

**FORMAL DISPOSAL E-WASTE PRACTICES: A STUDY
ON RESIDENTS IN BUKIT SENTOSA, RAWANG,
SELANGOR**

by

**Jordan Ang Tien Yoong, Mastura Binti Azhar,
Nur Syasya Syazwani Binti Mohd Nasir, Wan Nurul
'Atiqah Binti Wan Mohd Fauzi**

DEGREE OF BACHELOR OF ENTREPRENEURSHIP (COMMERCE) WITH
HONOURS

2024

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KELANTAN

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Wan Mohd Fauzi**

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2024

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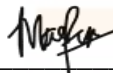
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ASSESSMENT FORM FOR RESEARCH PROJECT I

Name of Supervisor: Dr Nik Madeeha Binti Nik Mohd Munir Name of Programme: SAK

Research Topic: **FORMAL DISPOSAL E-WASTE PRACTICES: A STUDY ON RESIDENTS IN BUKIT SENTOSA, RAWANG, SELANGOR**

ASSESSMENT RUBRICS FOR RESEARCH PROJECT I: REFLECTIVE NOTE (Weight 20%)

NO.	CRITERIA	PERFORMANCE LEVELS				Weight	TOTAL
		POOR (1 MARK)	FAIR (2 MARKS)	GOOD (3 MARKS)	EXCELLENT (4 MARKS)		
1.	Determination (CLO1; C1, A3: CS/CT/TS)	Is not determined and does not put in any effort in completing the research report in group	Is determined but puts in little effort in completing the research report in group	Is determined and puts in reasonable effort in completing the research report in group	Is very determined and puts in maximum effort in completing the research report in group	____ x 1 (Max: 4)	
2.	Commitment (CLO1; C1, A3: CS/CT/TS)	Is not committed and does not aim to complete on time and/ or according to the requirements	Is committed but makes little effort to complete according to the requirements	Is committed and makes reasonable effort in fulfilling some of the requirements	Is very committed and makes very good effort in fulfilling all the requirements, without fail.	____x 1 (Max: 4)	
3.	Frequency in meeting supervisor (CLO1; C1, A3: CS/CT/TS)	Has not met the supervisor at all	Has met the supervisor but less than five times	Has met the supervisor for at least five times	Has met the supervisor for more than five times	____ x 1 (Max: 4)	
4.	Take corrective measures according to supervisor's advice (CLO1; C1, A3: CS/CT/TS)	Has not taken any corrective action according to supervisor's advice	Has taken some corrective actions but not according to supervisor's advice, or with many mistakes	Has taken some corrective actions and most are according to supervisor's advice, with some mistakes	Has taken corrective actions all according to supervisor's advice with few mistakes	____ x 1 (Max: 4)	
5.	Initiative (CLO1; C1, A3: CS/CT/TS)	Does not make any initiative to work in group	Makes the initiative to work in group but requires consistent monitoring	Makes the initiative to work in group with minimal monitoring required	Makes very good initiative to work in group with very little monitoring required	____ x 1 (Max: 4)	
TOTAL							/20

Research Topic: FORMAL DISPOSAL E-WASTE PRACTICES: A STUDY ON RESIDENTS IN BUKIT SENTOSA, RAWANG, SELANGOR

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NO.	CRITERIA	PERFORMANCE LEVEL				Weight	TOTAL
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1.	Teamwork (CLO2; A3/TS)	Is not committed to work in a group	Is committed but make little effort to complete the research report in group	Is committed and make reasonable effort in completing the research report	Is very committed and make very good effort in completing the research report	____x 1 (Max: 4)	
2.	Non-verbal Communication (CLO2; A3/CS)	Exhibits very poor body language. Does not have any eye contact with the audience and appears to avoid the audience.	Makes eye contact with the audience at times. But the behavior is not consistent.	Makes good eye contact with the audience. The body language is good.	Makes excellent eye contact with the audience. The body language is pleasing.	____x 1 (Max: 4)	
3.	Appropriate use of visual aid (CLO2; A3/CS)	Uses visual aids very poorly and the use interferes with the presentation	Uses visual aids but not very effective in aiding the presentation. The usage distorts the presentation at times.	Uses visual aids effectively. The usage of technology flows with the presentation.	Uses visual aids very effectively. The usage enhances the quality of presentation.	____x 1 (Max: 4)	
4.	Appearance (CLO2; A3/CS)	Has a very poor sense of attire and appearance does not reflect a "business appearance".	Is well groomed and the appearance is acceptable for research report presentations.	Is well groomed and has a good "business appearance.	Is very well groomed and has a very pleasing and professional appearance.	____x 1 (Max: 4)	
5.	Confidence and Ability to Answer Questions (CLO2; A3/CT)	Exhibits a very low level of confidence and appears visibly 'shaky'. Finds it difficult to answer questions.	Exhibits low level of confidence at times. Does not appear to be confident in answering questions	Exhibits a high level confidence. Does a good job in answering questions.	Exhibits a very high level of confidence. Is perfectly at ease while answering questions.	____x 1 (Max: 4)	
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NO.	CRITERIA		PERFORMANCE LEVEL				Weight	TOTAL
			POOR (1 MARK)	FAIR (2 MARKS)	GOOD (3 MARKS)	EXCELLENT (4 MARKS)		
1.	Introduction (CLO1; C1, A3)		Background of study, Problem Statement, Research Objective and Research Question is lack of clarity and focus	Background of study, Problem Statement, Research Objective and Research Question is written but with inconsistent focus.	Clearly written of Background of study, Problem Statement, Research Objective and Research Question with good facts.	Very clear of Background of study, Problem Statement, Research Objective and Research Question with very good facts.	____ x 2.5 (Max: 10)	
			Background of study, Problem Statement, Research Objective and Research Question is written unsystematic and unscientific. Scientific refers to researchable topic	Background of study, Problem Statement, Research Objective and Research Question is written less systematic and less scientific. Scientific refers to researchable topic	Background of study, Problem Statement, Research Objective and Research Question is written systematic and scientific. Scientific refers to researchable topic	Background of study, Problem Statement, Research Objective and Research Question is written very systematic and scientific. Scientific refers to researchable topic		
2.	Overall Proposal Format (CLO2; C2, A3)	Submit according to the deadline and adhere to the required format	The research proposal is not produced according to the specified time and/ or according to the format.	The research proposal is produced according to the specified time but fails to adhere to the format.	The research proposal is produced on time, adheres to the format but with few weaknesses.	The research proposal is produced on time, adheres to the format without any weaknesses.	____x 0.25 (Max: 1)	
		Writing style (clarity, expression of ideas and coherence)	The proposal is poorly written and difficult to read. Many points are not explained well. Flow of ideas is incoherent.	The proposal is adequately written. Some points lack clarity. Flow of ideas is less coherent.	The proposal is well written and easy to read. Majority of the points are well explained and flow of ideas is coherent.	The proposal is written in an excellent manner and easy to read. All of the points made are crystal clear with coherent argument.	____x 0.25 (Max: 1)	

	Overall Proposal Format (CLO2; C2, A3)	Technicality (Grammar, theory, logic and reasoning)	The report is grammatically, theoretically, technically and logically incorrect.	There are many errors in the report, grammatically, theoretically, technically and logically.	The report is grammatically, theoretically, technically and logically correct in most of the chapters with few weaknesses.	The report is grammatically, theoretically, technically, and logically perfect in all chapters without any weaknesses.	$\frac{\quad}{0.25} \times$ (Max: 1)	
		Reference list (APA Format)	No or incomplete reference list	Incomplete reference list and/ or is not according to the format	Complete reference list with few mistakes in format adherence	Complete reference list according to format	$\frac{\quad}{0.25} \times$ (Max: 1)	
		Format organizing (cover page, spacing, alignment, format structure, etc.)	Writing is disorganized and underdeveloped with no transitions or closure.	Writing is confused and loosely organized. Transitions are weak and closure is ineffective.	Uses correct writing format. Incorporates a coherent closure.	Writing includes a strong, beginning, middle, and end with clear transitions and a focused closure.	$\frac{\quad}{0.25} \times$ (Max: 1)	
3.	Literature review (CLO2; C2, A3)	<ul style="list-style-type: none"> Does a poor job in summarizing the relevant literature review 	<ul style="list-style-type: none"> Weak in summarizing the literature review 	<ul style="list-style-type: none"> Critically analyzes but does not summarize effectively 	<ul style="list-style-type: none"> Critically analyzes and summarizes effectively 	$\frac{\quad}{\quad} \times 1$ (Max: 4)		
		<ul style="list-style-type: none"> Does not provide adequate reference of literature review 	<ul style="list-style-type: none"> Provide some reference of literature review 	<ul style="list-style-type: none"> Provide adequate reference of literature review 	<ul style="list-style-type: none"> Provide strong reference of literature review 	$\frac{\quad}{\quad} \times 1$ (Max: 4)		
		<ul style="list-style-type: none"> Weak research framework 	<ul style="list-style-type: none"> Adequate research framework 	<ul style="list-style-type: none"> Feasible research framework 	<ul style="list-style-type: none"> Sound research framework 	$\frac{\quad}{0.75} \times$ (Max: 3)		
		<ul style="list-style-type: none"> Framework is not link with the literature and the research issues 	<ul style="list-style-type: none"> Framework has a weak link with the literature and the research issues but some major weaknesses exist 	<ul style="list-style-type: none"> Framework has a good link with the literature and the research issues but some minor weaknesses exist 	<ul style="list-style-type: none"> Framework has a strong link with the literature and the research issues 	$\frac{\quad}{\quad} \times 1$ (Max: 4)		
4.	Research method (CLO3; C3, P3, A3)	<ul style="list-style-type: none"> Research methodology is designed poorly 	<ul style="list-style-type: none"> Research methodology is adequately designed 	<ul style="list-style-type: none"> Research methodology is good and can address most of the research issues 	<ul style="list-style-type: none"> The methodology is sound and can address all of the research issues 	$\frac{\quad}{1.75} \times$ (Max: 7)		

	<ul style="list-style-type: none"> Unable to clearly identify the type of research (Quantitative/Qualitative) 	<ul style="list-style-type: none"> Able to identify the type of research (Quantitative/Qualitative) 	<ul style="list-style-type: none"> Clearly identify the type of research (Quantitative/Qualitative) 	<ul style="list-style-type: none"> Clearly identify the type of research with good support (Quantitative/Qualitative) 	<p>____ x 1.5 (Max: 6)</p>	
	<ul style="list-style-type: none"> There is no data collection method specified 	<ul style="list-style-type: none"> Data collection method used are not appropriate 	<ul style="list-style-type: none"> Data collection method used are appropriate with some explanations 	<ul style="list-style-type: none"> Data collection method used are appropriate with good explanations 	<p>____ x 1.5 (Max: 6)</p>	
	<ul style="list-style-type: none"> Wrong interpretation of Research Tools and Analysis 	<ul style="list-style-type: none"> Lack interpretation of Research Tools and Analysis 	<ul style="list-style-type: none"> Good interpretation of Research Tools and Analysis 	<ul style="list-style-type: none"> Very good and clear interpretation of Research Tools and Analysis 	<p>____ x 1.5 (Max: 6)</p>	
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TOTAL MARKING SCHEME

Assessment	Marks Given By Supervisor	Marks Given By Examiner	Total
(A) Reflective Note (20%)			
(B) Oral Presentation (20%)			/ 2 =
(C) Research Report (60%)			/ 2 =
Grand Total			

Name of Supervisor/ Examiner: _____ Signature: _____ Date: _____

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CHAPTER 1: INTRODUCTION

1.1 Overview

The rapid advancement of technology and rising consumer spending power have an impact on the increased use of electronic products. The environment is impacted by rising consumption, whether it is as a result of trash produced after products are used or the extraction of raw materials. In 2019, the global generation of e-waste surpassed 50 million tons. Specifically, within the Asia Pacific region, 24.9 million tons of e-waste were generated Lynda (2021). The increase in the worldwide generation of e-waste outpaced the growth of the global population by threefold Lynda (2021). In Malaysia, the production of electronic waste amounted to 706,295 metric tons in 2010 and is projected to rise to 1,119,155 metric tons by 2023 (Nai, 2018). Electronic waste is defined by DOE (2023) as "a malfunctioning, obsolete, or broken electric electronic appliance." It originates primarily in the industrial and domestic sectors. For formal disposal e-waste refer to all collectors are compulsory for transferring of collected household e-wastes to licensed places which registered under government. Authorized collection centre is a centralized place that collects the e-waste primarily collected from household by collectors. It is important for preventing the leakage of e-waste to the unauthorized channel by DOE (2023).

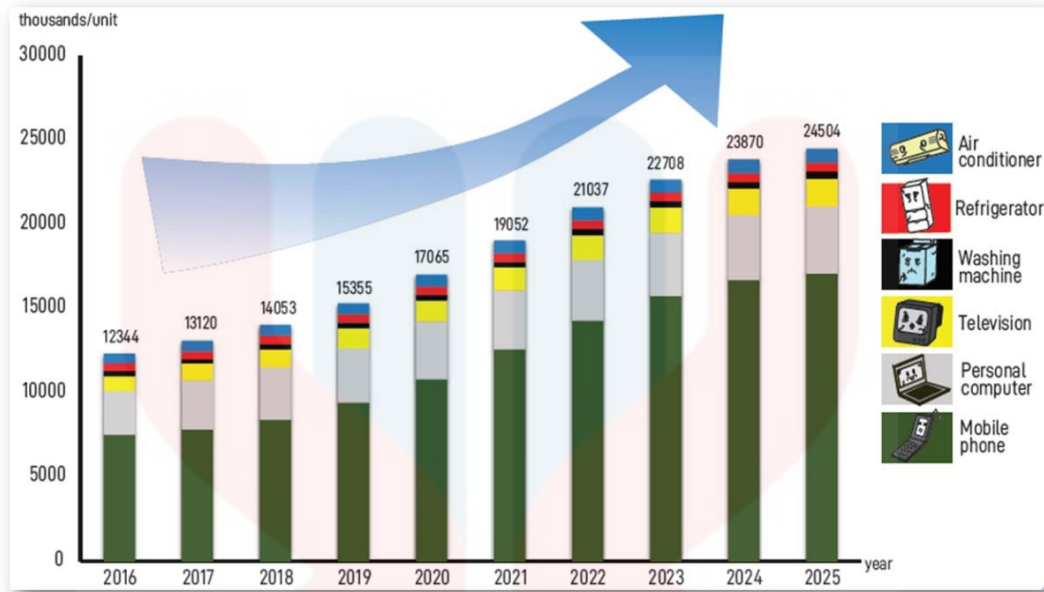


Diagram 1.0: Graph for E-waste in Malaysia (2016-2025) Source: Departement of Environment, Malaysia (2023)

Based on Diagram 1.0, it shows that the forecast of e-waste continue to increase until 2025. Most common disposal throughout the period which is mobile phone (37%) and second is personal computer (31%). The reason why mobile phone is and personal computer become the most common disposal is because starting from 2020, pandemic of Covid-19 the household are more relying on digital platform to communicate with people Wong (2021). This lead to high demand of technology devices and high consumption on electrical and electronic equipment (EEE). Thus, the production of EEE increase, lack of quality lead to end of life of EEE shorten and disposal of EEE increase Prahu & Majhi (2023).

This results from toxic substances leaching into the soil and water, contaminating the environment Gutberlet (2018). Being exposed to e-waste poses a threat to public health. The adverse effects on public health are a result of communities being exposed to a complex mixture of compounds that originate from diverse sources and are transmitted through multiple routes of exposure. The Grant is due in 2021. A number of health issues

in the countries are associated with improper e-waste disposal, including cancer, birth defects, premature births, and respiratory illnesses. Additionally, there was evidence of greater DNA damage among residents of e-waste recycling communities and employees of e-waste recycling sites. Neira (2021).

The importance of managing e-waste properly is to allow for the recovery and recycling of valuable materials like gold, silver, copper, and other metals, reducing the need for mining new resources. This contributes to resource conservation and a more sustainable approach to material use Müller & Milojković (2021).

We will do a research about Formal Disposal E-Waste Practices: A Study On Residents In Bukit Sentosa, Rawang, Selangor

1.2 Problem Statement

Most common practices among household are informal of disposal way. According to the United Nation University (2020), 364,000 tons of e-waste were generated in Malaysia in 2019. This includes household generate 2,459 tons of e-waste DOE (2021). According to Mahat (2019) the resident in Malaysia is significantly unaware of e-waste proper disposal.

There are some issues must be solved in research to help the household in managing e-waste properly. One of the ways is to raise awareness about how to dispose of e-waste in correct way. According to Dr Mohd Yusoff (2021), awareness about e-waste disposal among Malaysians is still low because they are not aware about the importance of how to disposal the e-waste in proper way.

Furthermore, this study identified the absence of convenient formal waste disposal facilities in the community as a problem that requires resolution Thi Thu Nguyen (2018).

Zhang (2019) reports that the majority of residents would rather have an e-waste collector come to their residences rather than transport the electronic refuse to the recycling centre themselves. Certain urban dwellers encounter challenges when attempting to dispose of their electronic waste due to the remote location of formal disposal centres from their residences KataMalaysia, (2019).

To further strengthen this study, the researcher has made sure to inform the surrounding residents about this e-waste issue by asking several questions. For example: Informant 1 stated that they had never heard of the practice of electronic waste disposal. Therefore, they sell their unused electronics to second-hand collectors. In addition, they also mix electrical items with daily waste. This situation shows that they do not know the correct way to dispose of the electronic waste.

Next is Informant 2, they stated that they know about the practice of electrical waste disposal and they know about the correct way to separate electrical goods especially those that are still of good quality or have value. They stated that they would collect and send to a registered disposal center in Rawang. For the last Informant, they stated they were aware of electronic waste disposal practices. They also separate the items because they think they can protect the environment and therefore they just keep them or sell them to second-hand collectors.

This indicates that it is still relevant to pursue study in the context of household disposal e-waste. Therefore, this research will study on knowledge, attitude and awareness on e-waste disposal among household which specifically in resident Bukit

Sentosa.

1.3 Research Question

1. What is the relationship between knowledge and formal e-waste disposal practices among residents at Bukit Sentosa, Rawang, Selangor?
2. What is the relationship between attitude and formal e-waste disposal practices among residents at Bukit Sentosa, Rawang, Selangor?
3. What is the relationship between awareness and formal e-waste disposal practices among residents at Bukit Sentosa, Rawang, Selangor?

1.4 Research Objective

1. To evaluate the relationship between knowledge and formal e-waste disposal practices among residents at Bukit Sentosa, Rawang, Selangor.
2. To determine the relationship between attitude and formal e-waste disposal practices among residents at Bukit Sentosa, Rawang, Selangor.
3. To investigate the relationship between awareness and formal e-waste disposal practices among residents at Bukit Sentosa, Rawang, Selangor.

1.5 Scope of the Study

The study is focusing on the household perspective. This study will be conducted in residential areas, namely Bukit Sentosa, Rawang, Selangor. This study is about practices to formally dispose of e-waste among residents based on their knowledge, attitude, and awareness on e-waste. Bukit Sentosa is an urban area located in Rawang, Selangor. This location is a commercial area that consists of a restaurant, shopping mall,

and etc. The researcher chose this area for research because the tendency to be exposed to technology consumption is high.

1.6 Significant of the Study

This study will contribute to the body of knowledge that can be useful to future research on e-waste from a household perspective. It will lead to understanding the behaviour of residents in Bukit Sentosa, Rawang, Selangor towards e-waste management. This study is also based on the Environmental Quality Act 1974 related to the disposal of e-waste. The present research investigation applies the knowledge, attitude, and practises (KAP) framework to the issue of formal electronic refuse disposal. Additionally, this study seeks to collect data regarding the population's awareness of the appropriate methods of e-waste disposal.

This study also expects society to create awareness, both directly and indirectly. Creating awareness directly means residents in Bukit Sentosa, Rawang, Selangor know how to dispose of e-waste, while creating awareness indirectly means other resident communities can know about the disposal of e-waste. The knowledge is invaluable and applicable to environmental impact. This research holds significant national importance as it has the potential to provide a secure approach to addressing the issue of inadequate electronic refuse disposal by both manufacturers and consumers.

1.7 Definitions of term

Table 1.1 Definition of terms

Terms	Definitions	Source
Knowledge	<p>Knowledge is defined as understanding the actions of others in the context of oneself. To ascertain whether a person understands and is aware of these issues or not, their knowledge of e-waste disposal management practices is examined.</p>	<p>Tukiman, N. F. I., Seman, N. A. A., & Mustaffa, S. A. (2021). A Study of E-Waste Disposal Management Awareness among Local Community based on KAP Model. <i>Research in Management of Technology and Business</i>, 2(2), 881-892.</p>
Attitude	<p>This is the extent to which a person evaluates behaviour as beneficial to the interest or not. It requires considering the consequences of engaging in the behaviour.</p>	<p>Garg, S., Ahmad, A., Madsen, D. Ø., & Sohail, S. S. (2023). Sustainable behaviour with respect to managing E-wastes: factors influencing E-waste management among young consumers. <i>International Journal of Environmental Research and Public Health</i>, 20(1), 801.</p>

<p>Practices</p>	<p>The notion of "practise" pertains to the implementation of regular electronic refuse disposal procedures within the local community within the specific domain of research. The response to an open-ended query regarding the practise of e-waste management indicated that the majority of participants reported having a consistent e-waste collection service, with the majority specifying that the refuse was collected on a weekly basis.</p>	<p>Tukiman, N. F. I., Seman, N. A. A., & Mustafa, S. A. (2021). A Study of E-Waste Disposal Management Awareness among Local Community based on KAP Model. <i>Research in Management of Technology and Business</i>, 2(2), 881-892.</p>
<p>Awareness</p>	<p>This awareness means individuals or parties involved in the management of electronic devices to be disposed of. This insensitivity to the disposal of electronic goods can be linked to a general lack of awareness about environmental protection.</p>	<p>Wang, B., Ren, C., Dong, X., Zhang, B., & Wang, Z. (2019). Determinants shaping willingness towards on-line recycling behaviour: An empirical study of household e-waste recycling in China. <i>Resources, Conservation and Recycling</i>, 143, 218-225.</p>

Thus, all the definition of terms listed in Table 1.1 will be applied in this study.

1.8 Organization of The Proposal

This research proposal consists of three (3) main chapters, namely Chapter 1: Introduction, Chapter 2: Literature Review, and Chapter 3: Research Method. As for Chapter 1, it discusses the overview of the study which is mainly on e-waste and its disposal management. Next, the problem statement will also be highlighted and lead to the research questions and objectives of the study. Scope of the study also will be discussed significant of the study. Final section of this chapter is the definition of terms which conclude all the terms that will be used mainly in this research.

In Chapter 2, the researcher will look at the underpinning theory that this study will use. The literature review on Formal Disposal E-waste Practices: A Study on Residents in Bukit Sentosa, Rawang, Selangor was also covered in Chapter 2. The independent variables include knowledge, attitude, and awareness, whereas the dependent variable is the desire to do so. Along with the hypothesis statement, this chapter also describe the conceptual framework that will be used for the investigation.

Chapter 3 describes methodology. In this section, the research design will be determined. Next, the population, sample frame, sampling size, sampling technique, research instrument development, and pilot test will be used in the data collection procedure. Then, to analyse the study, the questionnaire method and the SPSS software will be applied to lead this study.

In Chapter 4 describe s data analysis and finding. Prior to the survey, the consistency

of the research instrument was specifically checked using the 37 participants from the pilot study through a reliability test. The normalcy test comes next, and then a descriptive analysis is done to find out the demographic profile and details about e-waste management. The association between knowledge, attitude, and awareness about formal e-waste disposal processes as per the research goals was lastly measured using the Spearman Correlation Coefficient.

Lastly, in chapter 5 describe about research goals, this chapter describes the results that have been obtained together with a statement of support from earlier investigations. Additionally, this chapter addressed the research's shortcomings throughout, offering suggestions for additional study as well as serving as a closing with the conclusion.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

In this chapter, the underpinning theory is revealed according to the knowledge, attitude and practice (KAP) used in conducting an investigation on formal e-waste disposal practices among residents at Bukit Sentosa, Rawang, Selangor. According to Priya (2020), there are a handful of Malaysians who still lack awareness of separating electrical and electronic waste from other waste solids. Most Malaysians are less aware of the negative effects of improper e-waste disposal. Furthermore, the conceptual framework is supplemented with a statement of hypothesis, which is succeeded by a concluding chapter summary.

2.1 Underpinning Theory

2.1.1 Knowledge, Attitude, Practices (KAP) Model

This study will employ KAP model originate by Schwartz (1976)

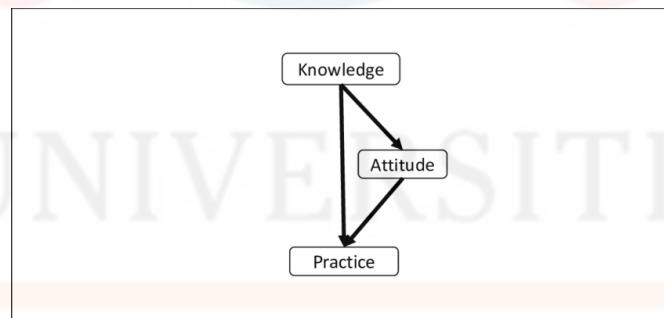


Figure 2.1: Framework KAP Model

Schwartz (1976) introduced the Knowledge, Attitudes, and Practice (KAP) framework. KAP theory is used to reflect specific local conditions and cultural factors that influence them. With that, it plans activities that suit the residents involved. Schwartz (1976) developed the first knowledge, attitude, and practice (KAP) paradigm,

emphasizing the existence of awareness through three elements which knowledge, attitude, and practice.

According to Eckman and Walker (2008), the investigation of the KAP model is more resource-conserving and economical than alternative methodologies in social research. At present, KAP surveys are a prevalent approach utilised in the study of human behaviour in the face of environmental challenges. Sabouhi (2011) posits that a correlation exists among information cognizance, attitudes, and practices, wherein knowledge assumes a pivotal role in the future smart city. Salerno, published in 2014. The KAP model demonstrates a correlation among knowledge awareness, attitudes, and practice, wherein knowledge emerges as the preeminent facet in the forthcoming smart city.

The KAP model, which has been extensively used to study the dissemination of information, attitudes, and practices in fields including health, nutrition, pain treatment, accident prevention, and moral health, is employed in this study by Liu (2018). Evidence in the environmental area is quite limited, particularly when it comes to climate change and sustainability challenges Gadzekpo (2018). Salas-Zapata (2018) conducted a systematic evaluation from 1990 to 2016 to identify and analyze KAP studies on sustainability which concerned with environmental conservation. Therefore, this will employ this model for further investigation on formal e-waste disposal practices among residents at Bukit Sentosa, Rawang, Selangor.

2.1.2 Knowledge

A proficiency assessment is conducted to ascertain the individual's comprehension of e-waste disposal management practices. Knowledge is defined as the

ability to comprehend the behaviours of others within their own context (Dourish & Bellotti, 1992). Recent research by Kamweru (2019) revealed that the majority of respondents had a high level of waste disposal management awareness, indicating that individuals are cognizant of the consequences of inadequate waste management in their communities. Individuals with limited education are more likely to disregard the advantages of electronic waste disposal management due to their inadequate understanding. In addition, the study's results support this assertion.

2.1.3 Attitude

A psychological item is evaluated by an attitude, which is expressed in dimensions like good vs terrible, pleasant versus unpleasant, or likeable against dislikeable by Svenningsson (2021). According to Ali (2020), attitude in carrying out tasks, indicates a person contribute to the organization in which they serve. Norazmiet (2019) explains that approach as requiring a person to focus on providing the highest level of service to their organisation. Prior research by Kamweru (2019) revealed that the negative attitudes of the community included a disregard for individual accountability and the capacity to volunteer for the cleanup of e-waste that had been disposed of unlawfully in open areas.

2.1.4 Practice

Practice refers to the actions, behaviours, and practices that individuals engage in related to a particular issue or topic. Individual attitudes influence practice, which could either align or change from the desired behaviour. They are the new economy's future marketing planners, decision makers, and educators Tan and Lau (2009). Furthermore, the development of attitudes and values, as well as the responsibilities and skills required to show respect for the environment, begins at an early age Said (2003) and Mahat (2004).

The manner in which e-waste is managed can be characterised by the fact that a significant proportion of participants reported having regular e-waste collection services, with refuse being collected on a weekly basis Kamweru (2019). In the intended field of study, the concept of practice pertains to the routine management of electronic detritus in society. In society, e-waste disposal practices indicated the degree of consciousness, according to this study.

2.2 Dependent Variables

2.2.1 Practice (Dependent Variable)

Babaei (2015) define practice as activity based on knowledge and attitude. Knowledge and attitude are clearly the two most significant aspects of determining practice Babaei (2015), since a lack of knowledge might influence practices Mathur (2011) Madhukumar & Ramesh (2012) in El-Gilany (2017). As electronic and electrical product production increases, so does the quantity of e-waste that necessitates disposal. Before e-waste can be utilised in the production of new electronic and electrical goods, it must be recycled. Electronic waste must be recycled in order to conserve energy, resources, and landfill space, generate employment, reduce business costs, recycle nonrenewable materials, and reduce air pollution. Brindhadevi (2023) is the source. The increasing prevalence of household e-waste collection has become a significant global issue, particularly in Malaysia Ahmad (2023).

2.2.2 Knowledge (Independent Variable)

Knowledge is described as facts, definitions, information, and abilities about a subject that may be acquired by training and experience according to De Brun & Servin (2005). According to recent study, Kamweru (2019) found that the majority of respondents had excellent levels of knowledge about the management of e-waste disposal, suggesting that they are aware of the implications of failing to manage e-waste in their community. To guarantee that the public receives accurate information that promotes improved e-waste recycling practices, the information's source is crucial Hamzah (2020).

Because of a lack of awareness, e-waste is now often kept or disposed of alongside regular household rubbish, which ultimately ends up in landfills Jefthas (2023). The research conducted in Africa by Okoye and Odoh (2014) showed that the respondents' understanding of e-waste is still lacking. Echegaray and Hansstein's (2017) research revealed that the community's understanding of e-waste differed according to income levels, with higher-income persons being more knowledgeable about e-waste than lower-income groups. According to a survey by Kalana (2010) on Shah Alam's public's awareness and knowledge, participants possessed in-depth understanding of e-waste.

Hypothesis 1: There is a relationship between knowledge and disposal practices among residents at Bukit Sentosa, Rawang, Selangor.

2.2.3 Attitude (Independent Variable)

Attitude can be described as an individual's cognitive and affective evaluation of a subject, functioning as either a favourable or unfavourable psychological sentiment concerning that person's conduct Jekrin (2016) is the source. Dedication to a particular behaviour has been found to be significantly correlated with a positive attitude. According to Tandon (2020). It is referred to as "attitude towards behaviour." The evaluation of one's own behaviour as either excellent or poor Cai (2020).

The act of recycling is intricately linked to an individual's disposition towards the environment. Nurul Hidayana (2023). The impact of attitudes on behaviour is substantial, and it is critical to evaluate attitudes Otto (2019). Otto (2019) defines environmental attitude as a critical factor in motivating and influencing human behaviour with regard to the environment.

Malaysia's primary e-waste problem is the populace's negative attitude towards e-waste recycling Ho (2015). Daily, those who possess a positive outlook on the environment will demonstrate that outlook Izhar (2022). Individual attitudes are influenced by psychological factors including personal values, intimate friendships, family, and social groups. Collado and Rosa (2019). For instance, when people are concerned that pollution will negatively impact their health, family, and quality of life, as an illustration, Nurul Hidayana (2023). Higher-educated residents are more likely to advocate for their family members to dispose of their electronic refuse in an appropriate manner. It depends on psychological and social factors, according to Desa (2011). A number of studies have discovered that attitude and environmental behaviour are positively correlated. Liu (2020).

Hypothesis 2: There is a relationship between attitude and disposal practices among residents at Bukit Sentosa, Rawang, Selangor.

2.2.4 Awareness (Independent Variable)

According to Paul (2016), environmental awareness is one of the most investigated aspects of environmental marketing. As defined by Chen (2019), it pertains to the apprehensions and comprehension of environmental issues. Wang (2020) asserts that increased levels of environmental consciousness influence the conduct of individuals in order to foster environmental consciousness. The influence of environmental consciousness on individuals' intentions to recycle electronic waste is also substantial, as stated by Wang (2016).

Previous studies have examined the potential moderating influence of environmental consciousness in diverse settings, as indicated by the findings of Rustam (2020) and Zeng (2019). Furthermore, Sadiq (2021) found in a recent study that environmental concern has the potential to diminish both value barriers and image barriers.

Hypothesis 3: There is a relationship between awareness and disposal practices among residents at Bukit Sentosa, Rawang, Selangor.

2.3 Conceptual Framework

Knowledge, Attitudes, and Practises (KAP) is a paradigm, emphasising the existence of awareness through three elements according to Schwartz (1976).

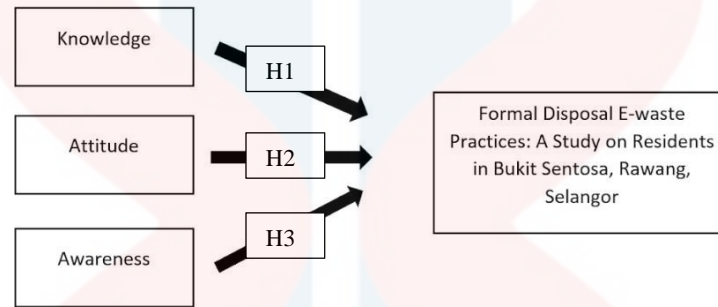


Figure 2.2: KAP Theory

According to Tukiman (2021), Knowledge is understanding the actions of others in the context of oneself. To ascertain whether a person understands and is aware of these issues or not, their knowledge of e-waste disposal management practices is examined.

According to Garg (2023), Attitude can be defined as the extent to which a person evaluates behaviour as beneficial to the interest or not. It requires considering the consequences of engaging in the behaviour.

Tukiman (2021) defines practises as the implementation of regular electronic waste disposal management within the community pertaining to the specific area of research. The response to an open-ended query regarding the practise of e-waste management indicated that the majority of participants reported having a consistent e-

waste collection service, with the majority specifying that the refuse was collected on a weekly basis.

Adapted from Schwartz (1976) with an advice by adding variable 'Awareness', it can be defined as individuals or parties involved in the management of electronic devices to be disposed of. This insensitivity to the disposal of electronic goods can be linked to a general lack of awareness about environmental protection. Thus, in this study the researcher will be able to see the sensitivity of the population towards the separation of electronic goods, especially the formal disposal according to Wang (2019).

2.4 Summary

The study's findings indicate that variables can be defined as attributes, or more precisely, as concise statements that are specified in a particular manner. A variable, as determined by the observation, is a subject of investigation or analysis that can be assessed, computed, or utilised. The Theory of Knowledge, Attitudes, and Practises (KAP) will also be utilised in this study to establish the independent and dependent variables. The present study has established the correlation between the dependent variable (DV) and the independent variable (IV), in addition to elucidating the conceptual framework addressed in this segment. A positive effect on resident approval in Bukit Sentosa, Rawang, Selangor, was discovered by the researchers through meticulous analysis. In the concluding analysis of this research, the viability of the dependent variable (DV) is intricately linked to the independent variable (IV).

CHAPTER 3: RESEARCH METHOD

3.0 Introduction

The procedures, methods, and approaches that will be implemented during data collection and analysis are detailed in this chapter. The investigation will encompass a range of components, including research design, sampling strategy, data acquisition method, research instrument, measurement instrument, and data analysis.

3.1 Research Design

This study employed a quantitative approach to ascertain the formal disposal practices observed among the inhabitants of Bukit Sentosa, Rawang, Selangor. Data collection for quantitative research is contingent upon the research topic and is accomplished through the utilization of sampling techniques, including online surveys and questionnaires. A fundamental characteristic of this category of inquiry is that the findings can be mathematically expressed. Constraints and deductions predominate in quantitative research designs, where variables and hypotheses are precisely defined before data collection commences.

This study uses a deductive method. Deductive approach can measure the relationship and consequences between independent variables. In addition, to test hypothesis or make predictions. By using the deductive method can test whether the variable reaches the right conclusion. If the data shows that knowledge about e-waste is positively related to responsible e-waste disposal behaviour, it can be concluded that the independent variable is proven.

3.2 Data Collection Procedure

3.2.1 Source of Data

This research used primary data. The primary data used during this study through a questionnaire that was distributed physically to the respondents. The respondents are residents of Bukit Sentosa, Rawang, Selangor.

3.2.2 Population

Population and Sampling According to Mohd Yusof (2005), a population is a large group of individuals to be studied. The population under investigation is the people who live in Rawang, Selangor. The residents are a diverse group of Malay, Indian, Chinese, and other ethnicities. Additionally, there are differences in the educational, socioeconomic, and residential statuses of the local population. The Department of Statistics (2023) estimates that there are 129,506 residents overall.

3.2.2 Sampling Frame

Sampling, as defined by Nur Eliza (2020), is a form of non-probability sampling in which a subset of the population is selected as the sample. Anthony G. Turner (2003) defines a sample frame as a collection of source materials that are utilised in the process of sample selection for a survey. Its purpose is to select specific members of the target population to be interviewed. According to Muhd Faizul (2018) there are 8,013 residents in Bukit Sentosa, Selangor.

3.2.3 Sample Size

According to Krejcie & Morgan's (1970). The number "N" represents the population size, while "S" represents the sample size. In this study, the researcher making the sample size 367 people from 8,013 people.

N	S	N	S	N	S
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

Table 3.1: Krejcie & Morgan's Table

3.2.4 Sampling Technique

Convenience sampling, a non-probability sampling method, is employed for this study's sample. A convenience sample consists of respondents who have been specifically targeted and are straightforward to include in the study sample. This technique was utilised to collect a sample from a group of Bukit Sentosa, Rawang, Selangor, residents. It pertains to the inhabitants who willingly contribute information and recount their experiences concerning electronic debris via online surveys administered via Google

forms. These surveys facilitate the precise, cost-effective, and punctual gathering of all essential data.

3.2.5 Research Instrument Development

Academics often employ research instruments as a means of collecting data from participants. The aforementioned research instruments may manifest as inventories, assessments, surveys, measures, or questionnaires. By facilitating the collection of precise data from participants, these research instruments are vital in guaranteeing more precise results for the study. Gumberg (2022) is the source. This research will employ questionnaires in both English and Malay to gather data.

Section A covered demographic details, encompassing factors like gender, age, monthly income, educational level, and housing type. Respondents are required to complete Section B, Section C, and Section D, which are centered on independent variables. These sections aim to gather information on formal e-waste disposal, exploring three key factors: knowledge, awareness, and attitude. These three sections which is section B, C and D will employ Likert scale, which in this questionnaire has a 5-point Likert scale to ask the perception from respondents.

In the final segment, Section E, inquiries focus on the dependent variables, specifically the practice of formal disposal of e-waste. These questions aim to gather data regarding the residents' formal disposal e-waste practices

3.3 Data Analysis Procedure

3.3.1 Analysis Method

Data Analysis Using SPSS

Statistical Package for the Social Sciences (SPSS) or IBM SPSS Statistic version 27.0 was utilised to conduct the hypothesis testing and analytical analysis. SPSS will be utilised to perform the computations and analyses for this study. To determine the response frequency, the questionnaire data will be collected and analysed using SPSS. According to Darren George (2019), despite its scale and complexity, IBM and SPSS have developed a programmer that is not only robust but also intuitive. This study will employ Pilot Test, Descriptive analysis, Reliability analysis, and Pearson Correlation Analysis.

Relationship between demographic, variable and research question will be shown the frequency in each mean in Descriptive analysis. Then, reliability analysis shows the relationship between validity of the questionnaire with research question. Lastly, in Pearson Correlation Analysis will show the relationship between the variable and research question formal disposal e-waste.

3.3.2 Pilot Test

As stated by Junyong (2017), the pilot study serves a crucial purpose in enhancing the efficacy and quality of the primary study. According to Tracy (2017), it is recommended that the questionnaires be subjected to pilot testing prior to data collection. The purpose of pre-testing is to refine the questionnaire in such a way that researchers can record data without encountering any difficulties or concerns from respondents while

responding to questions.

3.3.3 Descriptive Statistics

The descriptive analysis will characterize the properties of the data using measures such as the mean, median, and standard deviation. Consequently, researchers can utilise descriptive analysis to ascertain which variables have an impact on the outcomes of the investigations. The results will be elaborated upon in Chapter 4. The demographics of the respondents and the levels of awareness, attitude, and knowledge regarding formal e-waste disposal practices among residents of Bukit Sentosa, Rawang, Selangor were determined and assessed through descriptive research. The non-probability that the respondent would agree or disagree with the argument in the questionnaire will be determined using the variance of the mean table.

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

Table 3.2: Relationships between Mean and Standard of Agree

3.3.4 Reliability Analysis

Dynamic reliability analysis is a prominent area of interest and concern within the domain of structural reliability analysis, as highlighted by Nahal and Khelif (2020) and Zhi et al. (2019), in order to guarantee the precision of reliability assessments. In order to conduct reliability analysis on structural multifailure modes, the general method entails determining the limit state function of each failure mode individually. The structure's reliability is subsequently ascertained through a relationship analysis of various failure modes, as described by Da Teng (2022).

As stated by IBM (2021), reliability analysis entails the examination of the attributes of measurement devices and their constituent components. In order to qualify as acceptable or outstanding, Cronbach's Alpha must be no less than 0.70. Using reliability, the validity and acceptability of the questionnaire were evaluated in this study.

Coefficients of Cronbach's Alpha	
Level Of Reliability	
Less than 0.5	Unacceptable
0.50-0.59	Poor
0.60-0.69	Questionable
0.70-0.79	Acceptable
0.80-0.89	Good

Table 3.3: Cronbach Alpha Coefficient

3.3.5 Pearson Correlation Analysis

The Pearson Correlation Coefficient, as defined by Pearson (1895), is a metric utilised to assess the magnitude and orientation of the association between two variables. Schober et al. (2018) present a study wherein they define correlation as a quantitative evaluation of the relationship between two variables. The objective of this correlation analysis is to ascertain the association between formal e-waste disposal practises among residents of Bukit Sentosa, Rawang, Selangor, and dependent variables.

Pearson Correlation Coefficient (r)	Value correlation
0.9 – 1.0	Very high
0.7 – 0.90	High
0.5 – 0.70	Moderate
0.3 – 0.50	Low
0.0 - 0.30	Very Low

Table 3.4: Pearson Correlation Coefficient

3.4 Summary

In conclusion, the researcher conducted a study on how residents in Bukit Sentosa, Rawang, plan to get rid of their electronic items in this study. Because everything in this chapter relies on data, alternatives to data collection and research processes must be provided. In addition, the main strategy in this chapter is that the researcher uses a questionnaire to collect the data needed to fulfil the research objectives. In this investigation, the researcher used quantitative data presentation.

CHAPTER 4: DATA ANALYSIS AND FINDINGS

4.1 Introduction

The results of the data acquired using a particular statistical test that is conducted by the most recent version of the Statistical Package for the Social Sciences (SPSS) software are covered in this chapter. Prior to the survey, the consistency of the research instrument was specifically checked using the 37 participants from the pilot study via a reliability test. The completion of the normalcy test was followed by a descriptive study aimed at obtaining information on the demographic profile and e-waste management. The association between knowledge, attitude, and awareness about formal e-waste disposal processes as per the study goals was lastly measured using the Spearman Correlation Coefficient.

4.2 Reliability Test

Prior to the survey, a pilot study with 37 participants was carried out to assess the consistency and reliability of the research tool. There were four variables that needed to be examined, with four to five items in each variable. Table 4.1 below displays the findings of the reliability study for 37 respondents.

Table 4.1: Reliability Test

Variables	Number of Items	Cronbach's Alpha	Strength of Association
Knowledge on proper e-waste disposal	5	.951	Strong

Awareness on proper e-waste disposal	4	.953	Strong
Attitude on formal disposal e-waste	4	.947	Strong
Proper e-waste disposal practices	4	.949	Strong

It can be summarized that all variables have a strong consistency. The measurements for each variable show a high level of stability and reliability. This consistency shows that the questionnaire can capture the intended aspect of the study without significant fluctuations or measurement errors. Thus, this questionnaire is acceptable to proceed to the actual survey.

4.3 Normality Test

Based on the Table 4.3, the significant of the normality test for Kolmogorov-Smirnov and Shapiro-Wilk is 0.000 which less than 0.5. The data could be regarded as normal if the significant value is higher than 0.5. The data may be regarded as non-normal if it is less than 0.05. In this case, if the p-value is indeed less than 0.05 for both the Kolmogorov-Smirnov and Shapiro-Wilk tests, the conventional interpretation would be that there is sufficient evidence to reject the null hypothesis of normality. Therefore, the data is considered as non-normally distributed based on the normality tests conducted.

Table 4.2: Test of Normality

	Kolmogorov-Smirnov ³			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Knowledge on proper e-waste disposal	.166	367	<.001	.869	367	<.001
Awareness on proper e-waste disposal	.186	367	<.001	.845	367	<.001
Attitude on formal disposal e-waste	.210	367	<.001	.790	367	<.001
Proper e-waste disposal practices	.187	367	<.001	.854	367	<.001

a. Lilliefors Significance Correction

4.4 Descriptive Analysis

The mean and standard deviation of the descriptive analysis that was done on the items for each variable are shown in Table 4.3 below. A five-point Likert scale with the following values was used to rate each item: Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), and Strongly Agree (5). Which variable the respondents agreed on the most would be determined by this study.

Table 4.3: Descriptive Analysis for Variable

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Knowledge on proper e-waste disposal (IV)	367	1.20	5.00	4.1335	.89415
Awareness on proper e-waste disposal (IV)	367	1.00	5.00	4.1982	.87175
Attitude on formal disposal e-waste (IV)	367	1.00	5.00	4.3467	.80989
Proper e-waste disposal practices	367	1.00	5.00	4.1056	.95935

Based on the Table 4.3, the descriptive analysis shows that the respondents had knowledge on disposing e-waste properly (means = 4.13). Also, the respondents were aware on the negative impact towards environment if they practice correct methods in disposing e-waste at their home (means = 4.2). They also felt happy when they can dispose e-waste properly, felt responsible and felt the importance to conduct the disposal e-waste in a proper manner (means = 4.34). Mostly, the respondents managed to handle their e-waste in a proper manner (means = 4.11).

4.4.1 Demographic Background

Through the survey, the research yielded a 100% response rate from a total of 367 respondents. Table 4.3 exhibits the 367 respondents' demographic profiles.

Table 4.4: Frequency output for Respondents Demographic Profile

Demographic Profile	Frequency	Percent (%)
Gender	367	100
- Male	154	42
- Female	213	58
Age	367	100
- Below 20 years old	54	14.7
- 21-30 years old	261	71.1
- 31-40 years old	34	9.3
- Above 41 years old	18	4.9
Education Level	367	100
- Primary school	1	0.3
- Secondary school	86	23.4
- High school	280	76.3
Marital Status	367	100
- Single	7	79.8
- Married	67	18.3
- Divorced	293	1.9
Number of Household	367	100
- 1-5 persons	240	65.4
- 6-10 persons	125	34.1
- More than 11 persons	2	0.5
The household consist of	367	100

- Family	330	90
- Friends	31	8.4
- Relatives	6	1.6
Type of Housing	367	100
- Terrace	255	69.5
- Semi detached	29	7.9
- Townhouse	32	8.7
- Bungalow	51	13.9
Monthly Income	367	100
- Below RM1999	168	45.8
- RM2000 – RM3999	128	34.9
- RM4000 – RM5999	47	12.8
- RM6000 – RM7999	11	3.0
- Above RM8000	13	3.5

Based on Table 4.4, most of the respondents were female (58.0%), aged between 21 – 30 years old (71.1%). In addition, most respondents were graduated from college/university (76.3%), and not married (79.8%). Since most of them were single, most of them living with their family (90%) at terrace house type (69.5%) with number of households between 1 – 5 persons (65.4%). Among the incomes that have the highest percentage of respondents is as much as below RM1999 (45.8%).

4.4.2 Information on E-waste Management

In this section, we have prepared some questions to find out if residents in the study area have experience or exposure to e-waste.

Table 4.5: Frequency output for Information on E-waste Management

Information on E-waste Management	Frequency	Percent (%)
Experienced in E-waste Disposal	367	100
<ul style="list-style-type: none"> • Yes • No 	<p>262</p> <p>105</p>	<p>71.4</p> <p>28.6</p>
How do you manage your unused electronics?	367	100
Formal	170	46.32
<ul style="list-style-type: none"> • Send it to a recycling center near your residence area • Contact registered e-waste collection to collect electronic equipment for disposal at your home • Separate solid waste from e-waste before dispose 	<p>85</p> <p>30</p> <p>55</p>	<p>23.16</p> <p>8.17</p> <p>14.99</p>
Informal	197	53.68
<ul style="list-style-type: none"> • Donate unused electronics to collectors of old items • Dump at dumpsites • Burning electronic 	<p>41</p> <p>57</p> <p>4</p>	<p>11.17</p> <p>15.53</p> <p>1.09</p>

• Dispose with other solid waste	9	2.45
• Keep in home store	32	8.72
• Selling to collectors of old items	54	14.72

This section referring to the question regarding their experience in disposing e-waste and how do they dispose it. Table 4.5 explains that majority of the respondents have experience on disposing e-waste before (71.4%). Even though majority of the respondents had experience in disposing e-waste, they employed improper way in disposing their e-waste. Most of common practices were, the respondents dump at dumpsites (15.53%), selling to collectors of old items (14.72%) and donate unused electronics to collectors of old items (11.17%).

4.5 Spearman Correlation Coefficient Analysis

This statistical test is used to illustrate how the independent variables are related to the dependant variables. In this context, the research objectives for this study were to determine the relationship between knowledge, attitude and awareness towards practices to dispose e-waste properly. Also implies to the hypotheses of the study which are a relationship between knowledge, Attitude, awareness and formal e-waste disposal practices among residents at Bukit Sentosa, Rawang, Selangor. In order to test these hypotheses, Spearman Correlation Coefficient was implemented. The indicator of perfectly negative correlation is shown by correlation coefficient of -1.0, while perfectly positive correlation is shown by correlation coefficient of 1.0. As for no correlation between the variables, the coefficient is zero (0).

Table 4.6: Spearman Correlation Coefficient

		Formal Disposal E-Waste Practices	
Spearman's rho	Knowledge on proper e-waste disposal (IV)	Correlation Coefficient	.867**
		Sig. (2-tailed)	<.001
		N	367
	Awareness on proper e-waste disposal (IV)	Correlation Coefficient	.888**
		Sig. (2-Tailed)	<.001
		N	367
	Attitude on formal disposal e-waste (IV)	Correlation Coefficient	.785**
		Sig. (2-Tailed)	<.001
		N	367

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

Table 4.6 summarizes the relationship between knowledge, awareness and attitude towards practices using Spearman Correlation Test. Below are the interpretations based on the hypothesis statements.

H₁: There is a relationship between knowledge and disposal practices among residents at Bukit Sentosa, Rawang, Selangor.

Table 4.6 indicates the coefficient for knowledge towards dependent variable. Correlation of knowledge towards formal disposal e-waste practices is 0.867 with significant level 0.01 (2-tailed).

The correlation coefficient is significant $<.001$. Knowledge has significant high positive correlation the dependent variable. Thus, this study is accepted the hypotheses.

H₂: There is a relationship between awareness and disposal practices among residents at Bukit Sentosa, Rawang, Selangor.

Table 4.6 indicates the coefficient for awareness towards dependent variable. Correlation of awareness towards formal disposal e-waste practices is 0.888 with significant level 0.01 (2-tailed). The correlation coefficient is significant $<.001$. Awareness has significant high positive correlation towards the dependent variable. Thus, this study is accepted the hypotheses.

H₃: There is a relationship between attitude and disposal practices among residents at Bukit Sentosa, Rawang, Selangor.

Table 4.6 indicates the coefficient for attitude towards dependent variable. Correlation of attitude towards formal disposal e-waste practices is 0.785 with significant level 0.01 (2-tailed). The correlation coefficient is significant $<.001$. Attitude has significant high positive correlation towards the dependent variable. Thus, this study is accepted the hypotheses.

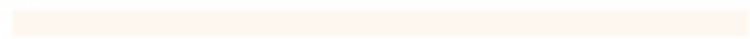
4.6 Summary

This chapter concludes with a discussion of the relationship between three independent variables; knowledge on proper e-waste disposal, awareness on proper e-waste disposal and attitude on formal disposal e-waste towards dependent variable; proper e-waste disposal practices. The overall conclusion that can be drawn from the findings were reliability and validity of the research instrument, which was accepted for the actual survey. The data collected was abnormal and therefore this study has used Spearman's Correlation Coefficient as another alternative to confirm

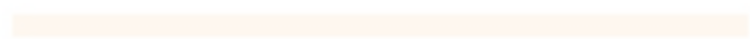
the relationship between the independent variables and dependent variable. Finally, both variables show a high positive relationship, thus all hypotheses were accepted.



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CHAPTER 5: DISCUSSION AND CONCLUSION

5.1 Introduction

This chapter discusses on the findings that have been carried out with support statement from previous studies based on the research objectives. Moreover, this chapter also highlighted on the limitations throughout the research together with recommendations for future research and the conclusion as the closure.

5.2 Discussion

The purpose of this research is to examine the connections between independent variables and dependent variables among the residents of Bukit Sentosa, Rawang, Selangor. A total of 367 residents participated in the study by responding to an online questionnaire. The data collected were analysed using IBM SPSS Statistics Version 25.0 to obtain the test results.

To determine the relationship between knowledge and formal e-waste disposal practices among residents at Bukit Sentosa, Rawang, Selangor.

Knowledge refers to a proficiency assessment assesses an individual's understanding of e-waste disposal management practices. The result shows there a strong positive relationship between knowledge and e-waste disposal practices among residents in Bukit Sentosa, Rawang, Selangor. This indicates that if the residents know by practicing the correct method of disposal e-waste can give benefit to the environment and human health, the residents will practice proper disposal method. This finding is supported by Tukiman et al (2021), which highlighted that higher knowledge gains by individuals result in more practice with e-waste management.

Similar with Hamzah et al. (2020) saying that better synchronization of knowledge will result in an effective e-waste management approach. Also, Miner et al (2020) stated that knowledge of e-

waste has a significant influence on society's practice of e-waste management among citizens. Therefore, the study concluded that there is a strong positive relationship between knowledge and formal e-waste disposal practices.

To determine the relationship between attitude and formal e-waste disposal practices among residents at Bukit Sentosa, Rawang, Selangor

Attitude is a psychological evaluation of a person, ranging from good to dislikeable according to Jekrin & Daud (2016). It indicates a person's contribution to their organization, requiring them to provide the highest level of service. In the context of this study, a positive attitude implies that a majority of residents in Bukit Sentosa, Rawang, Selangor express satisfaction when formally disposing of e-waste.

If the residents having or possess a good feeling and responsible towards saving the environment, the residents will practice proper disposal method. As being said by Munir et al., (2023) by having a positive attitude development in an individual, it will develop the intention to dispose e-waste in a proper manner. Meanwhile, Thi Thu Ngyuen et al (2019) demonstrated that the environmental attitude towards e-waste recycling were highly associated with e-waste disposal practices.

Therefore, the study concluded that there is a strong positive relationship between attitude and formal e-waste disposal practices.

To determine the relationship between awareness and formal e-waste disposal practices among residents at Bukit Sentosa, Rawang, Selangor.

Environmental awareness is a crucial aspect of environmental marketing, influencing individuals' behaviour and intentions to recycle electronic waste according to Paul et al (2016). The result shows there a strong positive relationship between awareness and e-waste disposal practices among residents in Bukit Sentosa, Rawang, Selangor. If the residents are more aware on how to dispose e-waste properly, aware on the negative impact if not properly dispose e-waste, they will practice proper way to dispose e-waste This study is supported by Babaei (2015) which highlighted that even though the practices element involves action based on knowledge and attitude, it still depends on psychological and social factors.

Chibunna et al (2012) highlighted that awareness are varied according to location, where those living in urban areas had a higher level of awareness than respondents living in rural areas due to the limitations in term of information. In another study, Singhirunnusorn et al. (2017) highlighted public awareness programs regarding the environment in general and waste reduction in particular have long been considered one of the most significant factors undergirding practices of household recycling. Thus, the study's outcome emphasizes the positive correlation between awareness and formal e-waste disposal practices among the residents.

5.3 Implications of the Study

Firstly, the implications of the study in society. According the research that has been done by the researchers, by participating in waste management studies, people are encouraged to change their behaviour. They start to recycle more, reduce their waste production, and properly dispose of hazardous materials that contribute to environmental pollution. Community awareness of the importance of proper e-waste disposal has led to action.

Secondly, the implications of the study in policy makers. According the research that has been done by the researchers, it can facilitate collaboration between policy makers, government, local authorities and NGOs. The study provides important data and insights into the current state of waste

management practices in Bukit Sentosa, Rawang, Selangor. This information empowers policymakers to enact and improve policies that address the specific challenges identified in the study. It can lead to the development of more comprehensive, effective and targeted waste management regulations.

Lastly, the implication of the study in the body of knowledge. According to the research that has been done by the researchers, the results of the study can stimulate academic discourse and collaboration among researchers interested in waste management. Literature focusing on household e-waste disposal practices can add depth, specificity and actionable insights to the body of knowledge about waste management. It adds to the academic literature while also developing instructional resources and prospective collaborations aimed at improving household waste management practices.

5.4 Limitation of Study

The findings of this study must be seen considering some limitations. Firstly, the focus of this research is solely on residents within a specific place which is Bukit Sentosa, Rawang. Given that Bukit Sentosa, Rawang constitutes only a small segment of Selangor, it is essential to increase the sample size in order for the researcher to get more accurate data.

Moreover, a notable limitation pertains to the relatively small sample size utilized in this study. The lack of diversity in the sample, confined to residents exclusively within Bukit Sentosa, Rawang, limits the generalizability of the findings. The diminutive sample size raises concerns about the statistical power, potentially hindering the identification of significant relationships within the dataset. Consequently, it is important to acknowledge these limitations, which may impact the broader applicability and robustness of the research outcomes.

Lastly, the respondents were not interested in participating in the survey. This is due to other commitments to household routines because most of the household were also occupied by them.

5.5 Suggestion for Future Research

As the research unfolded, several recommendations for future investigations emerged. Researchers conducting similar studies are encouraged to expand their focus beyond residents residing in Bukit Sentosa, Rawang, to encompass other areas in Selangor, thereby increasing the diversity of respondents. It is advisable for future researchers to augment the sample size to enhance the accuracy of results and introduce greater variability to the study. According Nuijten (2015), a larger sample size of respondents contributes to increased accuracy and reliability of study outcomes.

Consequently, future researchers should prioritize enlarging the sample size to bolster the precision and dependability of the study. Moreover, researchers in the future may consider incorporating additional independent variables into the study that could influence respondents in their disposal of e-waste.

Lastly, the research design is essential for conducting a comprehensive survey in a specific location. This study encompasses the collection of data through research, experiments, or statistical analysis, employing statistical methods for the analysis and interpretation of the gathered data. Consequently, this quantitative research study holds the potential to furnish highly reliable and verifiable information, given that the collected data can be objectively evaluated.

5.6 Conclusion

In conclusion, this research reveals the main determinants that influence the practices of formal e-waste disposal among residents in Bukit Sentosa, Rawang, Selangor. Knowledge, attitudes and practices (KAP) contribute to the investigation of proper formal disposal of e-waste practices.

In addition, the methodology used through a questionnaire using a google form obtained from 367 respondents. In particular, the analysis results from the survey questions help to evaluate the hypotheses in this study.

As a result, in reliability analysis, descriptive analysis, Pearson correlation and multiple regression analysis shows that all variables have significant relationship and the awareness has strong relationship towards formal e-waste disposal practices among residents in Bukit Sentosa, Rawang, Selangor.

Lastly, the limitation and recommendation of this research can assist policy makers and managers develop effective strategies for this study for future research. Continued efforts in increasing knowledge, awareness and attitudes have the potential to lead to continued positive practices in formal e-waste disposal among population. This positive relationship emphasizes the need for continued efforts in education, awareness building, and attitude shaping initiatives to encourage and support residents in adopting formal e-waste disposal practices, contributing to environmental conservation and public health in Bukit Sentosa, Rawang, Selangor.

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APPENDIX A QUESTIONNAIRE



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AMALAN PELUPUSAN SISA ELEKTRONIK SECARA BETUL: KAJIAN TERHADAP PENDUDUK DI BUKIT SENTOSA, RAWANG, SELANGOR

Tuan/ Puan yang dihormati,

Penyelidikan ini dijalankan adalah bertujuan untuk memenuhi keperluan akademik pengajian kami. Untuk pengetahuan Tuan/ Puan, tinjauan ini adalah untuk mengkaji amalan pelupusan sisa elektronik di kalangan penduduk Bukit Sentosa, Rawang, Selangor. Borang soal selidik ini mengandungi lima bahagian. Bahagian A adalah mengenai latar belakang responden, Bahagian B adalah maklumat pelupusan sisa elektronik, manakala Bahagian C, D, E dan F terdiri daripada pembolehubah yang digunakan untuk kajian ini; pengetahuan, kesedaran, sikap dan amalan pelupusan berkaitan sisa elektronik.

Diharap Tuan/ Puan dapat melengkapkan soal selidik ini dengan ikhlas dan dengan penuh komitmen. Maklum balas tinjauan dari Tuan/ Puan adalah sulit dan hanya akan digunakan untuk tujuan akademik sahaja. Kerjasama dari Tuan/ Puan dalam penyelidikan ini amat kami hargai. Terima kasih.

A PROPER E-WASTE DISPOSAL PRACTICES: A STUDY ON RESIDENTS IN BUKIT SENTOSA, RAWANG, SELANGOR

Dear Sir/ Madam,

*This research is conducted to fulfill the academic requirements of our studies. For your information, this survey is to study the practice of electronic waste disposal among residents in Bukit Sentosa, Rawang, Selangor. This questionnaire contains five sections. **Section A** is about the background of the respondents. **Section B** is electronic waste disposal information, while **Sections C, D, E and F** consist of the variables used for this study; knowledge, awareness, attitude and disposal practices on electronic waste.*

It is hoped that you can complete this questionnaire sincerely and with full commitment. Survey responses from you are confidential and will only be used for academic purposes. Your cooperation in this research is highly appreciated. Thank you.

Disediakan oleh**Prepared by:**

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Wan Nurul 'Atiqah Binti Wan Mohd Fauzi (A20A2077)

A. LATAR BELAKANG RESPONDEN / RESPONDENT BACKGROUND

ARAHAN: Sila nyatakan jawapan anda dengan menandakan (√) pada ruangan yang telah disediakan.

INSTRUCTION: Please specify your answer by placing a tick (√) on the relevant answer provided.

A1) Jantina / Gender

Lelaki / Male

Perempuan / Female

A2) Umur / Age

Bawah 20 tahun / Below 20 years old

21-30 tahun / 21-30 years old

31-40 tahun / 31-40 years old

Lebih 41 tahun / Above 41 years old

A3) Tahap Pendidikan / Education level

Sekolah rendah / Primary school

Sekolah menengah / Secondary school

Pengajian Tinggi / Higher education

A4) Status Perkahwinan / Marital status

Bujang / Single

Berkahwin / Married

Bercerai / Divorced

A5) Bilangan Isi Rumah / Household numbers

1-5 orang / 1-5 persons

6-10 orang / 6-10 persons

11 orang ke atas / more than 11 persons

A6) Isi Rumah terdiri daripada / The household consists of

Keluarga / Family

Rakan-rakan / Friends

Saudara mara / Relatives

Lain-lain (sila nyatakan)/ Other (please specify) _____

- A7) Jenis perumahan / *Housing type*
 Teres / *Terrace*
 Berkembar / *Semi detached*
 Rumah Bandar / *Townhouse*
 Banglo / *Bungalow*

- A8) Pendapatan bulanan / *Monthly income*
 Kurang RM 1999 / *Below RM 1999*
 RM 2000 – RM 3999
 RM 4000 – RM5999
 RM 6000 – RM7999
 Lebih RM 8000 / *Above RM 8000*

**B. MAKLUMAT PELUPUSAN SISA ELEKTRONIK /
 E-WASTE DISPOSAL INFORMATION**

ARAHAN: Sila nyatakan jawapan anda dengan menandakan (√) pada ruangan yang telah disediakan.

INSTRUCTION: Please specify your answer by placing a tick (√) on the relevant answer provided.

B1) Adakah anda pernah melupuskan barangan elektronik sebelum ini? / *Have you disposed of electronics before this?*

- Ya / *Yes*
 Tidak / *No*

B2) Bagaimana anda menguruskan barangan elektronik yang tidak digunakan lagi? / *How do you manage your unused electronics?*

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

C. PENGETAHUAN MENGENAI PELUPUSAN SISA ELEKTRONIK SECARA BETUL/ KNOWLEDGE ON PROPER E-WASTE DISPOSAL

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

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

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

No.	Kenyataan/ Statement	1	2	3	4	5
C1.	Saya tahu maksud sisa elektronik <i>I know the meaning of e-waste</i>					
C2.	Saya tahu dengan mengamalkan kaedah pelupusan sisa elektronik secara betul dapat memberi manfaat kepada alam sekitar dan kesihatan manusia sejagat <i>I know by practicing the correct method of disposal e-waste can give benefit to the environment and human health.</i>					
C3.	Saya tahu bagaimana untuk melupuskan sisa elektronik dengan cara yang betul <i>I know how to dispose e-waste in a proper way</i>					
C4.	Saya tahu Jabatan Alam Sekitar Malaysia telah menyediakan senarai pengumpul sisa elektronik yang berdaftar di seluruh Malaysia <i>I know the Malaysian Environment Department has prepared a list of registered e-waste collectors throughout Malaysia</i>					

D. KESEDARAN BERKAITAN DENGAN PELUPUSAN SISA ELEKTRONIK SECARA BETUL/ AWARENESS ON PROPER E-WASTE DISPOSAL

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

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

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

No.	Kenyataan/ Statement	1	2	3	4	5
D1.	Saya sedar terdapat kempen berkaitan pengurusan sisa elektronik secara betul diadakan di tempat tinggal saya dan di seluruh negara <i>I am aware that there are campaigns related to the proper management of electronic waste being held in my residence and across the country</i>					

D2.	Saya sedar bahawa terdapat kaedah yang betul dalam pelupusan sisa elektronik <i>I am aware that there is a proper method in disposing e-waste</i>					
D3.	Saya sedar saya perlu menghantar sisa elektronik kepada syarikat pemungut sisa elektronik berdaftar dengan Jabatan Alam Sekitar sahaja <i>I am aware that I need to send the e-waste to an e-waste company collector that is registered with the Malaysian Department of Environment.</i>					
D4.	Saya sedar bahawa saya dapat mengurangkan kesan negatif terhadap alam sekitar jika saya mengamalkan kaedah pelupusan sisa elektronik yang betul <i>I am aware that I can reduce the negative impact on the environment if I practice a proper e-waste disposal method</i>					

**E.SIKAP MENGENAI PELUPUSAN SISA ELEKTRONIK SECARA BETUL/
ATTITUDE ON FORMAL DISPOSAL E-WASTE.**

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

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

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

No.	Kenyataan/ Statement	1	2	3	4	5
E1.	Saya berasa gembira dapat melupuskan sisa elektronik secara betul <i>I feel happy to dispose of e-waste properly</i>					
E2.	Saya berasa seronok jika saya dapat menyertai sebarang kempen dalam menyelamatkan alam sekitar terutamanya yang berkaitan pengurusan sisa elektronik <i>I feel happy if I can participate in any campaign in saving the environment especially related to e-waste management</i>					

E3.	Saya rasa mengamalkan kaedah pelupusan sisa elektronik dengan betul adalah sebahagian dari tanggungjawab saya kepada masyarakat <i>I feel that practicing proper e-waste disposal method is part of my responsibility to the society</i>					
E4.	Saya rasa penting untuk melupuskan sisa elektronik dengan betul <i>I feel that it is important for me to dispose e-waste properly</i>					

F. AMALAN PELUPUSAN SISA ELEKTRONIK SECARA BETUL / PROPER E-WASTE DISPOSAL PRACTICES

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

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

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

No.	Kenyataan/ Statement	1	2	3	4	5
F1.	Saya melibatkan diri dalam kaedah pengurusan sisa elektronik secara betul <i>I engage in proper e-waste management methods.</i>					
F2.	Saya mengasingkan sisa elektronik daripada sisa pepejal lain sebelum buang ke tong sampah <i>I separate e-waste from other solid waste before throwing it in the trash bin</i>					
F3.	Saya melupuskan peralatan elektronik yang rosak menggunakan kaedah pengurusan sisa elektronik yang betul <i>I dispose of broken electronic equipment using proper e-waste management methods</i>					
F4.	Saya menghubungi pengumpul sisa elektronik berdaftar untuk membuang sisa elektronik <i>I contact a registered e-waste collector to dispose of e-waste</i>					

APPENDIX B : GANTT CHART

Final Year Project Activities	W 1	W 2	W 3	W 4	W 5	W 6	W 7	W 8	W 9	W1 0	W1 1	W1 2	W1 3	W1 4
Online briefing through zoom														
Meeting and discussion for the final year project tittle through google meet														
Submit Chapter 1														
Online seminar about how to install and use EndNote 20														
Meet and discuss with madam physical														
Submit proposal 1.0 (Chapter 1,2 and 3)														
Meet and discuss with madam physical														
Submit proposal 2.0 (Chapter 1,2 and 3)														
Final Submission for Chapter 1, 2 and 3														
Presentation for final year project 1														
Develop an appropriate research design														
Third meeting with supervisor														

Design questionnaire																						
Questionnaire confirmation																						
Collect data from the respondents																						
Complete Chapter 4 and Chapter 5																						
Presentation of research proposal																						
Compile and submit research proposal																						