > a \geq 0.8$	Good
$0.8 > a \geq 0.7$	Acceptable
$0.7 > a \geq 0.6$	Questionable
$0.6 > a \geq 0.5$	Poor
$0.5 > a$	Unacceptable

### 3.6 Research Instrument Development

Research instruments are one of the tools often used by researchers to obtain information from respondents. The research instrument aims to collect, measure, and analyze data related to the subject of the study. This research instrument can be conducted as a test, survey, scale, questionnaire, or checklist. In order to ensure that the study gets more accurate results, research instruments are very important in obtaining more accurate information from respondents (Gumberg, 2022). This study use questionnaire for collecting data.

Section A was about demographics, which included obtaining information such as gender, age, monthly income, home ownership, ethnicity, married status, type of occupation, level of education, type of residence, number of people living together and members who live together in the same house. In Section B, respondents will be asked about e-waste management in their homes. This section will ask if respondents know about e-waste, the dangers of informal disposal, and the electronic devices in their homes that they have disposed of. This respondent must answer this question before proceeding with the rest of the research questions. The respondent can fill out the form on the questionnaire that belongs to them in this segment.

Furthermore, the respondent should respond to section C, section D and section E, which in this section is for independent variable. In this section, the question asked is to obtain information about how residents gain awareness about the formal disposal of electronic waste based on three factors such as attitude, subjective norms and perceived behavioral control. These three sections which is section C, D, and E will employ the Likert scale, which in this questionnaire has a 5-point scale.

In the last part, which is section F, questions are asked about dependent variables, which are the residents' intention to formally disposing of electronic waste. The question is intended to collect data on the residents' awareness of formally disposing of electronic waste.

### **3.7 Data Analysis Procedure**

In this research study, IBM SPSS Statistic 23 will be used as a data analysis tool for the data analysis process, which will cover two main requirements: editing and coding. Data analysis is a process of converting raw data received from target respondents into something that can be used and instructive for research using questionnaires. There are three types of data analysis, the reliability analysis, the descriptive analysis, and the Pearson Correlation Coefficient. The researcher only uses two ways for the SPSS method, which is descriptive analysis and inferential analysis.

Descriptive analysis is a type of data analysis that helps to explain, show, or summarize data points in a constructive way so that patterns might develop that satisfy all the data's conditions. Therefore, researchers must provide more detailed information on their gender, age, ethnicity, status, and opinions in this study. This analysis will be carried out using the SPSS application. The variance of the mean table is used to calculate the probability that the respondents will agree or disagree with the questionnaire argument.



**Table 3.3: The Relationship between Mean and Standard of Agree**

Mean	Standard of Agree
5	Strongly Agree
4	Agree
3	Neutral
2	Disagree
1	Strongly Disagree

Whereas, for inferential analysis, the relationship between independent variable and dependent variable was tested. The researcher would use the Pearson Correlation in inferential analysis to determine the strength of the relationship between the independent variable that is attitude, subjective norm and perceived behavioral control with the intention to formally dispose e-waste.

### 3.7.1 Pearson’s Correlation Analysis

This research uses Pearson's correlation analysis to assess the study objective. Examining the connection and link between each independent variable and dependent variable is beneficial. Between 0 and 1, the crucial value of correlation between variables fluctuates.

**Table 3.4: Pearson’s Correlation Coefficient Indicators**

Value of the Correlation Coefficient	Strength of Correlation
1	Perfect
0.7 – 0.9	Strong
0.4 – 0.6	Moderate
0.1 – 0.3	Weak
0	Zero

### 3.7.2 Normality Test

The normality test measures whether or not the data has a normal distribution. Normal distribution is a symmetrical, bell-shaped distribution of data that has specified qualities and is used as a standard for comparing the shapes of data distribution. A test is considered normal if the results suggest that few participants are at the right and left tails and the majority are in the



center. It displays the symmetry and one data cluster in the center. The researcher use Kolmogorov-Smirnov test by using SPSS 16.0 program, to investigate the normality testing.

**Table 3.5: One-Sample Kolmogorov-Smirnov Test**

		VAR00001
N		21
Normal Parameters <sup>a</sup>	Mean	65.9048
	Std. Deviation	9.74631
Most Extreme Differences	Absolute	.204
	Positive	.099
	Negative	-.204
Kolmogorov-Smirnov Z		.936
Asymp. Sig. (2-tailed)		.346

### 3.8 Summary

In this chapter, researchers discuss the intention to dispose of e-waste among residents in Taman Bahau, Negeri Sembilan. All the material in this chapter relies on data, thus data collecting, and research process options must be included. Furthermore, the major approach in this chapter is for the researcher to utilize a questionnaire to gather and collect all important data to meet the study's objectives. The researcher employed quantitative data presentation in this study.



## CHAPTER 4

### DATA ANALYSIS & FINDINGS

#### 4.1 Introduction

This chapter will discuss the data analyses, which include analyses from the pilot test and the actual survey. This chapter also discusses reliability tests and normality tests. The overall reliability test will be covered by the pilot test. While for the actual survey, descriptive analysis and the Pearson correlation test were used to answer the research questions. Descriptive analysis will describe the respondents' demographic profile, while the Pearson Correlation Test will analyse the relationship between the variables (attitude, subjective norm, and perceived behavioural control) and the intention to dispose of e-waste properly among residents in the context of this study. Other than that, the normality test will determine whether the samples are normally distributed or not. All the analyses in this chapter were run by SPSS's latest version.

#### 4.2 Reliability and Validity Test

A pilot study has been conducted on 30 respondents to determine the consistency of the research instrument before the actual survey. There were four variables need to be tested prior to the actual survey. Each variable in survey consists of four or five items each. Based on Table 4.1 in the survey, it contains 4 measured variables with 5 items each. The attitude consists of 5 items ( $\alpha = 0.897$ ), subjective norm consisted of 5 items ( $\alpha = 0.878$ ), perceived behavioural control consisted of 5 items ( $\alpha = 0.732$ ) and intention to properly disposal e-waste also had consisted of 5 items ( $\alpha = 0.739$ ).

**Table 4.1: Reliability Cronbach’s Alpha of Pilot Test**

Variables	Number of items	Cronbach’s Alpha	Strength of Association
$IV_1$ = Attitudes towards proper disposal of e-waste	5	0.897	Strong
$IV_2$ = Subjective norm on proper disposal of e-waste	5	0.878	Strong
$IV_3$ = Perceived behavioural control to properly disposal of e-waste	5	0.732	Good
$DV$ = Intention to properly disposal of e-waste	5	0.739	Good

It can be summarized that attitude and subjective norm has strong consistency whilst perceived behavioural control and intention has good consistency of items measured. Thus, this questionnaire is acceptable to proceed to next actual survey.

### 4.3 Normality Test

Based on the Table 4.2, the significant of the normality test for Kolmogorov-Smirnov and Shapiro-Wilk is 0.000 which is less than 0.05.

**Table 4.2: Test of Normality**

Tests of Normality						
	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
The attitudes towards proper disposal of electronic waste	.253	376	.000	.813	376	.000
The subjective norm on proper disposal of electronic waste	.097	376	.000	.949	376	.000
The perceived behavioural control to properly disposal of electronic waste	.078	376	.000	.976	376	.000
The intention to properly disposal of electronic waste	.127	376	.000	.961	376	.000
a. Lilliefors Significance Correction						

Therefore, the data for the intent to properly disposal of electronic waste, attitudes towards proper disposal of electronic waste, subjective norm on proper disposal of electronic waste and perceived behavioural control to properly disposal of electronic waste was normally distributed.

#### 4.4 Descriptive Analysis

The results of descriptive analysis performed on the items for each variable are presented in the form of mean and standard deviation in this section. All the items were measure using a five-point Likert scale which values: Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4) and Strongly Agree (5).

**Table 4.3: Descriptive Analysis for Variables**

<b>Variables</b>	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>
Attitudes Towards Proper Disposal of Electronic Waste (IV)	376	2.00	5.00	4.4362	.66787
Subjective norm on Proper Disposal of Electronic Waste (IV)	376	1.00	5.00	3.7340	.91885
Perceived behavioural control to Properly Disposal of Electronic Waste (IV)	376	1.00	5.00	3.7399	.68438
Intention to Properly Disposal	376	1.00	5.00	3.9048	.66899

Based on the Table 4.3, it can identify which of the variables has the most agreement from the respondents. Among the variables that get a lot of agreement are “attitudes towards proper disposal of electronic waste”, which can be seen when the mean value obtained is 4.4362, which proves that many respondents agree with the statement of this variable. In addition, based on the table above, it has been stated that the variable “subjective norm on proper disposal of electronic waste” has received the lowest agreement, with a mean rate of 3.7340, which proves that most respondents almost agree with the question given. In addition, the variables listed also show the mean in this encouraging condition. The variable "intention to properly dispose of electronic waste" has a mean value of 3.9048, showing that most respondents almost agree with the question on that variable. Next shows the variable perceived behavioural control to properly disposing of electronic waste at a mean value of 3.7399. This indicates all the items for this variable.

#### 4.5 Demographic Background

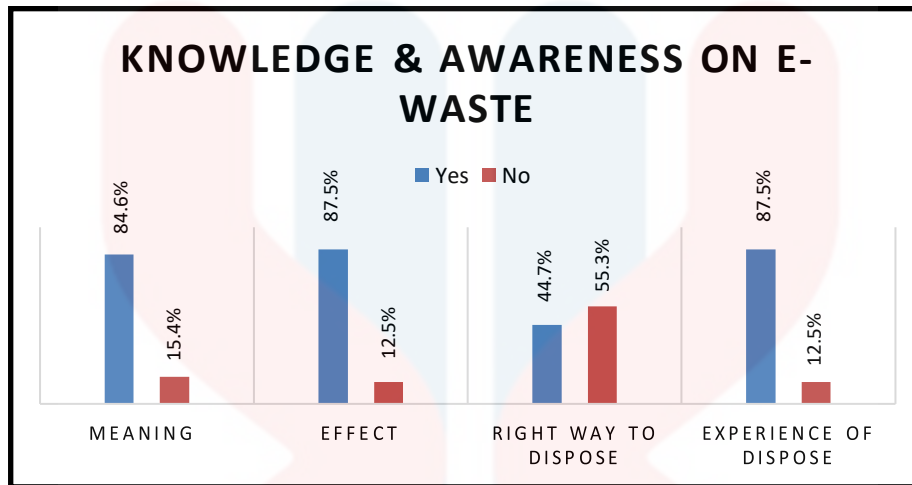
After collecting the questionnaires, our research yielded a 100% response rate from a total of 376 respondents. Table 4.4 exhibits the 376 respondents' demographic profile and household profile.

**Table 4.4: Frequency output for Respondents' Demographic Profile**

<b>Demographic Profile</b>			
		<b>Frequency</b>	<b>Percent</b>
Gender	Female	301	80.1
Age	More than 41 years old	174	46.3
Monthly income	RM2000- RM3999	130	34.6
Ethnicity	Malay	329	87.5
Occupation	Government employed	241	64.1
Level of education	University / College	253	67.3
<b>Households Profile</b>			
Home Ownership	Owned	230	61.2
Married Status	Married	276	73.4
Type of residence	Terrace	204	54.3
Number of people living together	4 – 6 people	187	49.7
Members who live together in the same house	Family	338	89.9

Based on Table 4.4, most of the respondents are female (80.1%) and most of the respondents are aged 41 and above (46.3%). In addition, most respondents are Malays (87.5%) who work as government employees (64.1%). Among the incomes that have the highest percentage of respondents is as much as RM 2000- RM 3999 (34.6%) and almost most of them are university/college graduates (67.3%). Next, the household profile shows that most respondents live in houses that have been purchased (61.2%), and half of them live in terraced houses (54.3%). In addition, most respondents are married (73.4%), and the majority of respondents' families are between 4-6 people (49.7%). Almost all respondents live with their families (89.9%).

#### 4.6 Knowledge and Awareness on E-waste



**Figure 4.1: Graph percentage for knowledge and awareness of e-waste**

Based on the figure 4.1 above, it shows the percentage of each respondent who knows about e-waste, the formal e-waste disposal method, the effect of e-waste on the environment, and the experience in disposing of any e-waste. The percentage of knowledge about e-waste can be seen to show that most respondents know what e-waste is, which is 84.6%, compared to those who do not know, which is only 15.4%. In addition, information about the impact on the environment if e-waste is not managed properly shows that more respondents know about the impact on the environment, which is as many as 87.5% of respondents compared to only 12.5% who do not know. In addition, e-waste management depends on its disposal method. From this survey, as many as 55.3% of respondents do not know how to properly dispose of e-waste, compared to only 44.7% of respondents who know how to dispose of e-waste properly. Finally, the data obtained from the respondents regarding their experience in disposing of e-waste found that 87.5% of respondents had disposed of it, while 12.5% had never disposed of it.

**4.7 Pearson Correlation Analysis and Hypothesis Testing**

Pearson correlation coefficient linear relationships without assumptions. Researchers should check their data against two standard features of normal bivariate distribution: Both variables are distributed. In this series of basic statistical courses, strategies for assessing this assumption were discussed. In addition, the Pearson correlation coefficient is an inferential statistic, which means it can be used to test statistical hypotheses. This study can specifically test for a significant relationship between two variables.

**Table 4.5: The Pearson Correlation Coefficient**

		Intention to dispose e-waste properly (DV)
Residents’ attitude towards proper e-waste disposal. (IV)	Pearson Correlation	.559**
	Sig. (2-tailed)	.000
	N	376
Subjective norm towards proper e-waste disposal (IV)	Pearson Correlation	.452**
	Sig. (2-tailed)	.000
	N	376
Perceived behavioural control to dispose e-waste properly (IV)	Pearson Correlation	.617**
	Sig. (2-tailed)	.000
	N	376

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**4.7.1 Hypothesis to address Research Hypothesis 1:**

H<sub>1</sub>: There is correlation between residents’ attitude towards proper e-waste disposal and intention to dispose e-waste properly.

Table 4.5 indicates the coefficient for attitude towards dependent variable. Correlation of residents’ attitude towards proper e-waste disposal and intention to dispose e-waste properly,  $r=0.559$  with significant level 0.00 based on sample size. The correlation coefficient is significant ( $p<0.01$ ). Attitude has significant positive moderate towards intention to dispose e-waste properly. Thus, H<sub>1</sub> is accepted ( $p=0.559$ ), ( $p=0.000<0.01$ ).



#### 4.7.2 Hypothesis to address Research Hypothesis 2:

H<sub>2</sub>: There is correlation between the subjective norm on proper disposal of electronic waste and intention to dispose e-waste properly

Table 4.5 indicates the coefficient for the subjective norm on proper disposal of electronic waste and intention to dispose e-waste properly. Correlation of the subjective norm on proper disposal of electronic waste and intention to dispose e-waste properly,  $r=0.452$  with significant level 0.00 based on sample size. The correlation coefficient is significant ( $p<0.01$ ). Subjective norm has significant positive moderate towards intention to dispose e-waste properly. Thus, H<sub>2</sub> is accepted ( $p=0.452$ ), ( $p=0.000<0.01$ ).

#### 4.7.3 Hypothesis to address Research Hypothesis 3:

H<sub>3</sub>: There is correlation between the perceived behavioural control on proper disposal

Table 4.5 indicates the coefficient for the perceived behavioural control on proper disposal of electronic waste and intention to dispose e-waste properly. Correlation of the subjective norm on proper disposal of electronic waste and intention to dispose e-waste properly,  $r=0.617$  with significant level 0.00 based on sample size. The correlation coefficient is significant ( $p<0.01$ ). Perceived behavioural control has significant positive moderate towards intention to dispose e-waste properly. Thus, H<sub>3</sub> is accepted ( $p=0.617$ ), ( $p=0.000<0.01$ ).

#### 4.8 Summary

Chapter 4 concludes with a discussion of the relationship between three independent variables (IV): attitudes toward proper disposal of electronic waste, subjective norm on proper disposal of

electronic waste, and perceived behavioural control to proper disposal of electronic waste. Additionally, there is a dependent variable (DV) that measures the intention to properly dispose of electronic waste. The overall conclusion that can be drawn from Chapter 4 is that there was some information obtained from the pilot study that was made to confirm the reliability of the questionnaire, which proves that this questionnaire is accepted for the next step, which is the actual survey. In addition, it can be seen that the normality data shows that all variables are normally distributed. Finally, the Pearson Correlation Coefficient shows that all variables are significant. The independent variable also shows a mutual relationship with the dependent variable.

## CHAPTER 5

### DISCUSSION AND CONCLUSION

#### 5.1 Introduction

This chapter discusses on the findings based on the results obtained from this survey and achievement of the research objectives proposed in chapter 1. In addition, limitation of this study will be discussed after the findings and discussion part. Recommendations for the betterment of future research will be proposed in this chapter.

#### 5.2 Research Objectives

- (a) **To examine the strength of correlation between the residents' attitude towards intention to dispose e-waste properly**

Based on the findings, the significant value of attitude towards intention to dispose e-waste properly is 0.559, it is found that attitude has positive moderate relationship with intention to dispose e-waste properly. This finding can be supported with particular attitudes that are thought to be more predictors of properly e-waste disposal (Ajzen & Fishbein, 1977). Positive attitude in the context of this study referring that most residents in Taman Bahau feel happy when they dispose e-waste properly. Moreover, they also feel that dispose e-waste properly is part of their responsibility.

The literature shows that those who care about the environment and understand environmental problems and their causes are more likely to dispose e-waste properly. Furthermore, if a person has a positive attitude towards an activity, they are more likely to do

in that activity. The literature also shows that e-waste is not properly disposed of, which has a negative impact on the surrounding and humans, and that proper e-waste disposal is one of the most effective methods to decrease e-waste contamination (Geiger et al., 2019). It can be established that residents' knowledge of the proper e-waste disposal and their responsibility for environmental conservation contribute significantly, leading the way in favoritism and satisfaction of a person in intention to dispose e-waste properly. The study resulted that positive attitude towards intention to dispose e-waste properly.

**(b) To examine the strength of correlation between the subjective norm towards intention to dispose e-waste properly**

Based on the findings, the significant value of Subjective Norm (SN) towards intention to dispose e-waste properly is 0.452, it is found that SN has a positive moderate relationship with intention to dispose e-waste properly. A case carried out in China found that residents' SN significantly influence their intention to proper e-waste disposal (Laequddin et al., 2022). The respondents believed that the social concerns from family members, friends, neighbors, mass media as well as authorities provide a comprehensive view of explaining the intention of the residents in Taman Bahau to properly dispose e-waste.

Since consult in the literature review in Chapter 2, TPB is help by beliefs about normative expectations of others anyone apply social pressure. A person is most likely to dispose e-waste if they trust other people will do so, or if they handle in the right activity of e-waste disposal properly, and if they want social acceptance. The study resulted that positive SN towards intention to dispose e-waste properly.

**(c) To examine the strength of correlation between the perceived behavioural control towards intention to dispose e-waste properly**

Based on the findings, the significant value of Perceived Behavioural Control (PBC) towards intention to dispose e-waste properly is 0.617, it is found that PBC has positive moderate relationship with intention to dispose e-waste properly. PBC was observed to be a strongest predictor; the ease or difficulty to dispose e-waste properly had a direct effect on intention to dispose e-waste properly. Example, if one intends to go to recycling centre for proper e-waste disposal but it is too far from home, it will losses the desire to dispose e-waste properly. In fact, most residents of Taman Bahau depicts that proper dispose e-waste is impeded by the inconvenience of e-waste disposal site.

The connection element involves to e-waste disposal play a crucial role in the proper disposal e-waste, and access to convenient disposal infrastructure and information of how to dispose of them have a positive impact on the proper disposal e-waste. This study helps this theory by establish that the difficult of disposing of e-waste negatively impacts residents' disposalactivity. This means that most drop-off points, collection schemes and clear knowledge programcan assist improve e-waste disposal adoption and activity standard in Taman Bahau. Use the contingent ranking, person environmental beliefs are important significant and play a significantpart in their willingness to pay for the convenience of properly dispose e-waste. The study resulted that positive PBC towards intention to dispose e-waste properly.

### **5.3 Limitations of the Study**

This study has some limitations. Firstly, this research only uses a sample of Negeri Sembilan to test the study model and study hypotheses. The sample may not be very representative of the whole population of Negeri Sembilan. Secondly, the research focuses on element of Theory of Planned

Behavior (TPB), and establish such as e-waste attention understanding. Thirdly, the research took a cross-sectional approach to test all. People typically acquire knowledge only one time (Rindfleisch et al., 2008). Therefore, it cannot employ the achievement to know what caused them, or to generalize them to other time period. Fourth, the way apply was a self-assessment questionnaire with limited issue. It moderates inferential feedback since the questionnaire is devise within preset scoring model. Respondents have limited capability to offer knowledge and idea. This research is about a precise idea, so respondents may not respond. Therefore, this research may have certain limitations.

#### **5.4 Recommendations/ Suggestion for Future Research**

Future research can focus on validating the findings of the present research with residents of other nation. Next, future research also surveys the part of various other appropriate structures, such as participation, trust, and values, that can regulator or mediators among the many elements of the model. Since the issue of proper e-waste disposal processes is a main policy globally, it is prudent to survey the influence of environmental regulation in the model as a regulator of e-waste disposal activity. Also, future researchers may conduct longitudinal studies rather than cross-sectional studies. Since this is real-time data collection, it's most correct. Methods using a longitudinal studies permit researchers to determine activity patterns. This process can take a long time to finish. The validity and reliability of the data is high. The project could not be completed due to time and resource availability. Longitudinal surveys can be carry out. Data collection for longitudinal approach can take months or a year (Blondell et al., 2014).

It is suggesting that upcoming approach consider more representative of residents from many towns in Malaysia to ensure the representativeness and generalized of these findings. Future research can also include younger generations to learn more about psychosocial that influence intentions to dispose e-waste properly. To know the similarities and gap in adolescents' and adults' e-waste disposal intentions, future research could test the psychosocial factors that

influence these two groups. It can be useful to exploit appropriate hypotheses based on the results of these research. In addition to e-waste disposal intentions, it is also significant to test previous e-waste disposal activity in order to find possible discrepancies among intentions and activity.

## 5.5 Conclusion of the Study

This current research aimed to uncover the key determinants that affect intention to dispose e-waste properly among residents in Taman Bahau, Negeri Sembilan. It contributes to the attitude, Subjective Norm (SN) and Perceived Behavioural Control (PBC), thereby contributing to intention to dispose e-waste properly. Currently, through questionnaires using google form and face to face, a total of 376 respondents have been chosen in Taman Bahau, Negeri Sembilan.

Furthermore, the methodology for the major study questions proved to be reliable. Specifically, it determines in this part the methodology and results used to evaluate the hypotheses driving this study. Reliability analysis, descriptive analysis, Pearson's correlation and multiple regression analysis were performed. These showed that the attitude, SN and PBC have significant positive predictors of Taman Bahau residents' intention to dispose e-waste properly. Thus, the strongest predictor variable was met, there is correlation value of 0.617 for PBC on the intention to dispose e-waste properly.

Lastly, discussion and conclusion are much needed to summarize the methodological results. This relate an overview of statistical evaluation and a review of the major positions relevant to quantitative research and research questions. The limitation and recommendation of this research can assist policy makers and managers develop effective strategies for this study for future research.



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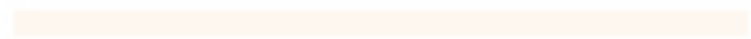


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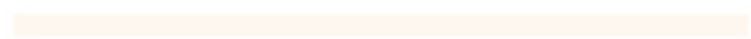
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## APPENDIX A



Dear respondent,  
*Responden yang dihormati,*

We are conducting academic research entitled:  
*Kami sedang menjalankan penyelidikan akademik yang bertajuk:*

### **A Study on The Intention to Formally Dispose E-waste Among Residents in Taman Bahau, Negeri Sembilan**

The purpose of this research is to investigate the intention to formally dispose e-waste among residents in Taman Bahau, Negeri Sembilan. To meet academic requirements, it is hope that you can complete this questionnaire with honesty. Your response is confidential and will use for academic purpose only. Your cooperation in this research is greatly appreciated.

*Tujuan kajian ini adalah untuk mengkaji hasrat membuang sisa eleltronik secara betul dalam kalangan penduduk di Taman Bahau, Negeri Sembilan. Bagi memenuhi keperluan akademik, diharap anda dapat melengkapkan soal selidik ini dengan jujur. Jawapan anda adalah sulit dan akan digunakan untuk tujuan akademik sahaja. Kerjasama anda dalam penyelidikan ini amat dihargai.*

This questionnaire contains six parts. **Part A** is about the respondent's background, **Part B** is about e-waste management information, **Part C, D and E** consist of proper e-waste disposal in terms of (attitude, social pressure and challenges). **Part F** is about the intention to dispose of e-waste properly. / *Soal selidik ini mengandungi enam bahagian. Bahagian A adalah mengenai latar belakang responden, Bahagian B adalah maklumat pengurusan sisa elektronik, Bahagian C, D dan E terdiri daripada pelupusan sisa elektronik secara betul dari segi (sikap, tekanan sosial dan cabaran). Bahagian F adalah mengenai niat untuk melupuskan sisa elektronik secara betul.*

Prepared by: / *Disediakan oleh:*

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## A. RESPONDENT BACKGROUND LATAR BELAKANG RESPONDEN

**INSTRUCTION:** Please specify your answer by placing a tick (✓) on the relevant answer provided  
**ARAHAN:** Sila nyatakan jawapan anda dengan menandakan (✓) pada jawapan yang telah disediakan.

### A1. Gender / Jantina

- Male / Lelaki  
 Female / Perempuan

### A2. Age / Umur

- Below 20 years old / Bawah 20 tahun  
 20 - 30 years old / tahun  
 31 - 41 years old / tahun  
 Above 41 years old / Lebih 41 tahun

### A3. Monthly income / Pendapatan bulanan

- Below RM 2000 / Kurang RM 2000  
 RM 2000 – RM 3999  
 RM 4000 – RM 5999  
 RM 6000 – RM 7999  
 Above RM 8000 / Lebih RM 8000

### A4. Home ownership / Pemilikan rumah

- Rent / Sewa  
 Own / Beli

### A5. Ethnicity / Etnik

- Malay / Melayu  
 China / Cina  
 India / India  
 Others / Lain- lain (Please specify / Sila nyatakan) \_\_\_\_\_

### A6. Married status / Status perkahwinan

- Single / Bujang  
 Married / Berkahwin  
 Widowed / Duda, Janda

### A7. Type of occupation / Jenis pekerjaan

- Student / Pelajar  
 Government sector / Sektor kerajaan  
 Private sector / Sektor swasta  
 Self-employed / Bekerja sendiri

### A8. Level of education / Tahap Pendidikan

- Graduated from primary school / Lulusan sekolah rendah  
 High school graduate / Lulusan sekolah menengah  
 University / College (Undergraduate) / Universiti / Kolej (Prasiswazah)



Others / *Lain- lain* (Please specify / *Sila nyatakan*) \_\_\_\_\_

A9. Type of residence / *Jenis kediaman*

Terrace / *Teres*

Semi detached / *Berkembar*

Others / *Lain- lain* (Please specify / *Sila nyatakan*) \_\_\_\_\_

A10. Number of people living together / *Bilangan orang yang tinggal Bersama*

1 person / *seorang*

2 – 3 person / *orang*

4 – 6 person / *orang*

6 person and above / *6 ke atas*

A11. Members who live together in the same house/ *Ahli yang tinggal bersama dalam satu rumah*

Family member / *Ahli keluarga*

Colleagues / *Rakan sekerja*

Others / *Lain- lain* (Please specify / *Sila nyatakan*) \_\_\_\_\_

**B. INFORMATION ON ELECTRONIC WASTE MANAGEMENT AT HOME**  
**MAKLUMAT PENGURUSAN SISA ELEKTRONIK DI RUMAH**

**INSTRUCTION:** Please tick (/) on the appropriate answer.  
**ARAHAN:** Sila tanda (/) pada jawapan yang berkenaan.

B1. Do you know what is electronic waste? / Adakah anda tahu apa itu sisa elektronik?

- Yes / Ya
- No / Tidak

B2. Did you know that there are bad impact that will happen to the environment if you do not manage electronic waste properly? / Tahukah anda terdapat kesan buruk yang akan berlaku kepada alam sekitar sekiranya anda tidak menguruskan sisa elektronik dengan betul?

- Yes / Ya
- No / Tidak

B3. Do you know the right way to dispose of electronic waste? / Adakah anda tahu cara yang betul untuk membuang sisa elektronik?

- Yes / Ya
- No / Tidak

B4. Please tick the electronic appliance you have at home currently. / Sila tandakan perkakas elektronik yang anda ada di rumah sekarang. (You can tick more than one / Anda boleh menanda lebih daripada satu)

- Personal computer / Komputer peribadi
- Mobile phone / Telefon bimbit
- Television / Televisyen
- Refrigerator / Peti ais
- Washing machine / Mesin basuh
- Others / Lain- lain (Please specify / Sila nyatakan) \_\_\_\_\_

B5. Have you ever disposed of one of the electronic appliances at B4? / Pernahkah anda melupuskan salah satu perkakas elektronik di B4?

- Yes / Ya
- No / Tidak
- Not sure / Tidak pasti

B6. If yes, how do you dispose electronic appliances as mentioned in question B5? / *Jika ya, bagaimanakah anda melupuskan peralatan elektronik seperti yang dinyatakan dalam soalan B5?*

- Dispose of with other solid waste / *Buang bersama sisa pepejal lain*
- Selling to collectors of old items. / *Menjual kepada pengumpul barangan lama*
- Keep it in your home store / *Simpan di kedai rumah anda*
- Send it to a recycling center near your residence area / *Hantar ke pusat kitar semula berhampiran kawasan kediaman anda*
- Contact registered electronic waste collection to collect electronic equipment for disposal at your home / *Hubungi kutipan sisa elektronik berdaftar untuk mengumpul peralatan elektronik untuk dilupuskan di rumah anda*
- Separate solid waste from electronic waste before dispose / *Asingkan sisa pepejal daripada sisa elektronik sebelum dilupuskan*
- Others / *Lain- lain* (Please specify / *Sila nyatakan*) \_\_\_\_\_

**C. RESIDENT'S ATTITUDE TOWARDS PROPER ELECTRONIC WASTE DISPOSAL  
SIKAP PENDUDUK TERHADAP PEMBUANGAN SISA ELEKTRONIK YANG BETUL**

**INSTRUCTION:** Please indicate whether you agree or disagree with the following statements:

**ARAHAN:** Sila nyatakan sama ada anda bersetuju atau tidak bersetuju dengan kenyataan-kenyataan berikut:

1	2	3	4	5
<b>Strongly disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly agree</b>
<i>Sangat tidak setuju</i>	<i>Tidak setuju</i>	<i>Neutral</i>	<i>Setuju</i>	<i>Sangat setuju</i>

No	Questions / Soalan	1	2	3	4	5
C1.	I think properly disposing electronic waste is important to me / <i>Saya fikir melupuskan sisa elektronik dengan betul adalah penting buat saya.</i>	1	2	3	4	5
C2.	I think I am satisfied if I can properly dispose electronic waste / <i>Saya fikir saya berasa puas hati jika saya dapat melupuskan sisa elektronik dengan betul.</i>	1	2	3	4	5
C3.	I think properly disposing electronic waste is my responsibility / <i>Saya fikir melupuskan sisa elektronik dengan betul adalah tanggungjawab saya.</i>	1	2	3	4	5
C4.	I think properly disposing electronic waste is one of my contributions to a safe environment / <i>Saya fikir melupuskan sisa elektronik dengan betul adalah salah satu sumbangan saya kepada alam sekitar yang selamat.</i>	1	2	3	4	5
C5.	I think properly disposing electronic waste is one of the ways for me to educate the community / <i>Saya fikir melupuskan sisa elektronik dengan betul adalah salah satu cara untuk saya mendidik masyarakat.</i>	1	2	3	4	5

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**D. SOCIAL PRESSURE TOWARDS PROPER E-WASTE DISPOSAL**  
**D. TEKANAN SOSIAL TERHADAP PELUPUSAN SISA ELEKTRONIK SECARA BETUL**

**INSTRUCTION:** Please indicate whether you agree or disagree with the following statements.  
**ARAHAN:** Sila nyatakan sama ada anda bersetuju atau tidak bersetuju dengan kenyataan-kenyataan berikut.

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Strongly disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly agree</b>
<i>Sangat tidak setuju</i>	<i>Tidak setuju</i>	<i>Neutral</i>	<i>Setuju</i>	<i>Sangat setuju</i>

No	Questions / Soalan	1	2	3	4	5
D1.	My friends influence me to formally dispose e-waste. / Rakan saya mempengaruhi saya untuk melupuskan sisa elektronik secara betul.	1	2	3	4	5
D2.	My family influence me to formally dispose e-waste. / Keluarga saya mempengaruhi saya untuk melupuskan sisa elektronik secara betul.	1	2	3	4	5
D3.	My neighbour influence me to formally dispose e-waste. / Jiran saya mempengaruhi saya untuk melupuskan sisa elektronik secara betul.	1	2	3	4	5
D4.	Campaign from the local authority influence me to formally dispose e-waste. / Kempen dari pihak berkuasa tempatan mempengaruhi saya untuk melupuskan sisa elektronik secara betul.	1	2	3	4	5
D5.	Mass media influence me to formally dispose e-waste. / Galakan media massa mempengaruhi saya untuk melupuskan sisa elektronik secara betul.	1	2	3	4	5



**E. CHALLENGE TO DISPOSE E-WASTE PROPERLY**  
**CABARAN UNTUK MELUPUSKAN SISA ELEKTRONIK SECARA BETUL**

**INSTRUCTION:** Please indicate whether you agree or disagree with the following statements.  
**ARAHAN:** Sila nyatakan sama ada anda bersetuju atau tidak bersetuju dengan kenyataan-kenyataan berikut.

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Strongly disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly agree</b>
<i>Sangat tidak setuju</i>	<i>Tidak setuju</i>	<i>Neutral</i>	<i>Setuju</i>	<i>Sangat setuju</i>

No.	Questions / Soalan	1	2	3	4	5
E1.	I feel that it is easy for me to dispose of e-waste properly if I have experience of e-waste disposal in the past. / <i>Saya merasakan mudah untuk saya melupuskan sisa elektronik secara betul jika mempunyai pengalaman pelupusan sisa elektronik pada masa lalu.</i>	1	2	3	4	5
E2.	I find it easier to dispose of e-waste if a recycling center is close to my home. / <i>Saya merasakan lebih mudah untuk melupuskan sisa elektronik jika pusat kitar semula berada dekat dengan rumah saya.</i>	1	2	3	4	5
E3.	I have enough time to go to a correctly e-waste disposal centre. / <i>Saya mempunyai masa secukupnya untuk pergi ke tapak pelupusan sisa elektronik yang betul.</i>	1	2	3	4	5
E4.	I have knowledge of how to properly dispose of e-waste. / <i>Saya mempunyai pengetahuan bagaimana melupuskan sisa elektronik secara betul.</i>	1	2	3	4	5
E5.	I need minimal cost to properly dispose of e-waste. / <i>Saya memerlukan kos yang minimal untuk melupuskan sisa elektronik secara betul.</i>	1	2	3	4	5



**F. INTENTION TO DISPOSE E-WASTE PROPERLY**  
**F. NIAT UNTUK MELUPUSKAN SISA ELEKTRONIK SECARA BETUL**

**INSTRUCTION:** Please indicate whether you agree or disagree with the following statements.  
**ARAHAN:** Sila nyatakan sama ada anda bersetuju atau tidak bersetuju dengan kenyataan-kenyataan berikut.

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Strongly disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly agree</b>
<i>Sangat tidak setuju</i>	<i>Tidak setuju</i>	<i>Neutral</i>	<i>Setuju</i>	<i>Sangat setuju</i>

No.	Questions / Soalan	1	2	3	4	5
F1.	I will contact only registered e-waste collectors when I want to dispose my e-waste properly. / <i>Saya akan menghubungi penyambung sisa elektronik berdaftar apabila saya ingin melupuskan sisa elektronik saya secara betul.</i>	1	2	3	4	5
F2.	I will participate into programmed that is related to properly dispose e-waste. / <i>Saya akan menyertai program yang berkaitan dengan melupuskan sisa elektronik secara betul.</i>	1	2	3	4	5
F3.	I will comply with regulation related to proper disposal e-waste provided by the authority. / <i>Saya akan mematuhi peraturan yang berkaitan dengan pelupusan sisa elektronik secara betul yang disediakan oleh pihak berkuasa.</i>	1	2	3	4	5
F4.	I will properly dispose my e-waste even without having incentives. / <i>Saya akan melupuskan sisa elektronik saya secara betul walaupun tanpa insentif.</i>	1	2	3	4	5
F5.	I will separate my e-waste from other solid waste at home. / <i>Saya akan mengasingkan sisa elektronik saya daripada sisa pepejal lain di rumah.</i>	1	2	3	4	5

