

FACTORS THAT INFLUENCE CONSUMER SUSTAINABLE PRODUCT PACKAGING ACCEPTANCE IN E-COMMERCE PLATFORM

TAN YI ZING



UNIVERSITI TEKNIKAL MALAYSIA MELAKA

**BACHELOR OF TECHNOLOGY MANAGEMENT (HIGH
TECHNOLOGY MARKETING) WITH HONOURS
UNIVERSITI TEKNIKAL MALAYSIA MELAKA**

2022



**FACTORS THAT INFLUENCE CONSUMER SUSTAINABLE PRODUCT
PACKAGING ACCEPTANCE IN E-COMMERCE PLATFORM**

TAN YI ZING

**A report submitted
in partial fulfillment of the requirements for the degree of
Bachelor of Technology Management (High Technology Marketing) With Honours**

Faculty of Technology Management and Technopreneurship

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2022

DECLARATION

I declare that this thesis entitled “FACTORS THAT INFLUENCE CONSUMER SUSTAINABLE PRODUCT PACKAGING ACCEPTANCE IN E-COMMERCE PLATFORM’ is the result of my own research except as cited in the references. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

Signature

: 

Name

: TAN YI ZING

Date

: 03/2/2023



SUPERVISOR'S APPROVAL

'I/We hereby declare that I/We had read through this thesis and in my/our opinion this thesis is adequate in terms of scope and quality which fulfil the requirements for completion and reward of Bachelor of Technology Management (High Technology Marketing) With Honours.

Signature :

Name : ASSOC. PROF DR. NORFARIDATUL AKMALIAH BINTI OTHMAN

Date : 3/2/2023

Signature :

Name : DR. FAM SOO FEN

Date : 3/2/2023

DEDICATIONS

I would like to dedication my gratitude to my dear parents, who have supported me both spiritually and monetarily.


Tan Tee Chai

Chia Kek Chun

A big thanks to my supervisor and panel for guiding me through my research study.

The logo of Universiti Teknikal Malaysia Melaka (UTeM) is displayed. It features a circular emblem on the left with a blue and white design, and the text 'UTeM' in large, bold, blue letters on the right. Below the emblem, the name of the university is written in Malay and English.

Profesor Madya Dr. Norfaridatul Akmaliah Othman

The logo of Universiti Teknikal Malaysia Melaka (UTeM) is displayed. It features a circular emblem on the left with a blue and white design, and the text 'UTeM' in large, bold, blue letters on the right. Below the emblem, the name of the university is written in Malay and English.

Dr. Fam Soo Fen

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

Thank you so much for always being understanding, as well as to my friends who supported and assisted me, without their support and blessing, this study would be difficult to accomplish in the time allotted. Thank you very much!

ACKNOWLEDGEMENTS

First and foremost, I would like to express my sincere gratitude to my supervisor, Profesor Madya Dr Norfaridatul Akmaliah Othman for the continuous support of my degree study and research, for her patience, motivation, enthusiasm, and immense knowledge. Her guidance helped me in all the time of research and writing of this thesis. She provided me the opportunity to do research and deeply inspired me. She has taught me methodology to carry out the research and how to present the research framework as clearly as possible. At the same time, I would like to extend my sincere thanks to my panel, Dr Fam Soo Fen. I thank for her constructive feedbacks and valuable comments to guide my research direction during the study and preparation of my thesis. Their time, effort, and understanding are helping me succeed in my degree studies. In addition, I would like to thank the Faculty of Technology Management and Technopreneurship (FPTT) at Universiti Teknikal Malaysia Melaka (UTEM) for providing me with the resources to pursue graduate study in the Department of Technology Management.

I am also extremely grateful to my parents for their love, prayers, caring and sacrifices for educating and taking care of me for my future. Additionally, I could not have undertaken this journey without my roommate, Tan Wai Yen and classmate, Ng Sing Ying who continuing support me to complete this research work. They are all appreciated for the fun times we had working and socializing together. At the end, I would also like to thank everyone who has been there for me emotionally and intellectually as I've worked on my research.

ABSTRACT

In line with the Sustainable Development Goals (SDG), sustainable packaging is crucial for reducing environmental waste and preserving the environment. Nevertheless, the most generally recognized reasons for inhibiting the use of sustainable packaging are a lack of environmental knowledge, inconvenience with services, cost, and a lack of government and social media regulation. Current study aims to establish a model to understand the motivational drivers of sustainable packaging acceptance from the lens of the Theory of Consumption Value. For this quantitative investigation to address the affirmative hypotheses and the relationship between independent variables and dependent variable, survey questionnaire data were collected. Online shoppers in Malaysia's Johor and Melaka were given a total of 212 surveys using purposive and convenience sampling techniques. Researcher used a descriptive analysis, reliability analysis, correlation coefficients and multiple regression analysis by using SPSS version 26 to interpret. Findings from this study indicated that all five values have significant impact on consumer's sustainable packaging acceptance which are functional, social, emotional, epistemic, and conditional value. In conclusion, it can be said that users prioritize on functional value, and their level of acceptance towards sustainable packaging is moderate high based on all five hypotheses are accepted. These research findings contribute to the growing body of knowledge on the drivers that motivate consumers to shift from traditional packaging to sustainable packaging and long-term benefits of using sustainable packaging. It may change their habits in the direction of sustainability, like increasing favouring brands with a commitment to environmental sustainability and making sustainability an important purchase criterion for their purchases. Future researcher should be taken forward by undertaking further studies which include local culture as a moderating variable influencing customer acceptance or preference for sustainable packaging on e-commerce platforms.

Key words: Role of packaging in e-commerce platform, overpackaging issues, sustainable packaging, consumers' awareness and attitude, consumption value

ABSTRAK

Pembungkusan mampan memainkan peranan penting untuk mengurangkan sisa alam sekitar dan melindungi alam sekitar yang sejajar dengan Matlamat Pembangunan Mampan. Namun begitu, sebab yang paling dikenali umum untuk menghalang penggunaan pembungkusan mampan ialah kekurangan pengetahuan alam sekitar, kesulitan dengan perkhidmatan, kos, dan kekurangan undang-undang kerajaan dan media sosial. Kajian semasa bertujuan untuk mewujudkan model untuk memahami dorongan motivasi penerimaan pembungkusan hijau daripada perspektif Teori Nilai Penggunaan. Data soal selidik tinjauan telah dikumpul untuk menentukan hipotesis afirmatif dan hubungan antara pembolehubah tidak bersandar dengan pembolehubah bersandar. Pembeli dalam talian di Johor dan Melaka Malaysia telah diberi sejumlah 212 tinjauan dengan menggunakan persampelan secara kebetulan dan bertujuan. Penyelidik menggunakan SPSS versi 26 untuk mentaksir dan menentukan analisis deskriptif, analisis kebolehpercayaan, pekali korelasi dan analisis regresi berganda. Penemuan daripada kajian ini menunjukkan bahawa kelima-lima nilai mempunyai kesan yang signifikan terhadap penerimaan pembungkusan lestari pengguna iaitu nilai fungsi, sosial, emosi, epistemik dan bersyarat. Kesimpulannya, boleh dikatakan pengguna mengutamakan nilai fungsi, dan tahap penerimaan mereka terhadap pembungkusan mampan adalah sederhana tinggi berdasarkan kelima-lima hipotesis diterima. Dapatan penyelidikan ini menyumbang kepada peningkatan pengetahuan tentang pemacu yang mendorong pengguna untuk beralih daripada pembungkusan tradisional kepada pembungkusan mampan dan menikmati faedah jangka masa yang panjang dalam menggunakan pembungkusan mampan. Ia mungkin mengubah tabiat mereka ke arah kemampanan, seperti meningkatkan berat kepada jenama dengan komitmen terhadap kemampanan alam sekitar dan menjadikan kemampanan sebagai kriteria pembelian penting untuk pembelian mereka. Penyelidik masa depan harus dimajukan dengan menjalankan kajian lanjut yang merangkumi budaya tempatan sebagai pembolehubah penyederhana yang mempengaruhi penerimaan atau keutamaan pelanggan untuk pembungkusan mampan pada platform e-dagang.

Kata kunci: Peranan pembungkusan dalam platform e-dagang, isu pembungkusan berlebihan, pembungkusan mampan, kesedaran dan sikap pengguna, nilai pengguna

TABLE OF CONTENTS

	PAGE
DECLARATION	
APPROVAL	
DEDICATIONS	
ACKNOWLEDGEMENTS	v
ABSTRACT	vi
ABSTRAK	vii
TABLE OF CONTENTS	viii
LIST OF TABLES	xi
LIST OF FIGURES	xiii
LIST OF SYMBOLS AND ABBREVIATIONS	xiv
LIST OF APPENDICES	xv
CHAPTER 1 INTRODUCTION	1
1.0 Introduction	1
1.1 Research Background	1
1.2 Problem Statement	3
1.3 Research Questions	5
1.4 Research Objective	5
1.5 Scope and Limitation	5
1.6 Research Significance	6
1.7 Summary	6
CHAPTER 2 LITERATURE REVIEW	8
2.0 Introduction	8
2.1 Role of packaging in e-commerce sector	8
2.2 Overpackaging issues	10
2.3 Sustainable Packaging	13
2.4 Consumers' awareness and attitude towards sustainable packaging	17
2.5 Theory of consumption value	21
2.5.1 Functional Value	22
2.5.2 Social Value	23
2.5.3 Emotional value	24
2.5.4 Epistemic value	25
2.5.5 Conditional value	26
2.6 Theoretical framework	27
2.7 Hypotheses testing	28
2.8 Summary	28

CHAPTER 3	METHODOLOGY	29
3.0	Introduction	29
3.1	Research Design	29
3.2	Methodology Choice	30
3.3	Source of data collection	32
3.3.1	Primary data sources	32
3.3.2	Secondary data sources	32
3.4	Sampling design	33
3.4.1	Purposive sampling	33
3.4.2	Convenient Sampling	34
3.5	Time Horizon	34
3.6	Instrument development	35
3.6.1	Survey questionnaire design	35
3.7	Data collection procedure	36
3.8	Data analysis techniques	37
3.8.1	Statistical Package for the Social Sciences (SPSS)	37
3.8.2	Descriptive analysis	37
3.8.3	Pearson Correlation Analysis	38
3.8.4	Multiple Regression Analysis	38
3.9	Validity and Reliability	39
3.9.1	Validity	40
3.9.1.1	Internal validity	41
3.9.1.2	External validity	42
3.9.2	Reliability	43
3.10	Summary	45
CHAPTER 4	RESULTS AND DISCUSSIONS	47
4.0	Introduction	47
4.1	Pilot Test	47
4.2	Descriptive analysis	48
4.2.1	Respondent's Demographic Profile	49
4.2.1.1	Gender	51
4.2.1.2	Age range	52
4.2.1.3	Status in employment	53
4.2.1.4	Education Level	54
4.2.1.5	Household income category	55
4.2.1.6	How frequency do you purchase sustainable product packaging online?	56
4.2.2	Research Question Analysis	57
4.2.2.1	Dependent Variable: Consumer acceptance towards sustainable product packaging in e-commerce platform	58
4.2.2.2	Independent Variable: Functional value	60
4.2.2.3	Independent Variable: Social value	61
4.2.2.4	Independent Variable: Emotional value	62
4.2.2.5	Independent Variable: Epistemic value	63
4.2.2.6	Independent Variable: Conditional value	64
4.3	Reliability analysis	65
4.4	Pearson correlation analysis	66
4.5	Multiple Regression Analysis	68
4.6	Discussion of Objectives	70

4.6.1	Objective 1: To identify the factors that influence the sustainable product packaging acceptance among online consumers in e-commerce platform.	71
4.6.2	Objective 2: To determine the levels of acceptance towards sustainable product packaging in e-commerce platform.	72
4.7	Hypothesis Testing	76
4.8	Summary	79
CHAPTER 5	CONCLUSION AND RECOMMENDATIONS	80
5.0	Introduction	80
5.1	Summary Descriptive Analysis	81
5.2	Summary of study and research objective achievement	82
5.3	Implications of study	83
	5.3.1 Theoretical implication	83
	5.3.2 Practical implication	84
5.4	Limitation of study	85
5.5	Recommendation for future research	86
5.6	Conclusion	87
REFERENCES		88
APPENDICES		98



LIST OF TABLES

Table 3.1:Pearson's Correlation Coefficients Value	38
Table 3.2:Equation of Multiple Regression Analysis	39
Table 3.3:Potential threatens should considered for internal validity	41
Table 3.4:Potential threatens should considered for external validity	43
Table 3.5:Classification of Cronbach's Alpha Coefficient	44
Table 4.1:Reliability test of 21 respondents	48
Table 4.2:Summary of demographic profile of 212 respondents	49
Table 4.3:Descriptive statistics	57
Table 4.4:Consumer acceptance towards sustainable product packaging in e-commerce platform	58
Table 4.5:Functional value	60
Table 4.6:Social value	61
Table 4.7:Emotional value	62
Table 4.8:Emotional value	63
Table 4.9:Conditional value	64
Table 4.10:Reliability test of 21 respondents	65
Table 4.11:The strength of the correlation	66
Table 4.12:Person Correlation Coefficient Analysis	67
Table 4.13:Model Summary	68
Table 4.14:ANOVA	69
Table 4.15: Coefficients	69
Table 4.16:Mean score analysis	71
Table 4.17:Hypotheses Results	78

Table 5.1: Summary of descriptive analysis of demographic respondents	81
---	----



LIST OF FIGURES

Figure 2.1: Eco-friendly packaging example	13
Figure 2.2: Malaysian eco-friendly mushroom waste packaging	15
Figure 2.3: H&M Sustainable Retail Packaging	15
Figure 2.4: Puma Clever Little Bag	16
Figure 2.5: Reusable fabric gift-wraps: Knot Wraps from Lush	18
Figure 2.6: L'Occitane Malaysia's Refill Fountains	19
Figure 2.7: H&M Garment Collecting programme	19
Figure 2.8: Description of the Theory	22
Figure 2.9 Theoretical Framework	27
Figure 3.1: Relationship between validity and reliability	40
Figure 4.1: Gender of respondents	51
Figure 4.2: Age range of respondents	52
Figure 4.3: Status in Employment	53
Figure 4.4: Education level of respondents	54
Figure 4.5: Household income category of respondents	55
Figure 4.6: How frequently do you purchase sustainable product packaging online?	56

LIST OF SYMBOLS AND ABBREVIATIONS

IR	-	Industrial Revolution
IR 4.0	-	Industrial Revolution 4.0
DOSM	-	Department of Statistics Malaysia
FMCG	-	Fast Moving Consumer Goods
E-comm	-	Electronic commerce
SPA	-	Sustainable Packaging Acceptance
LCA	-	Life-cycle Assessments
SIRIM	-	Institute of Standards and Industrial Research Malaysia
PBV	-	Planned Behavior Theory
TCV	-	Theory of Consumption Values
FunV	-	Functional Value
SocV	-	Social Value
EmoV	-	Emotional Value
EpiV	-	Epistemic Value
ConV	-	Conditional Value
SPSS	-	Statistical Package for the Social Sciences

اونيورسيتي تيكنيكل مليسيا ملاك

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

LIST OF APPENDICES

APPENDIX A	CARTA GANTT PSM 1	98
APPENDIX B	CARTA GANTT PSM 2	99
APPENDIX C	QUESTIONNAIRE DESIGN	100
APPEDNIX D	TURNITIN REPORT	112



CHAPTER 1

INTRODUCTION

1.0 Introduction

This chapter describes an overview of the research topic which is the factors which influence consumer sustainable packaging acceptance in e-commerce platform. It's gone into discussion about the background of study that explain the more about the phenomena of sustainable packaging from overpackaging issues in e-commerce platform. After that, this will have followed with the problem statement, research questions, research objectives, scope and limitation and the research significance.

1.1 Research Background

Malaysia's ecommerce business is continuously expanding and has become one of Southeast Asia's top markets. It increased by 37 percent in 2020, adding to the 26 percent global growth rate. Based on the analytics of GlobalData's eCommerce, the e-commerce market in Malaysia is expected to reach \$12.6 billion by 2024, with a compound annual growth rate of 14.3 percent between 2020 and 2024. The research conducted over the past two decades has yielded important insights on the nature of e-commerce in Malaysia and the fundamental drivers driving its expansion. E-commerce has been defined in several ways, but this study will use the definition by (Tze San et al., 2020) which says that it is the buying and selling of products, data, information, services, and goods over a computer network. In the age of the fourth industrial revolution, Yang et al. (2021) found that the main things driving e-commerce are customers' growing preference for online shopping and the growth of e-banking and digital wallets (IR 4.0).

As reported by the Department of Statistics Malaysia (DOSM), Malaysia's e-commerce revenue climbed by 23.1% to RM801.2 billion in the first nine months of year of 2021. Even though Malaysian government has a clear direction in digital business development, several challenges are still unresolved like overpackaging issue of e-commerce delivery experience. In this paper, overpackaging in e-commerce is

defined as any packaging that does not provide neither containing nor grouping functions, it classified as redundant, avoidable, and non-vital for the product (Elgaaied-Gambier, 2014; Georgakoudis & Tipi, 2021). Online retailer added excessive packaging materials which is no provide extra value to the product to prevent damage during handling, transportation, and storage. Y. Kim et al (2022) also stated that e-commerce business generates 4.8 times more packaging waste than offline shopping, surge in packaging waste raising environmental concerns. This situation has held back the e-commerce market because overpackaging issues causes inefficient use of resources and leads to enormous waste production and eventually generates negative impact to environment. As consumers gaining the awareness regarding their choices' impact to environment and environmentally sustainable development from government policies to trigger online merchants to be proactive to handle overpackaging issues by sustainable initiatives (Jamsheer K, 2019).

In this research, the aim was to identify the factors that affect consumer sustainable packaging in e-commerce platform and how it eliminates the overpackaging issue in e-commerce. The results should then lead to recommendations, providing a new packaging design for online FMCG companies' delivery chains by focusing on high recyclability and recycled materials. This study first gives a brief overview of the recent history of e-commerce in Malaysia, as well as the factors that influence consumer sustainable packaging in e-commerce platform which cover conventional and contemporary approach. Following the introduction, chapter 2 begins with literature review to define the definition of the 5 main variables (the role of packaging in e-commerce sector, overpackaging issues, sustainable packaging, consumers' awareness and attitude towards sustainable packaging and theory of consumption values and constructed a theoretical framework to discuss how the previous study concluded about related topic. After that, chapter 3 focuses on explain the method that used for data collection to address study research questions and its hypotheses. Chapter 4 and 5 are the main parts of this study which deal with results from questionnaire and measured by SPSS software as well as explain how the two research objectives achieved with the independent variables. This study concludes with recommendation and implication to direct prospective researchers on similar studies in future.

1.2 Problem Statement

Since the Covid-19 pandemic triggered and accelerated online shopping behaviors, consumers increased adoption of e-commerce and prefer to purchase goods online to protect themselves from risks of spreading the virus. Exponential growth in the e-commerce sector causes competition to become intense. E-commerce businesses hesitant to strive for better services, they use packaging as their marketing tool to improve customer buying experiences. At a basic level, packaging involves designing a container to fit the products and protecting itself from damage during transmission between the online retailer and consumers. As now more products shipped direct to consumers via e-commerce platform, it requires several times the normal requirements to ensure products arrive in good condition. They may use multiple packaging materials, such as paper, cardboard, masking tape, bubble wrap that acts as secondary or tertiary packaging which is unnecessary or unwanted by the consumer. As cited by Qing & Guirong (2012), packaging fulfils its mission for one time only, consumers throw away as soon as the packaging content runs out. This results in excess packaging that may result in unnecessary waste. Hence, environmental damage due to over-packaging is long-lasting to humans, animals, and plants.

With society's growing concern for sustainability, consumers are more aware that how their choice affect the environment, and they willing to pay for packaging that they perceive to be sustainable. From GlobalWebIndex, found out 61% of U.K consumers willing to spend more to support the eco-friendly companies, because they care and concern about the sustainable packaging with the environment. Consumer demand for sustainable alternatives to packaging is critical to online retailers and encourages them to emphasize on their company's commitment to the environment concerns throughout the lifecycle of product's packaging. As the need for environmentally conscious alternatives keeps growing, both consumers and businesses are adopting this new "green" approach.

Due to these adverse effects from overpackaging issues, numerous studies focused on identifying the solutions to overpackaging in e-commerce using comparative analysis from Pålsson et al. (2017) while in research from Escursell et al. (2021), they use literature reviews about e-commerce packaging which focused on its environmental side or model optimization from Brinker & Gündüz (2016), by using *p*-

median approach to find an optimal, demand-related packaging sizes to achieve average material savings. Although extensive research has been carried out on solutions on overpackaging issues and consumer purchase intention towards sustainable packaging, no single study exists which exploring the factors that influence sustainable packaging acceptance in e-commerce platform. Indeed, there appears to be a lack of literature on consumer acceptability of sustainable packaging, with only two studies exploring the drivers of sustainable packaging adoption (Long & Schiffman, 2000; Wahab et al., 2021). Specifically, it is highly rare to come across a comprehensive study that both theoretically and practically investigates and defines the factors that influence consumers' acceptance of sustainable packaging. Focusing on consumer acceptance of sustainable packaging can help vendors and governments build more sustainable solutions on their packaging while still meeting customer demands; increase consumers' awareness about the impact of their choices on environmental concerns; and encourage FMCG companies to create their commitment to sustainability and respond to public concerns about packaging waste.

In order to address this gap in the existing literature, the current study seeks to answer the following question: What are the factors that influence the sustainable product packaging acceptance among online consumers in e-commerce platform? To answer this question in this paper, the theory of consumption values will serve as a strong predictive theory for predicting environmental human behaviours. This theory constitutes the theoretical foundation of the current study. Current study aims to better understand consumers' acceptance towards sustainable packaging in emerging economy context. Quantitative methods will be used to perform data's validity, reliability and descriptive analysis, Pearson correlation analysis as well as multiple regression analysis by IBM's SPSS statistical software version 26. Additionally, this data will be contextualized with a review of recent literature on the sustainable packaging in order to achieve deeper knowledge of the behavioural aspects that drive certain sustainable packaging behaviours.

1.3 Research Questions

The research question is the initial phase of a research project, and this research will address the following issues:

RQ1. What are the factors that influence the sustainable product packaging acceptance among online consumers in e-commerce platform?

RQ2. What are the levels of consumers acceptance towards sustainable product packaging in e-commerce platform?

1.4 Research Objective

Researcher will accomplish these research questions by meeting the following objectives:

RO1: To identify the factors that influence the sustainable product packaging acceptance among online consumers in e-commerce platform.

RO2: To determine the levels of consumers acceptance towards sustainable product packaging in e-commerce platform.

1.5 Scope and Limitation

The study aims to investigate the factors that influence the sustainable product packaging acceptance among online consumers in e-commerce platform. It allows researcher to focus on the levels of acceptance towards sustainable product packaging in e-commerce platform based on the data of groups that have similar characteristics (active online shoppers who aged from 20 to 60 years old and above). The target respondents are at least making one online purchase in the previous 90 days. This study would be done through the utilization of an email questionnaires surveys (Google Form) to identify consumer's acceptance towards sustainable packaging in order to make a more accurate conclusion to be explained and interpreted.

This research will not extend to advanced determinants that affect the consumer acceptance of sustainable innovation like its buying intention, development,

trends, advantages, and disadvantages. However, the basic performance and applications of the sustainable packaging in e-commerce platform will be covered. It will also show the relation of the factors with one another like the relationship between factors that influence sustainable packaging and consumer acceptance towards sustainable packaging, how the solutions applied in packaging delivery system in e-commerce platform.

1.6 Research Significance

The thesis has made several significant contributions to online shoppers because they will understand the factors that influence the sustainable product packaging acceptance in e-commerce platform. Online shoppers can be aware of the long-term benefits of using sustainable packaging and change their habits in the direction of sustainability, like increasing favouring brands with a commitment to environmental sustainability and making sustainability an important purchase criterion for their purchases.

For the researcher, the study helps to push the forces for sustainability and looking forward to online FMCG companies creating their commitment and responding about the packaging waste. Based on the survey questionnaires, companies able to analyse these insights and feedback from consumers and proactively embrace sustainability issues and their solutions in order to fulfil consumers' needs and wants in designing eco-friendly products' packaging. In addition, the analysis presented in this study will be used for future discussions to explore a new landscape of innovation with today's processing technology in the packaging industry.

1.7 Summary

In a nutshell, Chapter 1 introduces the research area (sustainable packaging) and outlines the background of e-commerce in Malaysia and rationale for the current study. It briefly reviews why sustainable packaging issues that is in need of study and outlines difficulties faced by parties who involved like consumers, packaging converters, retail industry and government policymakers in increasing consumers acceptance towards sustainable packaging. The chapter subsequently describes the

summary of previous research on related topics in order to give readers a understanding of the developments in sustainable packaging field.



CHAPTER 2

LITERATURE REVIEW

2.0 Introduction

In this section, review of existing academic research and articles for both the broad and specific areas of sustainable packaging will be discussed. To have more understanding, this research will present a review of literature and relevant research associated to gain more opinions and information to support this research. Numerous scholars have conducted extensive research in its framework, consumers preferences on overpackaging solution, how sustainable packaging affecting on customers' acceptance, the roles of packaging in e-commerce platform. However, these studies are predominantly focused on the framework of packaging (theory of consumption value) and its effect. Therefore, this review critically evaluates what factors that influences sustainable packaging and the levels of consumer acceptance towards sustainable packaging. This section will explore five main variables: role of packaging in e-commerce, overpackaging issues, sustainable packaging, consumers' awareness and attitude towards sustainable packaging and the theory of consumption values with 5 determinants (i) Functional value, (ii) Social value, (iii) Emotional value, (iv) Epistemic value and (v) Conditional value.

2.1 Role of packaging in e-commerce sector

Scholars, academics, and authors have all defined e-commerce because it is considered a revolution in the entire world based on the adoption of digital technologies and consumer preferences. Electronic commerce is a process of buying and selling or exchanging products, services, and information through computer networks (Anupam, 2011). Jamsheer K (2019) agreed with Anupam, 2011 and modified its definition of the role of telecommunication. According to Jamsheer (2019), e-commerce is considered the use of telecommunication networks to automate business relations and their processes. The term commerce is regarded as transactions among business partners. The use of an e-commerce platform enhanced customer service and increased its efficiencies. This view is founded by Poon & Joseph (2001)

who indicated that e-commerce is one modern evolution platform in marketing activities that highly depends on technology to create creative marketing content and product information.

While various definitions of e-commerce have been suggested, this paper will first use the description advised by Tze San et al (2020). They saw it as purchasing and selling products, data, information, services, and goods through a network of computers. A large and growing body of studies has investigated e-commerce sector. Still, mostly their attention is limited to adoption of e-commerce, its advantages or limitation, how Covid-19 accelerates e-commerce growth, ignoring the determinants of e-commerce satisfaction which could also influence the development of e-commerce. A more extensive and theoretical analysis is required to explore the relationship between e-commerce and its internal element, packaging, which is interrelated with the latest trends; sustainable packaging will be discussed in the next section.

With the emergence of e-commerce, greater attention has been paid to the product's packaging rather than its product content. In short, the role of packaging in the e-commerce sector has become quite significant as it is one of the ways companies can attract consumers to notice their products. The primary function is to protect the products and build brand awareness and recognition to differentiate it from other competitors (Prendergast Gerard & Leyland, 1996). Transporting the product in the best safe condition to the end-users is vital. When consumers can receive their orders in a safe condition, they are likely to place more orders, resulting in higher ROI and business development. Sometimes, the packaging is not as simple as a container holding a product; it is more like obeying its protection and communication functions. It means packaging protects the products during transmission in order to prevent them from any damage or wear and tear.

According to Monnot et al. (2015), it has been observed that have two types of packaging: primary and secondary. Primary packaging refers to the material that first surrounds the product and is usually in direct contact with the content. Recent studies have indicated that packaging is an ultimate selling tool that encourages impulsive buying behaviours, increasing sales and market share while reducing marketing and promotional costs (Ahmed et al., 2014). This view is supported by Chen et al. (2017)

who mentioned that a product's packaging is part of the product and the brand by expressing its attributes. Based on the quantitative analysis from Purwaningsih et al. (2019), they concluded that identified packaging and the shape of the packaging, exceptionally verbal and visual, have a significant impact on the consumers' purchase decision compared to the other attributes like colour, graphic, materials. In this study, the researcher contextualises and examines the topic of packaging in the e-commerce sector, focusing on the B2C category to enable a more detailed gathering of data from customers' perspectives.

Nowadays, the intensive competition business environment of e-commerce packaging encourages online retailers to provide extra services or value-added activities like influencer marketing or personalized services. It caused the online retailer to be spanked for their packaging design or materials. Unboxing user-generated content experience in social media has become part of marketing strategies for online retailers. Consumers share their unboxing videos and the parcel's contents with their followers. It causes sometimes packaging to be more complex because consumers create a first perception or expectation of what open the product should be. However, when packaging serves more than protection, the online vendor will consider high-quality packaging as another marketing tool and invest in it, leading to overpackaging issues that encounter environmental pollution. The overuse of packaging in e-commerce, sustainable packaging and the theory of consumption value which affects consumers' acceptance will be the focal point of this research study and be discussed in the next part of the literature review.

2.2 Overpackaging issues

As many enterprises use product packaging as part of their marketing strategy and invest in their packaging features, it may lead to the problem of overpackaging (Escursell et al., 2021). Packaging is divided into three levels: primary, secondary, and tertiary. Primary packaging forms the products and aims for customer protection, information, and attraction. Overpackaging is usually associated with secondary and tertiary packaging when the products are transported or stored in the warehouse. According to Inns (2012), the reason for overpackaging is mainly to avoid products' damage in transmission. The previously mentioned primary and secondary packaging

from Monnot et al. (2015) also identified that the third category would be overpackaging. Researcher Elgaaied-Gambier (2014) and Georgakoudis & Tipi (2021) have also enquired about the issue of overpackaging. The term overpackaging is also used to describe a primary or secondary packaging that is inappropriately large for its product. However, Chen et al. (2017) defined that overpackaging doesn't have an agreed definition; it may refer to various aspects like heavier outer packaging and multiple packaging materials. Within this context and existing studies, this research is looking to understand further the term used for overpackaging.

Overpacking is a concern that is growing increasingly popular among customers, especially for e-commerce which involves extra outer packaging for delivery. Consumers always receive a small item in a huge box filled with void-filling material or several small items packed in separate packages. According to a Clouder poll, 40 per cent of online deliveries come in packaging that is too large for the item purchased, and 72 per cent of consumers perceive shops use too many packaging resources. Wasteful packaging accelerates consumers' perception of a brand's reputation and sustainability. According to Clouder's assessment, overpacking causes an estimated million metric tons of unbiodegradable trash yearly. Consumers will throw it away after the product is unboxed or removed from the packaging. Many of these packaging materials are non-recyclable or biodegradable, like single-use plastic, styrofoam, and artificial waste, meaning they will stay in the ground for centuries.

Apparently, overpackaging is not an earth-friendly practice, and it creates numerous environmental problems. Previous researchers supported that the issue of overpackaging poses severe challenges and pollution to ecological sustainability and human health. They also reported that the efforts to enhance the consumer shopping experience and satisfaction could cause environmental problems (Guojie et al., 2021). Therefore, establishing a packaging redesigning and recycling system for enterprises and consumers should be actively promoted. Stucki et al. (2018) agreed and complemented with a statement of Guojie et al. (2021) acknowledged that the green policies should be designed to facilitate the industries to trigger them to integrate green innovations.

Nevertheless, mostly previous research on overpackaging has been carried out in associated with higher perceived product quality and ease of transportation,

consumption, or use. In year of 2015, Monnot et al. defined that overpackaging influences product perceived quality, convenience, and environmental friendliness. As packaging is a way to differentiate products from other competitors, overpackaging on private label products could positively affect their in-store evaluation and acceptability to consumers. The research study of Monnot et al. (2015) is complemented by Georgakoudis & Tipi (2021) used quantitative analysis and concluded that eliminating overpackaging may have a negative influence on brand image and consumer purchase intention. From consumers perspectives, they have various viewpoints and attitude when it comes to overpackaging: someone has strong positions to support sustainable packaging, or others may face an ethical dilemma based on the trade-off between perceived quality and sustainability for their product packaging. Recently, consumers are increasingly demanding more environmentally friendly packaging in terms of reduced packaging or packaging materials that can be recycled or reused. Most consumers understand and are aware that overpackaging is harmful to the environment due to the increase in trash.

A few issues are identified with overpackaging such as environmental impact and overfull land fields allowed previous research focuses on redesigning outer packaging. Prior study researchers indicated that redesigning packaging might increase economic gains and eliminate the issue of overpackaging (Gustavo et al., 2018). Since overpackaging and sustainable packaging has the relationship of antecedents and consequences, so researcher will start from overpackaging issues in e-commerce platforms (multiple unnecessary layers) and develop to sustainable packaging (reusable, recycle and refillable) through process of consumers attitudes and acceptance towards sustainable packaging. Thus, the literature review in Chapter 2 start from role of packaging in e-commerce platform and develop to overpackaging which brings negative impact to environment, then result in sustainable packaging with the theory of consumption value which consists of 5 determinants: functional, social, emotional, epistemic and conditional value. The researcher will discuss the main research area, sustainable packaging, consumers' acceptance towards sustainable packaging and also how theory of consumption value affects the sustainable packaging from 2.3 to 2.5.

2.3 Sustainable Packaging

To conduct a literature review regarding sustainability packaging, a clear and well-framed understanding of the concept is critical. Many existing studies in the broader literature have examined some keywords which related with sustainable like green, eco-friendly, sustainability, environmental to define innovations that reduce negative impact on the environment and society. Basically, earlier related articles focus on the implications and adoption of eco-innovation, integration of green innovation in specific field. For instance,

Previous researcher of Baumann et al. (2002) and Johansson (2002) studied that the factors associated with the integration of eco-design into product development. The technological change and evolutions of business process changes sustainable innovation's definition over time. This is because, sustainable packaging is no longer focus on biodegradable and recyclable. It expands its function to multiple dimensions to achieve and consider like adapting with consumer preferences and ensure business growth and opportunities aligned with their corporate social responsibility without neglecting promoting environmental protection. Therefore, in this literature review, researcher was separating key terms regards of sustainability, packaging design with innovation to reduce the environment impacts which caused by overpackaging in e-commerce sector and merging it together as sustainable packaging innovation.



Figure 2.1: Eco-friendly packaging example

[Source: Mustafa, 2021]

First, sustainability is known as “development that meets the needs of the current without compromising the ability of future generations to meet their own needs” (WCED, 1987). In recent years, sustainability become “triple-bottom line”

which consisting of economic, environmental, and social dimensions. These three dimensions are interrelated with each other (Dyllick & Hockerts, 2002). At the firm level, Jensen & Agency (1998) and Salzmänn et al. (2005) agreed that corporate sustainability mean that firm's activities should direct toward solving environmental and social issues in an organized and strategic way. Similarity, Schiederig et al. (2012) also defined sustainability should relate with corporate social responsibility or responsible innovation. It defines multilevel framework of eco-innovations' drivers in 3 levels: micro, meso, macro to guide economic topics at the medium and large scales of innovation science. Building on the previous idea that conceptual clarification that the economics dimension of sustainability properly from Schiederig et al. (2012) and Adams et al. (2012) extends previous work by capturing their focus to the socio-technical nature of innovation. He found out that sustainable innovation concerns small incremental steps or disruptive innovations to adapt their innovation systems to drive sustainable outcomes. It generates intentional changes to a company's products, services, or processes to generate long-term social and environmental benefits while may creating competitive advantages for their firm.

Based on previous related research studies, the quest for sustainability is already transforming to the business competitive advantages, which will encourage companies to change the way they think about products, processes, and their business models. Sustainable packaging is defined as a packaging which brings beneficial value throughout the entire life cycle and be safe and healthy for individuals and society (Gustavo et al., 2018). Based on Sustainable Packaging Coalition, sustainable packaging always has characteristics like (i) meets market criteria for efficiency and costs, (ii) is obtained, produced, transported and recycled using renewable energy, (iii) optimizes the use of renewable or recycled source materials, (iv) it is produced using cleaner production technologies and best practices and (v) it is made of materials that are safe for health under all foreseeable conditions of usage throughout its life cycle. For example, sustainable product packaging which can be applied in e-commerce platform will be papers and cardboard, plant fibers, inflatable air pillows made from post-consumer recycled materials or corrugated bubble wrap. Researcher can conclude that sustainable packaging which meet with the type of goods for delivery will be:

- i. Packaging that includes renewable resources: like derives from wood pulp, is an attractive alternative to petroleum-derived polymers such as PET, PE and PP.
- ii. Mushroom packaging: made from a fungus found in mushrooms. The result is a sturdy packaging material that can hold products and keep them in place.



Figure 2.2: Malaysian eco-friendly mushroom waste packaging

[Source: Vulcan post, from Zhareef Hazli in 2022]

- iii. Packaging with additives: Packaging additives, primarily biodegradable, oxo-degradable and photodegradable materials, help the packaging biodegrade faster and reduce the accumulation of packaging waste.
- iv. Recyclable materials: These include familiar materials such as cardboard, corrugated packaging and kraft paper. For example, H&M shopping bag, once used, can be used as a clothes hanger. It made from less material than the traditional H&M bag, the paper used is 80% recycled.



Figure 2.3: H&M Sustainable Retail Packaging

[Source: Trendhunter, 2019]

- v. Compostable materials: These include the materials like the compostable molded-fiber bowls that some fast-casual restaurants now offer their patrons.

- vi. **Packaging reduction:** Even if manufacturers cannot switch the type of material used in their packaging, they can take steps to optimize the packaging by reducing the amount of material used to make it. For instance, **Puma clever bag** is a sustainable replacement for the traditional shoebox, using 65% less cardboard. This bag and box system has no printing or tissue, easily assembles, takes up less space, weighs less in shipping, replaces the plastic retail bag and is completely recyclable.



Figure 2.4: Puma Clever Little Bag

[Source: Puma's official website]

According to Lekesiztürk & Oflaç (2022), sustainable packaging is an umbrella term referring to different packaging related operations at various levels of supply chains. Sustainable packaging should address the long-term crucial issue of environmentally persistent plastic waste accumulation as well as the saving of oil and material resources (Guillard et al., 2018). While life-cycle assessments (LCAs) show the sustainability value of packaging, it is important to understand consumer opinion and perception of these packages if marketing is to be successful. Oloyede & Lignou (2021). With the increase in awareness about sustainability and its significance and the rise in eco-friendly regulations, sustainable packaging is, now more than ever, an issue of concern for customers (Jain & Hudnurkar, 2022). Likewise, Magnier & Schoormans (2015) also identified a detailed understanding of consumers opinions and perceptions of sustainable packaging is needed in order to increase consumer acceptability towards sustainable packaging.

However, the main weakness in previous studies are they made no attempt to any concern of consumers because human is the main decision maker to purchase on the sustainable packaging. The imbalance in the extensive studies recognized that the consumers acceptance towards sustainable packaging does not receive as much attention from firms especially based on the theory of consumption value. Therefore,

to fill in this literature gap, author has adopted the following broad definition and narrow down to our specific research studies: consumer acceptance towards sustainability packaging by determining the theory of consumption values in e-commerce platform.

2.4 Consumers' awareness and attitude towards sustainable packaging

Based on the intense competition in online e-commerce platforms, the role of online retailers to create customer satisfaction and build long-term customer relationships are their primary objective to remain competitive in the market. With the growing consumers' awareness of environmental sustainability, many firms implemented green marketing strategies in order to address waste disposal due to the overpackaging issues in their e-commerce sector. They also involve themselves in developing environmentally friendly packaging and putting in numerous efforts to stay with the sustainable development.

Although there is consumers' awareness and knowledge of environmental sustainability in Malaysia, the issue of ethical dilemmas in sustainability continues to hinder their efforts in implementing it. Consumers may struggle trade-offs between the conditions of goods but also worries about their action may be harmful to the environment. Based on the research from Anvar & Venter de Villiers (2014), consumers' buying decision which decide not to buy green or sustainable packaging products generate challenges to marketers, in formulating a more efficient green product marketing strategy as a result to consumers' attitudes that place less emphasis on environmental sustainability. Recently, this was successfully established as described by Al-Kumaim et al. (2021), proven that most consumers in Malaysia are still not aware of green products. This circumstance provides a chance for the government, marketers, and the media to use advertisements or initiatives to raise public awareness about the importance of sustainable products. For instance, some major hypermarkets or research institutes like Aeon, Jusco, and Tesco and the Institute of Standards and Industrial Research Malaysia (SIRIM), encourages public to use eco bag or biodegradable plastic bag instead for a better environment. The roles of major hypermarket play a significant role in spreading environmental message to customers by increasing their awareness to environmental sustainability. Nevertheless, some

challenges still faced by vendors and retailers such as consumer preferences changes over time, unfavourable consumer perception of green products and involvement of government initiatives may be different with green marketing strategies by retailer themselves, or high investment costs in developing green products. As a result, it is important to explore how consumers view the environmental issues, and how they behave, especially in their attitudes towards environmentally friendly products.

Based on the research from Divyapriyadharshini et al. (2019) indicated that consumers are becoming more ecologically conscious and desirous of purchasing green products. In accordance with research of Tan & Lau (2010), they stated that online retailer perceived green market as a source of competitive advantages and provide unique selling points by sustainable term compared to other competitors. Profit driven firms are usually motivated to adopt the concept of green marketing in their businesses and changed their attitude of remaining consumers. It succussed demonstrate a high degree of environmental attitude to their consumers and hence interpret it into environmentally friendly purchasing commitment. Therefore, consumers are more aware of the effects of their choices on the environment. Based on the study of Zhang & Dong (2020) stated that the applicability of consumer theory to the study of sustainable purchase behavior is relatively high. Consumer start avoid gift-wrapping service to reduce usage of plastics. For example, Lush Cosmetics also stopped offering traditional cellophane gift wrapping in their shops in favor of reusable fabric knot-wraps.



Figure 2.5: Reusable fabric gift-wraps: Knot Wraps from Lush

[Source: Lush Online Official Store]

Secondly, consumers may choose the sustainable product like recyclable versions of diapers, sanitary products, and other absorbent products from Procter & Gamble (P&G). In addition, L'Occitane has favoured sustainable packaging options that can be re-used, refilled or recycled. Eco-Refills from L'occitane can save up to 97% packaging vs their original containers.



Figure 2.6 L'Occitane Malaysia's Refill Fountains

[Source: L'Occitane Official Store Malaysia]

In addition, H&M is working towards more sustainable practices by producing clothes out of recycled materials. In summary, consumers can choose sustainable packaging from variety of choice like naked packaging, packaging without extra gift-wrapping service, refillable container, or recycling program.



Figure 2.7: H&M Garment Collecting programme

[Source: Harian Post on 30 April, 2021]

Most scholars have discussed consumer theory from the aspects of psychology and the combination of internal and external factors like Theory of Reasoned Behavior as their basic theoretical model and adapted by adding three variables, namely physical health concern, environmental consciousness and past experience in order to predict consumers' green purchase intentions (Patel et al., 2020; Xu et al., 2020). In addition,

prior researcher like Cheung & To (2019) and Trivedi et al. (2018) apply Models of Value–Attitude–Behavior and Value–Belief–Norm to focus on the study of environmental behavior from the psychological aspect and eventually showed that consumers' environmental consciousness (value) strongly influenced their attitude towards environmental issues and towards eco-social benefits (attitude), which in turn exerted positive effects on their green purchase behavior (behavior). While the Attitude–Behavior–Conditions which explore the green purchase behaviour from both perspective: social and psychological aspects has been applied by study of Chekima et al. (2016) as well as Ertz et al. (2016) to found out that environmental attitude, eco-label and cultural value (man–nature orientation) significantly influence the green purchase intention. Similarly, Rusyani et al. (2021) found out that environmental knowledge, environmental concern, green attitude is positively related and strongly influence eco-friendly buying behavior. This results that consumers' environmental consciousness increased and new opportunities in terms of eco-sustainable goods should be developed.

For a long time, the theories represented by Planned Behavior Theory (PBT), Value–Attitude–Behavior and others mainly explore the influence of psychological factors on consumers' green purchase behavior as stated previously. However, there is a scarcity of studies on the consumers' sustainable packaging behavior from internal and external factors based on consumption values. Therefore, the current study was designed to fill this gap in the literature by adjusted the function path of the original theory, Value–Attitude–Behavior to improve the contribution of the theoretical mechanism (factors which influencing consumer sustainable product packaging acceptance) to the interpretation of practical problems (consumers acceptance towards sustainable packaging) by exploring the effect of values on consumer behavior and proposed the Theory of Consumption Value, where functional, social, emotional, conditional, and epistemic values were used to answer the question of why consumers choose to buy (use or not use) a particular product. The applicability of this theory in sustainable purchase behavior has been widely verified (Gonçalves et al., 2015; Halder et al., 2020; Wahab et al., 2021; Zailani et al., 2019a). The development of the theory of consumption values has not only improved the explanatory power and applicability of the model, but it has also facilitated a deeper level of examination on the research problems like offer significant growth to support online merchants in revising their

packaging portfolios and embrace sustainability issues proactively as consumer demands and government regulation.

2.5 Theory of consumption value

Studies over the past two decades have provided us important information on the theory of consumption value. Theory of consumption value build up by three representative applications like the choice to accept or not accept the usage of sustainable product packaging in e-commerce platform, the choice of using sustainable packaging products, and the choice of using a specific brand of sustainable packaging (Sheth et al., 1991). It consists of five determinants such as functional value, social value, emotional value, epistemic value, and conditional value. Results of the operationalization of this theory suggest researcher that to forecast their buying trend, consumption behaviour, their preference towards sustainable packaging in e-commerce platform.

In their review of consumption value, Bolton & Drew (1991) examines the extent to which overall quality and value assessments is bringing direct effect to the performance levels. In addition, Turel et al. (2010) proven that theory of consumption value able to predict consumer behavioural usage and their buying intention in the marketplace. The theory of consumption value always is a principal determining factor of consumer acceptance. It applied to “use or not to use” to represent consumer acceptance and attitudes towards specific events or habits. The product choices may involve contrasting like normal packaging to sustainable packaging.

The consumers acceptance and decision are involving different sets of consideration from multiple value. This is because consumption values are determined by independent theory, relating additively, and contributing incrementally to choose. For example, a first-time online shopper, the purchase of sustainable packaging might focus on its functional value (make sure the packaging can be reuse, recycle), social value (friends are buying sustainable packaging), emotional value (online shopper feel her action will save the planet), epistemic value (want to enjoy new experience on unique sustainable packaging) and conditional value (has subsidy from government). It means one user choice or acceptance may be influenced positively by all five-consumption value. Therefore, theory of consumption value serves as the theoretical

foundation to represent consumer acceptance of sustainable packaging in e-commerce platform.

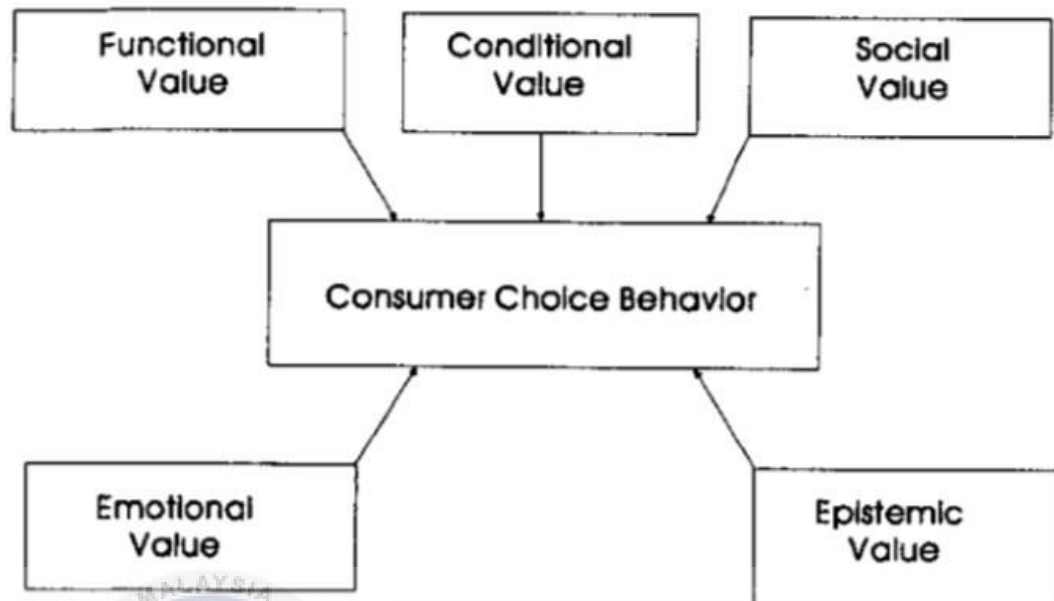


Figure 2.8: Description of the Theory

[Source: Sheth, 1991]

2.5.1 Functional Value

Early definition of research into functional value is perceived utility from an alternative's capacity for functional, utilitarian, or physical performance. (Sheth et al., 1991). This definition supported by most researchers Ferber (1973) and Long & Schiffman (2000) demonstrated that functional value is derived from its characteristics like reliability, durability and price. For instance, consumers who decided the sustainable packaging might base on reusable, recyclable function, or its cost performance.

However, the literature on function value in consumption value is less consistent. Based on Kato (2021), argued that emotional value contributes more to corporate brand favours than functional value. Ample evidence exists to support the view like greater influence of emotional experience rather than functional value on buying intention for young adults (Pinochet et al., 2018). It seems to be a common problem in defining functional value in different aspects in marketplace. Therefore, in the context of this study, functional value will relate consumer acceptance towards sustainable with attributes like the weight of packaging, sustainable packaging quality,

reusable or recyclability, size of the packaging, and packaging simplification that highly influencing consumers perceive and acceptance.

According to Pan et al. (2021) stated that sustainable products must have the same functionality as non-sustainable products to increase purchase intention and acceptance. Someone claims that the price is equally important as quality in influencing consumers acceptance towards sustainable product packaging. the services marketing theory provided additional insights into behavioural intentions, satisfaction, value, service quality, and the dimensions of service quality (Agyeman, 2014; Clemes et al., 2011; Gan & Wang, 2017). Nevertheless, there appears to be discrepancies between some of the reported observations. Based on researches from D'Souza et al. (2006) and Mahenc (2008), consumers are favored to pay a premium prices to accept low quality sustainable product packaging due to consumers expectation of sustainable packaging required more costly to produce and allow for the justification of prices without compromising on quality of the product. Considering the preceding discussion, the below hypotheses is derived:

H1: There is a significant positive relation between the social value and the sustainable product packaging acceptance.

2.5.2 Social Value

Social value has been identified as a major contributing factor for consumers acceptance towards sustainable packaging. According to Kastanakis & Balabanis (2012) and Reyes-Menendez et al. (2022), stated that the social origin based on observation of consumer social behaviour and replicate them in order to obtain value and social value or consideration from these other individuals. Social image is the major inspiration for consumer perception and acceptance of brand value.

Recently, there has been an increasing amount of literature on the topic of social value in sustainable packaging acceptance. Based on the researches Wahab et al. (2021) from evidenced that the acceptance of green packaging was stimulus by social value. These studies clearly indicated that there is a relationship between social value and consumer acceptance towards sustainable packaging. Social value in sustainable packaging represents dimensions which involves social justice, role

identity, self-expectations associated with their environment and social pressure (Mahbod et al., 2022; Onel, 2017; Terry et al., 1999). A sense of social responsibility, social and environmental conscious, and motivation towards the green environment will drive consumer's actions towards sustainable packaging buying behaviour.

As stated in Boz et al. (2020) indicated that consumers are actively engaged in sustainable packaging behaviour when the activity of preserving environment is vital part of their self-identify under the theory of planned behaviour. In addition, social media and government plays an important role as an information source in consumer motivation formation and green sustainable purchasing intentions. Green thinking by social media marketing exhibits the role of social media usage on developing sustainable consumption of green products for society. (Nekmahmud et al., 2022; Pop et al., 2020). Given the above thoughtful, the following hypotheses are postulated:

H2: There is a significant positive relation between the functional value (quality, price) and the sustainable product packaging acceptance.

2.5.3 Emotional value

According to Sheth et al. (1991), emotional value in theory of consumption value can be defined as the perceived utility acquired from an alternative's capacity to arouse feelings or affective states. Recently, definition is modified by Kato & Tsuda (2017) stated that emotional value represent to "the value that the customers themselves finds additional meaning in the product beyond the function described. For instance, emotional value can create "feel-good factors" when purchasing sustainable packaging because feeling make a good person to protect environment. Based on Kim & Sullivan (2019), emotional branding as a brand's strategy that stimulates consumers' affective state, appealing to their feelings with the aim of increasing consumer loyalty toward the brand. Due to perceived emotional value and attitude strongly affected consumers' purchase intention, it means consumers with positive emotions will generate high acceptance of sustainable packaging products (Prabowo & Aji, 2021). However, the consumers who have low environmental consciousness tend to reject packages with incongruent appearance and sustainability claim. (Magnier &

Schoormans, 2015). This statement also complemented by Zahari (2020), which stated that environmental concern did not become the main determinants to represent a positive relationship with acceptance or attitude to choose sustainable packaging. The results on emotional value are mixed, so more specific research questions will be introduced and investigated in this study. Subsequently, the underneath hypothesis is derived:

H3: There is a significant positive relation between the emotional value and the sustainable product packaging acceptance.

2.5.4 Epistemic value

Epistemic value can be defined as the perceived utility acquired from an alternative's capacity to arouse curiosity, provide novelty, or satisfy a desire for knowledge. (Sheth et al., 1991). Through modification from research of Cheng et al. (2013), redefined that epistemic value refers to novelty value as well as value gained from learning a new way of doing things such as experience or knowledge gained through testing or exploring new services. In the opinion of Cheng et al. (2009); Hassan (2017), both of them concluded that epistemic value and satisfaction have a positive and significant impact on loyalty and brand preferences. Mwesiumo & Abdalla (2022), agreed with them by concluding epistemic value is the most important antecedent of the willingness to approach sustainable packaging. According to the results of Mohd Suki (2015), epistemic value has the strongest link with environmental concern.

In this context of study, consumers with high epistemic value tend to seek more innovative sustainable products which will make a significant impact on the purchase decision such as green packaging. For example, green packaging which provide new usage experiences which able to fulfil consumers' curiosity and desires for knowledge. From the research of Oloyede & Lignou (2021), found out that interesting and innovative design will attract sustainability perception and acceptance of consumers. They concluded that environmentally friendly packaging needs to stand out from other packaging on the shelf if it is to attract consumers by eye-catching or attractive packaging design or materials. The higher the concern and information related to

ecological packaging, the higher possibility for consumers to purchase sustainable packaging (Joshi & Rahman, 2015). Consequently, the following hypotheses are posited:

H4: There is a significant positive relation between the epistemic value and the sustainable product packaging acceptance.

2.5.5 Conditional value

Conditional value is perceived utility acquired by an alternative as the result of the specific situation or set of circumstances facing the consumer or decision maker (Sheth et al., 1991). In the same way, consumer behavior decision is based on conditional value by determining personal situations, circumstances, times, and place encountered by them (Belk, 1974; Kushwah et al., 2019; Laaksonen, 1993).

According to Aydin & Ziya (2008), conditional value plays a significant role in shaping sustainable consumption behavior by generating the finding that consumers always tend to buy promotional products and feel satisfied because of the discounts when they select sustainable products. Hassan (2017) also supported the same finding that conditional value positively and significantly impacts consumer satisfaction and buying intention toward sustainable packaging. Correspondingly, the result indicated that conditional value has the greatest impact on customer satisfaction, especially for potential consumers, because it motivates them to try a green product whether there is a discount on the product (Luo et al., 2022).

However, Khan & Mohsin (2017) use a quantitative method to examine consumer choice behaviour for green products. Its findings have proven that conditional value hurts consumers' decision to buy green products. This may be due to the status of sustainable packaging always being premium, discounted rate, or sustainable promotional packaging may imply the product is defective. Since the conditional value influences consumer acceptance and attitudes regarding the environment, the following hypothesis is formulated in this research:

H5: There is a significant positive relationship between conditional value and sustainable product packaging acceptance.

2.6 Theoretical framework

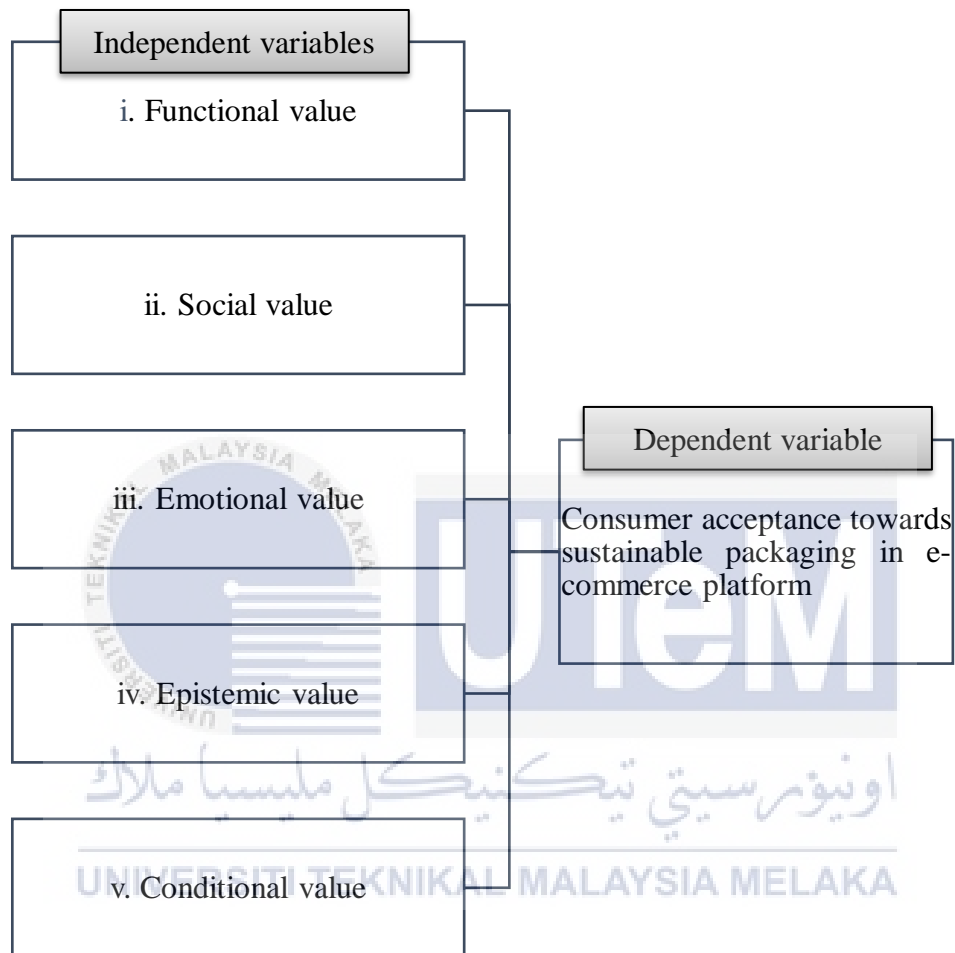


Figure 2.9 Theoretical Framework

2.7 Hypotheses testing

As a result, based on the above literature review and theoretical framework in Figure 2.6, four research hypotheses are proposed as the following:

H1: There is a significant positive relation between the social value and the sustainable product packaging acceptance.

H2: There is a significant positive relation between the functional value (quality, price) and the sustainable product packaging acceptance.

H3: There is a significant positive relation between the emotional value and the sustainable product packaging acceptance.

H4: There is a significant positive relation between the epistemic value and the sustainable product packaging acceptance.

H5: There is a significant positive relation between the conditional value and the sustainable product packaging acceptance

2.8 Summary

In this chapter, detailed explanation and statements from previous researchers has been conducted on sustainable packaging acceptance topics. This section was intended to provide an understanding of existing theories and leads to amendments or refinements of these theories. This reviews led to the development of conceptual framework of theory of consumption value and hypotheses. For following chapter, researcher will discuss about research methodologies for the collection, analysis, and interpretation of data.

CHAPTER 3

METHODOLOGY

3.0 Introduction

In the previous chapters were explain about the definition and literature review about the role of packaging in e-commerce, overpackaging issues, sustainable packaging, and the factors that influences consumers' acceptance towards sustainable packaging from previous existing journal articles. It also mentioned about its theoretical framework and hypotheses. Therefore, for this chapter is explain about research methodology. Right methodology research and method is significant important for research to explore and obtain accurate results. This chapter will discuss and explain deeply the research methods conducted in this research. It started with section 3.1 research design that discussed explanatory research design. Section 3.2 described the methodological choice, which adopted the quantitative method in this research, while section 3.3 explained the source of data collection, primary data, and secondary data. 3.4 and 3.5 discussed the sampling design and time horizon. 3.6 illustrated the instrument development, questionnaire design while section 3.7 described data collection procedure. Section 3.8 described the method of data analysis while section 3.9 as a validity and reliability. Lastly, 3.10 concluded the summary of the chapter.

3.1 Research Design

Research design is a process for collecting, analysing, interpreting, and exporting data in research studies and answering the research question by validating its hypotheses (Creswell, 2009). A study can be designed to be exploratory, descriptive, explanatory, evaluative, or a combination of these to serve different aims and purposes for each study Sekaran & Bougie (2009). For the current study, the explanatory or exploratory technique is recommended since it includes a variety of descriptive data to create a clear research study plan that identifies the cause and effect

of the independent and dependent variables. In short, the main goal of research design, either exploratory or explanatory, is to ensure that the conclusions are justified.

Explanatory research applies reasoning to link different variables to explain cause and effect-based relationships that highlight the mediator or moderator behind the problems or issues (Saunders et al., 2019). This relationship-based understanding aids researchers in thoroughly comprehending the specific phenomenon and determining the implications for problem resolution. In addition, explanatory research majority use the quantitative research method to fill the gap by explaining a phenomenon and providing insight into the "why" and "how" of the problem occurs (Payne & Grey, 2014). Therefore, explanatory research was selected as the research design to figure out the root cause of consumers' awareness towards sustainable innovation for overpackaging issues in the e-commerce platform.

As defined in Chapter 1 and Chapter 2, the study's main objective is to identify the factors that influence sustainable product packaging acceptance among online consumers in e-commerce platforms and to determine the levels of consumer acceptance towards sustainable product packaging in e-commerce platforms. In order to achieve this, author applies statistical, quantitative methods and explanatory research design to explore the "why" behind a specific phenomenon, overpackaging issue in e-commerce. Ghauri et al. (2020) stated that the explanatory research requires few skills during the research process; the essential skill requirements include collecting secondary data and, analysing these patterns, formulating hypotheses. As a result, the researcher needs to be associated with quantitative data collection approaches such as literature reviews and survey questionnaires. After the researcher collects the secondary data from a closely related topic, the researcher can give more meaning to previous research, use it as a foundation for the researcher's hypothesis, fill in the gaps in existing analyses, and provide information on the reasons behind phenomena.

3.2 Methodology Choice

Research methodology can be expressed as practical "how" a researcher specifically designs the current study to ensure data collected is valid and reliable that

address the research aims and objectives. Meanwhile, researcher should determine the design choices by showing the chosen methods, whether qualitative, quantitative, or mixed methods are the best fit for the research (Saunders et al., 2019). The research approach is a framework consisting of the method and procedures for conducting particular issues or phenomena. A suitable research methodology ensures that the researcher selects the most reliable and efficient analysis method to interpret the data collected and generate a scientifically sound conclusion.

Therefore, it is necessary to choose an appropriate approach that fits the study's purpose. The quantitative research approach was used in this study because it allowed the researcher to measure the relationship between two variables (e.g., factors that influence sustainable packaging acceptance and the level of consumers' acceptance of sustainable packaging) or test a set of hypotheses. It is more suitable for the researcher to apply the quantitative rather than the qualitative method because the research topic (sustainable packaging acceptance) is confirmatory. Furthermore, Williams & Williams (2011) indicated that the quantitative research method is a process which starts from a statement of a problem, generating of hypothesis or research question, as well as reviewing previous related studies to support or disprove alternative knowledge claims from the collected data. Similarly, on the basis of (Creswell, 2009), a large amount of data is collected via survey questionnaires and then analyzed using statistical processes from the Statistical Package for the Social Sciences (SPSS) in order to validate or reject hypotheses.

According to Sukamolson (2007), there are four categories of quantitative research: survey research, correlational research, experimental research, and causal-comparative research. For this study, the author selected survey research as the best choice in this research. A survey is a form of quantitative research related to sampling questionnaires to gather data or information from the target respondents under study and analyse and interpret to understand their awareness and behaviour better. In addition, a survey questionnaire is suitable for the current study because it acts as social scientific research focusing on consumers' beliefs, opinions, attitudes, and motivations (Kerlinger, 1973). In order to collect quantitative data from respondents, the author should distribute the online questionnaire forms, which consist of closed-ended questions or rating scales to investigate their acceptance towards sustainable

packaging and how they view sustainable packaging based on the theory of consumption value (TCV). The survey applied to these respondents who share similar characteristics (active online shoppers in e-commerce platforms) is a favourable method to collect accurate statics and conduct and analyse direct results. Overall, survey methodology is the best way to measure attitudes and to describe consumers' behavioural patterns (Saunders et al., 2000).

3.3 Source of data collection

The researcher applied two methods of data collection techniques. This was done in order to collect adequate and relevant data to address the research objectives of this study. Nonetheless, the researcher used quantitative research method.

3.3.1 Primary data sources

According to Ajayi, (2017) and Curtis (2008), primary data is a source of information that the researcher explicitly collects for the research or helps the researcher solve specific problems like surveys, experiments, questionnaires, or interviews. Primary data sources are usually tailored specifically to solve the problem statement for their research study. Primary data is the first-hand information collected by the researcher; it is original and more accurate for providing insights and drawing conclusions. In this study, the factors that influence sustainable packaging acceptance in e-commerce platforms need to identify first and further processed to related hypotheses based on the needs of the study. The data gathered throughout this process is a primary survey questionnaire to determine the causal relationship between independent variables (Functional value, social value, emotional value, epistemic value and conditional value) and the dependent variable (Consumer acceptance towards sustainable packaging in e-commerce platform).

3.3.2 Secondary data sources

Secondary data is expressed as research data previously gathered from primary sources and made accessible to other researchers for use in their studies (Long-Sutehall

et al., 2011). Secondary data is available in various formats, including published datasets, annual reports, and survey results which may be found online. For example, researchers explore Scopus, Google Scholar, Science Direct, and Research Gate to collect secondary data from previous research on a particular topic. The collected data will support future research activities, such as focusing on unexplored research topics or filling gaps in the literature from previous studies.

In explaining the literature review from Chapter 2, secondary data was collected from peer-reviewed journals, textbooks, online data, and related academic articles. It plays a crucial role in explaining the concepts given in the theoretical framework, comprehending the problem statement, making hypotheses, and deciding which constructs to utilize in the quantitative data collection for this project. This information was organized, selected, and evaluated for specific study contexts and appropriate research results.

3.4 Sampling design

The process of selecting a small homogeneous group of subjects examines and analyses consumers' actual buying behaviour and their environmental consciousness towards sustainable packaging. Homogeneous sampling is always used when the research aims to understand a particular group (consumers/buyers) in depth. They have similar characteristics (active online shoppers and made at least one purchase in the previous 90 days). It allows the researcher to investigate further a particular phenomenon (theory of consumption value) or their subgroup of interest (shopping on e-commerce platform) to determine their acceptance of sustainable packaging.

3.4.1 Purposive sampling

Purposive sampling is a non-probability technique in which researchers use an element selected to answer the survey. In this research, the researcher chooses active online shoppers for the sample. The researcher chooses a population selected who has a shared characteristic or set of characteristics. For instance, the researcher wanted to understand how the packaging and its environmental consciousness affect consumers'

perceptions, so they asked for active online shoppers on Facebook, Instagram, and WhatsApp and at least purchased for the past 90 days.

It is a cost-effective sample selection method. Therefore, purposive sampling chooses the best-fit respondents and screens out the sample who are not available for this research. It can help the researcher achieve valuable research outcomes from a small sample of respondents. Purposive sampling also enables the researcher to obtain quantitative data, which yields more insightful conclusions and accurate study findings. Furthermore, because the data source closely aligns with the research context, purposive sampling will also minimize the error in its data.

3.4.2 Convenient Sampling

Another kind of non-probability sampling is known as convenient sampling, which is based on data collection from population members who are easily available to take part in the study. Using convenient sampling creates a simple and easy research method because it takes a short time to complete. The researcher will choose friends, relatives, and neighbors to generate research findings. The researcher will create a google form and send it to my mobile phone's contact list or connect via social media such as Facebook and LinkedIn. It would be the easiest way to recruit primary data sources for my research. However, the author should ensure the selected participants are active online shoppers to implement this alternative sampling method smoothly and reduce its sampling error.

3.5 Time Horizon

According to Saunders et al. (2019), time horizons articulate that the length of time required to study a phenomenon of the research methodology researcher have chosen as well as the research technique or procedure. It is divided into two categories: cross-sectional and longitudinal, based on their time frame for the research. A cross-sectional study collects data at a single time within a short observing period (Sekaran & Bougie, 2009). It allows researchers to study different characteristics, such as the nature and demographic of their respondents, interests, and attitudes, to provide different data patterns and information about the population at one time. Typically,

cross-sectional studies allow researchers to study one dependent variable and examine the relationship between one or more independent variables. While a longitudinal study focuses on the same participants regularly over time, it frequently focuses on a smaller group of people with similar characteristics. It means that longitudinal studies allow researchers to track their observations in real time and develop a cause-and-effect relationship.

In the current study, the author applies the cross-sectional method to their questionnaire design, which means that data from the target population was only collected once. Factors which related with theory of value and consumers acceptance towards sustainable packaging may change over time. It is more beneficial to use a cross-sectional design to explore and examine the prevalence of the factors that influences sustainable packaging from consumers' perspective and attitudes at a certain moment in time.

3.6 Instrument development

For quantitative research methods, the researcher applies all hypotheses because objective measurement provides a statistical, mathematical analysis of data. This numerical analysis of data or results was collected from the questionnaires and online surveys. Quantitative research collects numerical data to show the relationship between a dependent variable and other independent variables within a population. For this research, the researcher uses quantitative methods to determine the consumer acceptance of sustainable packaging in e-commerce platforms. Even quantitative research provides high reliability and accurate results, but all study aspects should be well constructed and planned before collecting data from selected respondents. After an extensive literature review, the survey instrument (survey questionnaire) was designed. (Appendix C)

3.6.1 Survey questionnaire design

The researcher uses a survey questionnaire to address the questions regarding the factors which influences consumer sustainable packaging acceptance in e-commerce platform. A ten-page survey questionnaire with questions about various

aspects of the study was designed. The questionnaire was separated into three components, which were explained respectively. Section A is related to the demographic of the respondent. The demographic data was collected using a closed-ended multiple-choice format, questions included were gender, age range, status in employment, education level, household income category and how frequent consumer purchase sustainable packaging online in order to obtain a clear picture of who participated in the study for further explanations and analysis. Section B focused on the five factors or variables that influenced influencing sustainable packaging in the theory of consumption value (functional, social, emotional, epistemic, and conditional value). Finally, section C was related to consumers' acceptance towards sustainable packaging. All these factors were measured using 5-point Likert scale ranging from (1) 'Strongly disagree'; (2) 'Disagree'; (3) 'Neutral/ Undecided'; (4) 'Agree'; and (5) 'Strongly agree'. The factors or variables which had higher mean value between 4 and 5 would be considered to have more influence on sustainable packaging acceptance. If the mean value was between 1 and 2, they were considered to have weak influence on sustainable packaging acceptance.

3.7 Data collection procedure

This section explained the choice of a survey questionnaire as the study's research tool for gathering data. The quantitative survey data was gathered using both Google forms and social media platform like Facebook, WhatsApp and Instagram. By disturbing the links to social media platforms, the online survey can be shared among these platforms. To obtain information and feedback from well-informed customers and produce precise results, the questionnaires were distributed to people in Johor and Melaka who met the condition of having purchased any product online in the previous 90 days. Their participation was purely voluntary, and no remuneration was offered. The questions were also constructed in a format which allow respondents to easy fill them out in order to increase possible responses and obtain valid answers. Checkboxes were also used throughout the questionnaire to make it appear straightforward and easy to complete, hence increasing response rate.

Data was collected for two months (from 1 October 2022 to 30 November 2022) through purposive and convenient sampling of 330 respondents. Each of the response

received was screened for errors, incomplete and missing responses. After data filtering, only 212 complete and valid replies for data analysis, representing a valid response rate of 65%, which was considered to be acceptable in view of the time and cost constraints.

3.8 Data analysis techniques

3.8.1 Statistical Package for the Social Sciences (SPSS)

Statistical Package for the Social Sciences, SPSS is a statistical software created by the IBM Corporation and widely used by researchers or academicians worldwide. In this research study, SPSS was selected for data analysis due to its user-friendliness, and various statistical tests could be conducted using this software. SPSS can perform highly complex data manipulation and analysis like summarizing data with descriptive statistics, determining correlation and regression analysis and ANOVA with simple steps. In addition, SPSS able to receive data and uses it to create tabulated reports, charts and plots of distributions and trends, and analyze the results of descriptive statistics, Pearson correlation analysis and multiple regression analysis based on the research objectives. In current study, Statistical Package for Social Sciences (SPSS) computer program version 26.0 was used to perform data analysis.

3.8.2 Descriptive analysis

Based on Loeb et al. (2017), descriptive analysis characterizes and answers a phenomenon by identifying the data pattern to answer the research study's problem statement and objective about how, when, where, who and to what extent it occurred. The descriptive analysis uses statistical techniques and data simplification to group respondents' demographic data by using percentages and frequency. The conversion of respondents' demographic data into a table able to describe the characteristics of the respondents and summarize data points constructively. Various statistical techniques, like mean, standard deviation, frequency, variable's central tendency, and dispersion, can be measured to generate valuable insights into current issues (Saunders et al., 2019). In this study, the researcher uses descriptive analysis to provide summary

statistics and understand the features of a specific data set by giving short summaries about the sample and measures of the data.

3.8.3 Pearson Correlation Analysis

Based on Saunders et al. (2019), Pearson's correlation analysis is a statistical test to measure the statistical relationship between two continuous variables and examine the strength and direction of a linear relationship between independent variables and dependent variable. For numerical variables, Pearson's correlation analysis is a correlation coefficient commonly used in linear regression. A correlation coefficient of 1 means a positive correlation; when a value of a variable increases by one, another variable will also increase by the same percentage. Meanwhile, for the negative correlation, when a value of a variable increase, another value will decrease by a fixed proportion. The following figure shows Pearson's correlation coefficients:

Table 3.1: Pearson's Correlation Coefficients Value

[Source: Saunders et al., 2019]

Correlation Coefficient Value (r)	Direction and Strength Linear of Correlation
-1	Perfectly negative
-0.8	Strongly negative
-0.5	Moderately negative
-0.2	Weakly negative
0	No association
0.2	Weakly positive
0.5	Moderately positive
0.8	Strongly positive
1	Perfectly positive

3.8.4 Multiple Regression Analysis

Multiple Regression Analysis is a statistical technique to to analyze the interrelations between variables like to determine the prediction power between dependent variable and five independent variables. According to (Pearson, 1908),

MRA is a prediction to determine the value of a dependent variable based on several quantitative variables in combination (independent variables). He believes the MRA function is better than simple linear regression because it shows a complete picture of how the variables work among each other. In the formulation of the regression analysis, independent (x) and dependent variables are used (y). Those equations are extensions of simple linear equations models, while MRA uses multiple variables as predictors. Regression analysis assists in the process of validating whether the predictors (independent variables, x) are good enough to help predict the dependent variable (y). Below is the equation of multiple regression used:

$$\text{Equation: } Y = a + bX_1 + cX_2 + dX_3 + eX_4 + fX_5$$

Table 3.2: Equation of Multiple Regression Analysis

[Source: Saunders et al., 2016]

a	Constant / Other Influences
b	Influences of X_1 (Functional value)
c	Influences of X_2 (Social value)
d	Influences of X_3 (Emotional value)
e	Influences of X_4 (Epistemic value)
f	Influences of X_5 (Conditional value)
y	Dependent Variables (Consumer acceptance towards sustainable packaging)
X_1, X_2, X_3, X_4, X_5	Independent Variables

3.9 Validity and Reliability

Reliability and validity are the most fundamental tools used in research to evaluate the quality of the research and achieve the most accurate results. It indicates how well the researchers' chosen method and technique worked. Reliability is about the consistency of a finding, while validity is about the accuracy and truthfulness of a statement or conclusion (Altheide & Johnson, 1988). The data's validity and reliability are required to increase transparency and reduce the possibility of collecting incorrect responses (Singh & Masuku, 2014). Although the concepts of validity and reliability are closely related, they express different roles and properties of the measuring

instrument in the research study. Most of the time, a measurement can be reliable without being valid. For instance, a night experiment starts at 8 pm, but it starts at 7:30 pm. It is classified as reliable throughout the whole experiment because it works at the same time each day. However, this experiment is invalid because it does not work at the actual time, 8:00 pm. Therefore, it is vital to consider validity and reliability before and during selecting data collection tools or conducting research. The objective of establishing reliability and validity in research is to ensure that the data is reliable and consistent and can be a reference for the public. The relationship between validity and reliability is shown in figure 3.9.

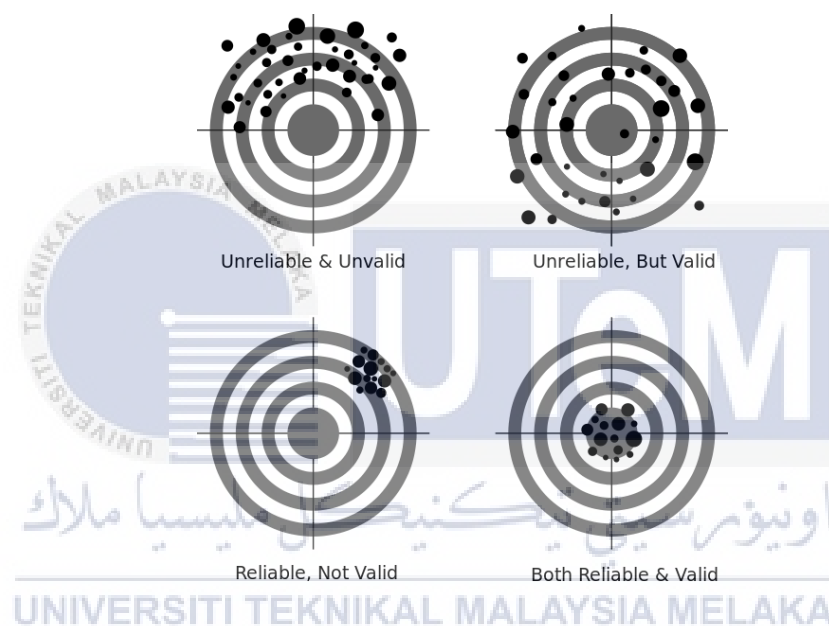


Figure 3.1: Relationship between validity and reliability

[Source: **Kusum Wagle, 2018**]

3.9.1 Validity

Validity defined as to how accurately and how well the researcher's chosen method to address the research questions and its hypotheses for which it was commissioned (Anastasi and Urbina, 1997). If research achieved high validity, that show that research generate accurate and straightforward results which correspond to real issues and matter, consumers' behaviour and attitudes, and variations in real-world. There are three major types of validity:

3.9.1.1 Internal validity

Internal validity is the level of confidence that the causal relationship is reliable and unaffected by other variables or influences. Generally, internal validity doesn't implement the "yes" or "no" concepts but considers how confident the authors can be with the findings of a study. The author can only be satisfied that their research is internally valid when the researcher can rule out the alternative explanation for their conclusion. Authors should prevent potential threats to the internal validity of their studies, such as attrition, confounding, historical events, and experimental bias. There is a table to explain the potential threats and the ways to avoid them:

Table 3.3: Potential threats should considered for internal validity

[Source: Andrade, 2018]



Potential threatens	Example
Attrition	<ul style="list-style-type: none"> - Sometimes, respondents may drop out at any time for any reason. Attrition bias affects the relationship between independent and dependent variables and produces inaccurate results. This is because, it can make variables appear to be correlated when they are not based on the smaller sample at each point in time.
Cofounding	<ul style="list-style-type: none"> - Respondents' attitudes or behaviour may be affected by other additional factors, distorting the relationship. Confounding variables in the study make it difficult to generate a clear connection between independent and dependent variables.
Historical events	<ul style="list-style-type: none"> - For instance, change in the government's policies, like the 'No Plastic Bag' campaign and the "Go Green" campaign, influence participants' perspective and their awareness towards environmental sustainability and change their acceptance towards sustainable packaging directly.

3.9.1.2 External validity

External validity refers to how the author proves and produces findings of their study, which can represent the broader population in the real world. The findings and results of that specific research must be applied in practical solutions and translated into another related context as a reference in the future. The results and outcomes of

this research allow the researcher to generalize consumers acceptance towards sustainable packaging and apply the theory of consumption value to the packaging industry and marketing activities with their latest trends and development. However, authors should avoid potential threats to the external validity of their studies, like sampling bias and the Hawthorne effect and take appropriate measures to reduce bias in their studies. There is a table to explain the potential threats:

Table 3.4: Potential threats should considered for external validity

[Source: Andrade, 2018]

Potential threatens	Example
Sampling bias	<ul style="list-style-type: none"> - Participants selected for the study are not representative of the population cause they can't provide accurate responses. In order to prevent sampling bias, the researcher applies non-probability sampling and sets up control questions to ensure respondents are the correct target respondents who can provide valuable information.
Hawthorne effect	<ul style="list-style-type: none"> - Respondents reacted or answered differently with their actual behaviours and perspectives because they knew they were being studied. For example, when discussing consumer acceptance towards sustainable packaging, respondents felt ashamed and responded differently with their real personalities. It causes the findings to do not generalize to the real-world situation.

3.9.2 Reliability

Reliability is known as how consistently a method measures variables. When the same measurement method can achieve the same results, it means reliability.

According to Sekaran & Bougie (2009), reliability is the ability of measurement tools to produce consistent outcomes when applied at various times. Therefore, by contrasting multiple versions of the same measurement, researchers should make sure that the measuring tool they are using is same.

Through diverse statistical techniques including test-retest, interrater, and internal consistency, several types of reliability can be determined. Among all existing techniques, Cronbach's alpha value always be most frequent methodology to use for assessing internal consistence. Hence, the author will focus on internal consistency (Cronbach's alpha) to measure the consistency of the measurement itself in this research. There should be a significant correlation between the two sets of results when the researcher randomly divides the results into two halves. In line with Classics Cronbach (1951), the founder of Cronbach's alpha coefficient, the value between 0 and 1 approaches +1, indicating that internal consistency is high (Saunders et al., 2019). Even though Cronbach's alpha is interpreted in different ways in the literature, the generally accepted approach is presented in the table below:

Table 3.5: Classification of Cronbach's Alpha Coefficient

[Source: Lee Cronbach, 1951]

Cronbach's Alpha Coefficient	Interpretation of Cronbach's Alpha Coefficient
$\alpha \geq 0.9$	The internal consistency of the scale is extremely high
$0.7 \leq \alpha \leq 0.9$	The scale has high internal consistency
$0.6 \leq \alpha \leq 0.7$	The internal consistency of the scale is acceptable
$0.5 \leq \alpha \leq 0.6$	The internal consistency of the scale is weak
$\alpha \leq 0.5$	The scale has no internal consistency

In quantitative research, most outcome variables are abstract concepts, also known as theoretical structures. The function of validity and reliability to measure its concepts is critical to ensure the research's quality. In this study, literature and its definition informed researchers about the commonly used methods, and techniques generally accepted to further the understanding of validity and reliability. It provides excellent credibility for researchers evaluating their theoretical research. In conclusion, the researcher selected internal and external validity and method of internal consistency (Cronbach's alpha) for their reliability test.

3.10 Summary

In this chapter, the researcher will select and explain the method for collecting data for this research study. For the research method section, the explanatory research method is elected as the best research design to develop a causal relationship between independent variables and dependent variable. Explanatory research helps researchers analyse these attitudes among online shoppers towards sustainable packaging and formulate hypotheses that can guide future trends in the packaging and e-commerce sectors. In addition, researcher integrated quantitative research by conducting survey questionnaires with selected respondents. When the questionnaire is correctly administered, SPSS analysis allows the researcher to make predictions and generalizations, discover facts, and test existing hypotheses. Their response through questionnaires communicated from statistics and numbers and drew an accurate and objective conclusion.

In addition, the data source and data analysis techniques also support the research design and methodological decision. The researcher applied a survey questionnaire as primary data while obtaining secondary data from existing related topics, articles, websites, and books as references to complete this research. With a combination of these two data sources, the researchers can determine the factors that influence sustainable packaging based on the theory of consumption values and consumer acceptance towards sustainable packaging. Data analysis methods like description analysis, Pearson correlation analysis, and multiple regression analysis through Statistical Package for the Social Sciences (SPSS) guided the researcher to understand the details of sample groups and relationships between variables. It allows

the researcher to understand further the cause and effect between variables rather than whether they move together.

Before beginning the main study, the researcher discussed with a small group of test subjects about the purpose of pilot testing in testing research methodologies. It is a practical preliminary test to evaluate the feasibility of the proposed significant research and identify problems with the study plan before investing time and resources. Lastly, the researcher also discussed the validity and reliability of the measuring instrument to guarantee that the data gathered are reliable, consistent, and that the conclusions are relevant for the discussion.



CHAPTER 4

RESULTS AND DISCUSSIONS

4.0 Introduction

In this chapter, the questionnaire data and results will be analysed. A pilot test had been conducted by the researcher before distributing to the actual respondents. Responds from the total of 212 respondents were collected to form a major part of this chapter and cover the objectives of the study. There are 3 sections in the questionnaires which consist of demographic of respondents, independent variables (functional value, social value, emotional value, epistemic value, and conditional value), and dependent variable (consumer acceptance towards sustainable product packaging). The Google Form survey questionnaires were disseminated to the e-commerce shoppers in Melaka and Johor. Statistical Package for Social Science (SPSS 26) plays role to calculate and analyse the data of reliability analysis, descriptive analysis, Pearson correlation coefficient and the Multiple Regression Analysis. SPSS is beneficial to analyse, interpret, present the findings into useful information that provides discussion and conclusion for this topic. Results of data analysis able to allow decision-makers in industry to take action with aim of enhancing sustainable packaging acceptance in future.

4.1 Pilot Test

The researcher conducted a pilot test to define primary research questions. It serves as a baseline survey to ensure author able to allocate different resources and respondents in systematic investigation. After collecting data or feedback from participants for data analysis, it guides researcher to develop the right research questions and a comprehensive research plan for their study. Furthermore, pilot testing helps you determine if your research method is reliable before a full-scale performance. Results of the pilot study may also be used to estimate the costs and sample size of the proposed full-size study. Thus, the researcher was received 21 survey questionnaires and the results was shown as below:

Table 4.1: Reliability test of 21 respondents

[Source: Data analysis of SPSS]

Case Processing Summary

		N	%
Cases	Valid	21	100.0
	Excluded ^a	0	.0
	Total	21	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.889	25

The table 4.1 show that the Cronbach's Alpha result for 21 respondents. Based on the result, the independent and dependent variable has strong reliability in these questionnaires. The Cronbach's Alpha value is 0.889 which is higher than 0.7. Therefore, the questionnaires are valid, and the researcher will continue to collect their data.

4.2 Descriptive analysis

Researcher uses descriptive analysis to organize hard-to understand quantitative data from survey questionnaire sets into summaries (frequency and percentage) about data samples. It is valuable to provide researcher a conclusion of the distribution of data, help to determine outliers and identify similarities among variables, and guide researcher for conducting further statistical analysis in this chapter. In descriptive analysis, author applies measures of frequency to understand how frequently a specific characteristic of respondent is likely to occur. In addition, high degree of objectivity and neutrality of descriptive analysis allow researcher to confirm variables and hypotheses through determine measures of central tendency and dispersion. Determining mean and standard deviation from item of independent

variables is beneficial to generate objective measure opinion by knowing how average and differences of each observation from online shoppers in these questionnaires. In conclusion, descriptive analysis is always more extensive and to present a more comprehensive view of an event or phenomena in format of table, graph, bar, or chart if compared to other quantitative techniques.

4.2.1 Respondent's Demographic Profile

Researcher applies frequency distribution to determine the frequency of respondent profiles, which describes the frequency characteristics of respondents. The questionnaire was distributed to a total of 330 respondents for this study, however only 212 have been returned.

Table 4.2: Summary of demographic profile of 212 respondents

Demographic	Options	Frequency	Percentage
Q1: Gender	1. Male	116	54.7%
	2. Female	96	45.3%
Q2: Age range	1. 20-29 years old	71	33.5%
	2. 30-39 years old	59	27.8%
	3. 40-49 years old	44	20.8%
	4. 50-59 years old	23	10.8%
	5. 60 years old and above	15	7.1%
Q3: Status in employment	1. Student	46	21.7%
	2. Housemaker	39	18.4%
	3. Public sector	28	13.2%
	4. Private sector	45	21.2%
	5. Self-employed	43	20.3%
	6. Retirement/ Unemployed	11	5.2%
Q4: Education level	1. SPM or lower	56	26.4%
	2. Diploma/STPM	65	30.7%
	3. Bachelor's degree	68	32.7%
	4. Master's degree	16	7.5%
	5. Doctor of philosophy	7	3.3%

Q5: Household income category	1. B40 (less than RM4,850 per month)	78	36.8%
	2. M40 (between RM4,851 to RM10,970 per month)	104	49.1%
	3. T20 (exceeding RM10,971 a month)	30	14.2%
Q6: How frequently do you purchase sustainable product packaging online?	1. Once a week	25	11.8%
	2. Once a month	31	14.6%
	3. Once every couple of months	62	29.2%
	4. Every six months	59	27.8%
	5. Rarely or never	35	16.5%



اونيورسيتي تيكنيكل مليسيا ملاك

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

4.2.1.1 Gender

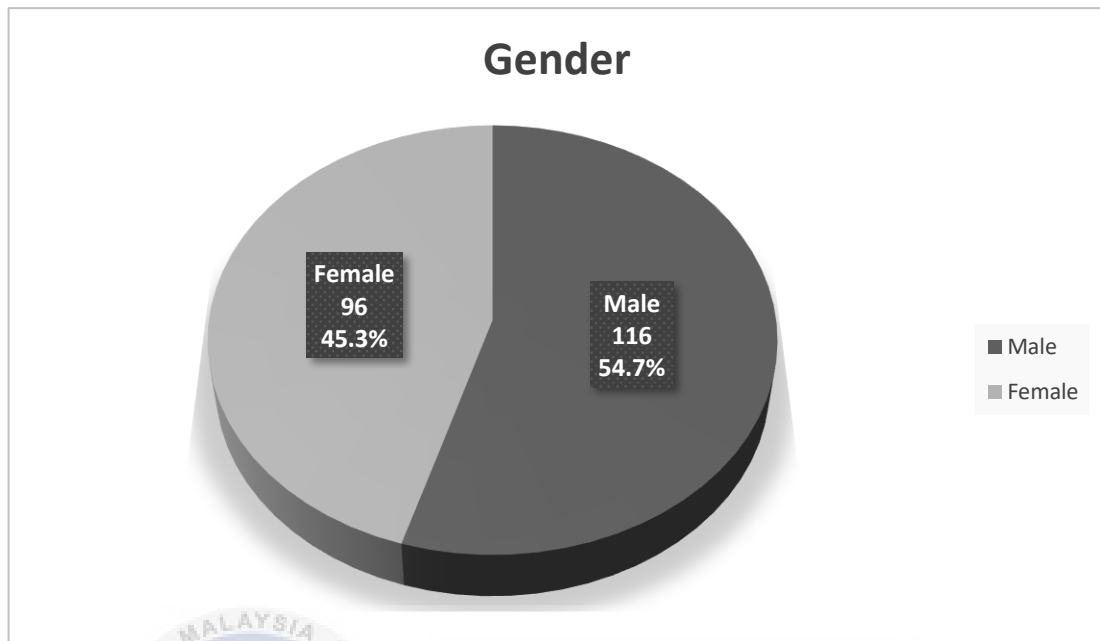


Figure 4.1: Gender of respondents

[Source: Responses from Google Form]

Based on Figure 4.1, show that the frequency and percentage of respondents' gender. The 45.3% of 212 respondent is means that there are 96 female respondents. While 54.7% of 212 is 116, thus there are 116 male respondents. Based on this result, the researcher can conclude that the male respondents are more than female respondents in this research.

4.2.1.2 Age range

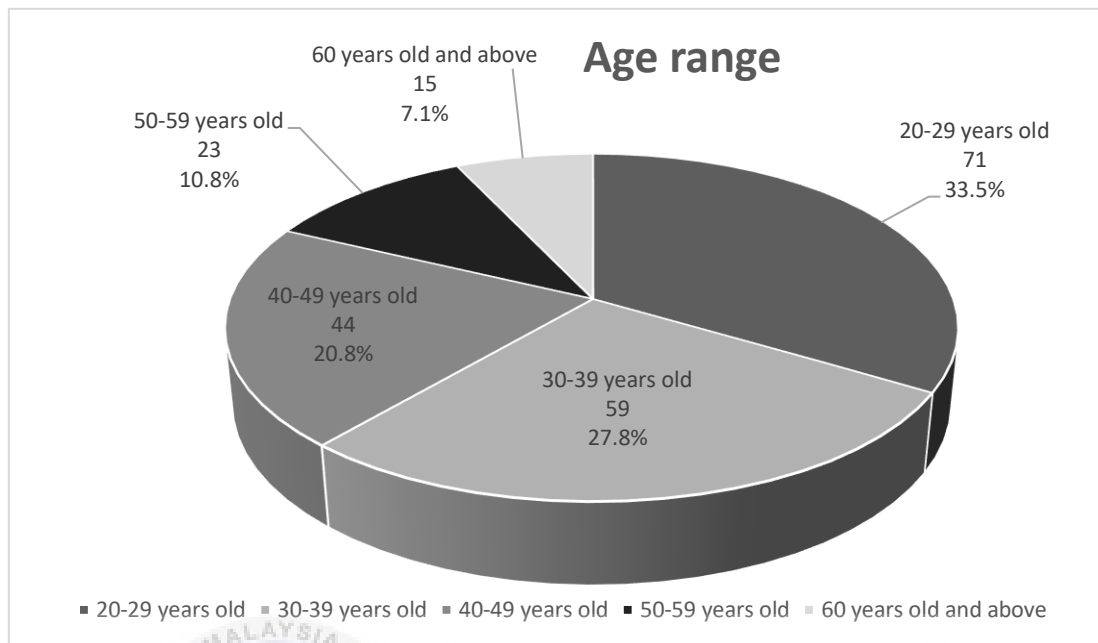


Figure 4.2: Age range of respondents

[Source: Responses from Google Form]

Referring on figure 4.2, it displays the frequency and percentage of respondent age. The highest percentage which is 33.5% represents the 71 online shoppers that age between 20 to 29 years old. Second higher is 27.8% which represent 59 shoppers from age 30 to 39 years old. The 20.8% represents 44 respondents that age between 40 to 49 years old and followed by 50 -59 years old respondents which is 10.8% (23 respondents). The lowest category represents respondents who age 60 years, and above which consists of 7.1% (15 respondents).

4.2.1.3 Status in employment

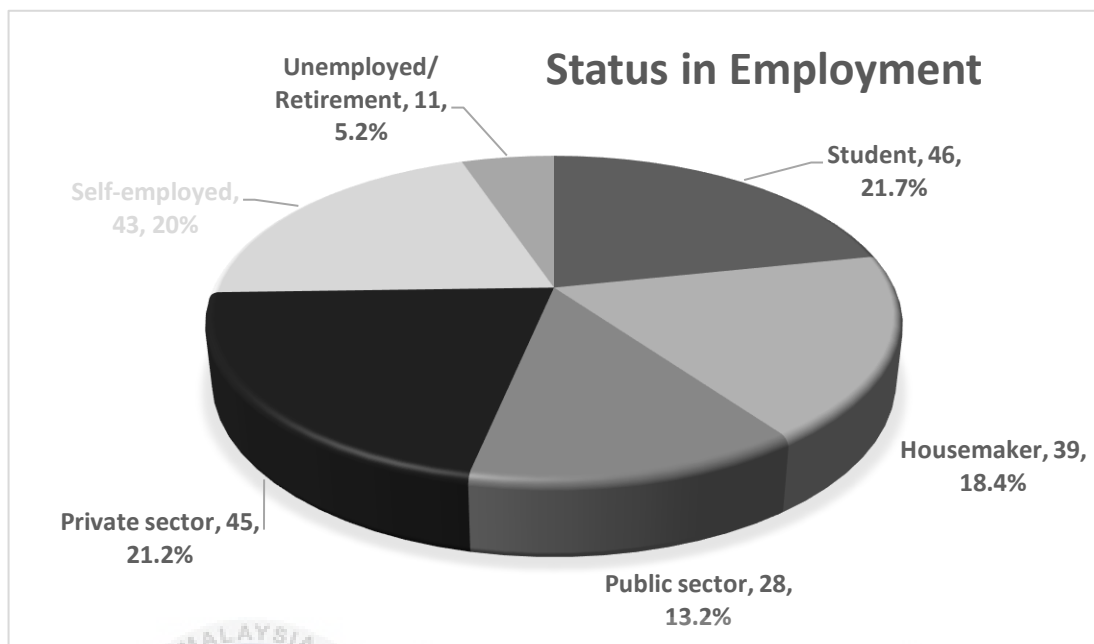


Figure 4.3: Status in Employment

[Source: Responses from Google Form]

Based on figure 4.3, it shows the frequency and percentage of respondent by status in employment. The chart above shows that student has the highest frequency of 46 and percentage of 21.7% from 212 overall respondents. It followed by 45 respondents are private sector which is 21.2%, while 43 respondents are self-employed which is 20.3% is from overall respondent. Additionally, housemaker occupied by 39 respondents which is 18.4 % from overall respondent. In addition, 13.2% represents 28 respondents that are involve themselves in public sector and 5.2% represent 11 online shoppers are in the status of unemployed or retirement.

4.2.1.4 Education Level

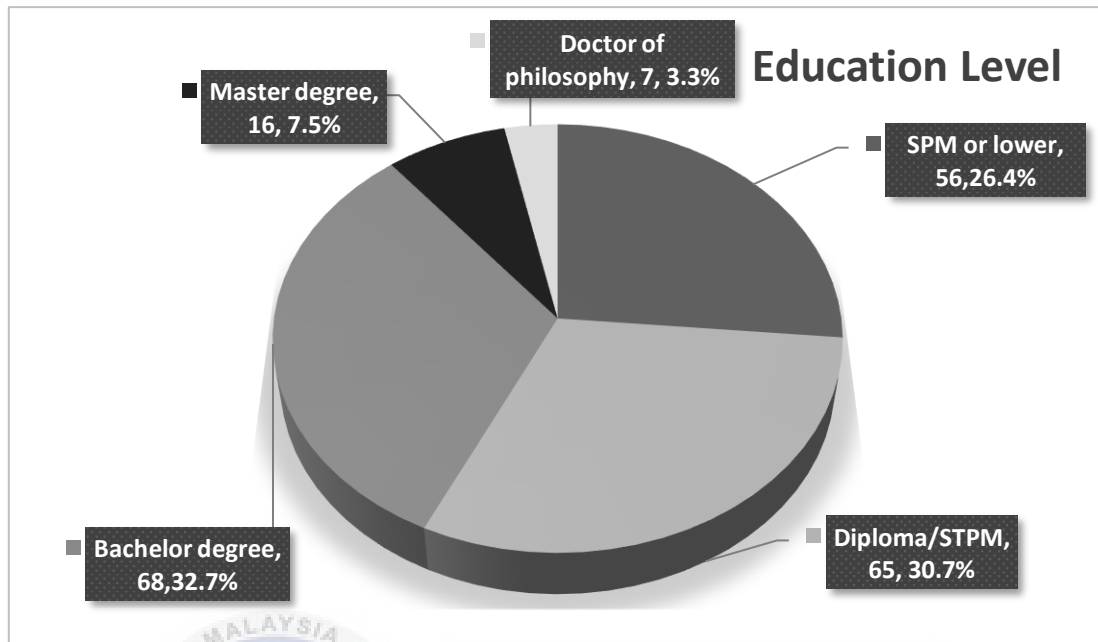


Figure 4.4: Education level of respondents

[Source: Responses from Google Form]

Based on the figure 4.4, most of the respondents had bachelor's level and diploma/STPM of the education level, which is 68 people (32.1%) and 65 people (30.7%) from the 212 respondents. Then the result is followed by respondents of SPM or below education level which is 56 people (26.4%). Last, the master's degree and above, Doctor of philosophy education level of respondents are only having 16 people (7.5%) and 7 people (3.3%) out of 212 respondents.

4.2.1.5 Household income category

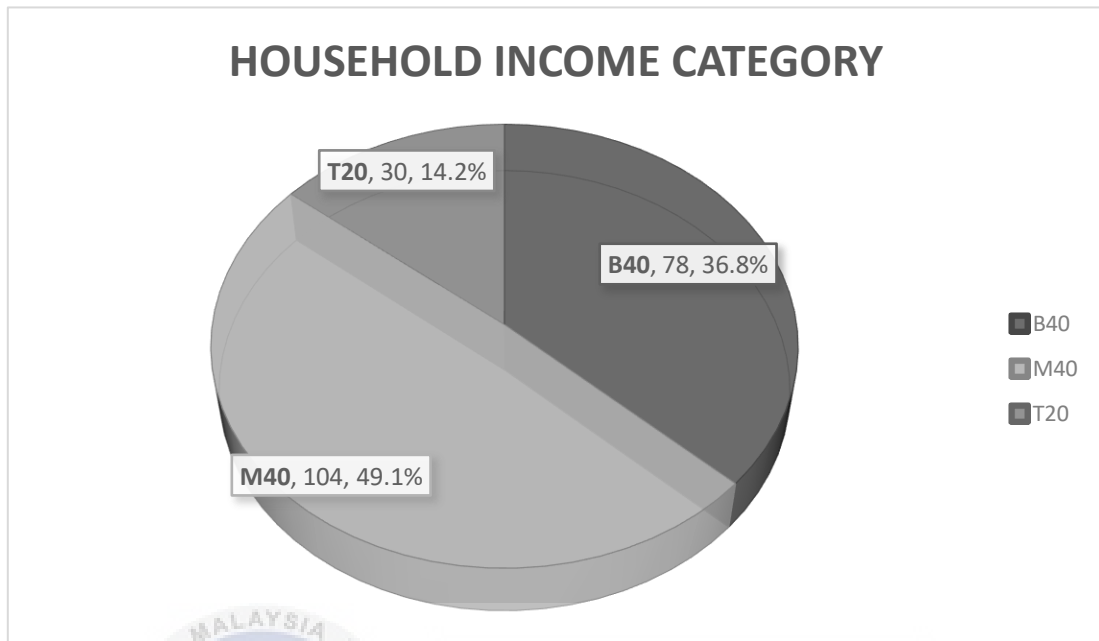


Figure 4.5: Household income category of respondents

[Source: Responses from Google Form]

Referring on figure 4.5, it indicates 49.1% represents 104 respondents who came from M40 income category which represents RM4,851 to RM10,970 per month, followed by 36.8 % for 78 shoppers who are in B40 category (less than RM4,850 per month). Next is 14.2% which represents 30 respondents for T20 income category which exceeding RM10,971 a month. In this research, most of the respondents are in M40 category and have income range of RM4,851 to RM10,970 per month.

4.2.1.6 How frequency do you purchase sustainable product packaging online?



Figure 4.6:How frequently do you purchase sustainable product packaging online?

[Source: Responses from Google Form]

Based on Figure 4.6, it shows how frequently consumers purchase sustainable product packaging online? From the table and figure, it indicates that the highest percentage were once every couple of months with 29.2% that made up by 62 out of 212 respondents. Next, the second highest were once every 6 months which results are 27.8% with 59 respondents. Then, the result is followed by respondents never or rarely have their sustainable packaging purchases which is 35 people (16.5%). Lastly, once a month and once a week consist of 14.6% and 11.8% while frequency with 31 and 25 out of 212 respondents correspondingly.

4.2.2 Research Question Analysis

For researcher to clarify the level of consumer's perceptive, the researcher should obtain the mean for the dependent variable which is the customer acceptance towards sustainable packaging. The level of consumer acceptance will be group under three main classes which be demonstrated as table below:

Table 4.3:Descriptive statistics

Level of acceptance	Mean calculation	Mean range
Low	$1 + 1.33 = (2.33)$	1.00 to 2.33
Medium	$2.34 + 1.33 = (3.67)$	2.34 to 3.67
High	$3.67 + 1.33 = (5.00)$	3.68 to 5.00



4.2.2.1 Dependent Variable: Consumer acceptance towards sustainable product packaging in e-commerce platform

Table 4.4: Consumer acceptance towards sustainable product packaging in e-commerce platform

[Source: Data Analysis SPSS]

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Sustainable Packaging Acceptance (SPA) [I am environmentally responsible.]	212	1	5	3.83	.964
Sustainable Packaging Acceptance (SPA) [I am aware of the benefit of sustainable products on the environment and human health.]	212	1	5	3.88	.979
Sustainable Packaging Acceptance (SPA) [I am aware that environmentally friendly packaged products are available in the market.]	212	1	5	3.77	.881
Sustainable Packaging Acceptance (SPA) [I likely to choose non-overpackaged products in e-commerce platform.]	212	1	5	3.80	.864
Sustainable Packaging Acceptance (SPA) [I will buy a more expensive product if its packaging is more environmentally friendly.]	212	1	5	3.26	.981
Sustainable Packaging Acceptance (SPA) [I will recommend sustainable product packaging to my friends and family.]	212	1	5	3.73	.974
Valid N (listwise)	212				

Table 4.4 show the dependent variable which is consumer acceptance towards sustainable product packaging in e-commerce platform based on 212 respondents. Firstly, the highest mean value among these questions is “I am aware of the benefit of sustainable products on the environment and human health.” which has mean value of

3.88. Next, this is followed by the question ‘I am environmentally responsible.’, which has the second highest mean value of 3.83. Then, the question that “I likely to choose non-overpackaged products in e-commerce platform.”, has the mean value of 3.80, which is the third highest mean in this variable. This followed by the question ‘I am aware that environmentally friendly packaged products are available in the market.’ has mean value of 3.77. Next, the question of “I will recommend sustainable product packaging to my friends and family” also has mean value of 3.73. However, the question of “I will buy a more expensive product if its packaging is more environmentally friendly.” obtained the lowest 3.26 mean score and falls into the category of low level of acceptance among 212 respondents.

Next, for the standard deviation, the highest value among these questions is 0.981, which is question ‘I will buy a more expensive product if its packaging is more environmentally friendly.’ Moreover, the second highest standard deviation is the question ‘I am aware of the benefit of sustainable products on the environment and human health.’ which has standard deviation value 0.979. This followed by the question ‘I will recommend sustainable product packaging to my friends and family, which has standard deviation of 0.974. In addition, the question of ‘I am environmentally responsible.’ has the standard deviation of 0.964. It followed by the statement of “I am aware of the benefit of sustainable products on the environment and human health.” with standard deviation of 0.881. Lastly, the lowest value standard deviation question is ‘I likely to choose non-overpackaged products in e-commerce platform.’, which is only 0.864. In summary, the data shows the level of acceptance towards sustainable product packaging in e-commerce platform is fairly high among respondents, it means they are willing to accept it.

4.2.2.2 Independent Variable: Functional value

Table 4.5:Functional value

[Source: Data Analysis of SPSS]

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Function Value (Quality, Price, Physical) [Sustainable packaging has consistency in quality.]	212	1	5	3.64	1.014
Function Value (Quality, Price, Physical) [Sustainable packaging has acceptable standard of quality.]	212	1	5	3.73	.943
Function Value (Quality, Price, Physical) [Sustainable packaging would be economical. (Reusable, recyclable, refillable)]	212	1	5	3.89	.899
Function Value (Quality, Price, Physical) [Sustainable packaging is reasonably priced.]	212	1	5	3.73	.963
Function Value (Quality, Price, Physical) [Sustainable packaging offer value for the price.]	212	1	5	3.70	1.055
Valid N (listwise)	212				

Table 4.5 shows the statistics if all items of functional value among 212 respondents. From this table, respondents are agreed that “sustainable packaging would be economical. (Reusable, recyclable, refillable).” with mean 3.89 and standard deviation is 0.899. Next, respondents also supported both statements of “Sustainable packaging has acceptable standard of quality.” as well as “Sustainable packaging is reasonably priced.” with same high mean value of 3.73. They also achieved standard deviation of 0.943 and 0.963. In addition, respondent also shows positive perception towards the statement of “Sustainable packaging offer value for the price.” with the mean of 3.70 and standard deviation of 1.055. Last but not the least, consumers also fairly agreed with statement of “Sustainable packaging has consistency in quality.” because it achieved 3.64 mean value and standard deviation of 1.014.

4.2.2.3 Independent Variable: Social value

Table 4.6: Social value

[Source: Data Analysis of SPSS]

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Social value (SocV) [Using sustainable packaging would help me to feel acceptable.]	212	1	5	3.57	1.021
Social value (SocV) [Using sustainable packaging would make a good impression on other people.]	212	1	5	3.54	1.004
Social value (SocV) [Advice from family and friends would motivate me to use sustainable packaging.]	212	1	5	3.64	.995
Social value (SocV) [Government initiatives and social media would motivate me to use sustainable packaging.]	212	1	5	3.65	.979
Valid N (listwise)	212				

Referring on Table 4.6 expresses descriptive statistics of independent variable social value among 212 respondents. Firstly, the highest mean value of this variable is 3.65 with its standard deviation 0.979, which is ‘Government initiatives and social media would motivate me to use sustainable packaging.’ This means that the respondents fairly agree with this statement. This is followed by the mean value 3.64 and standard deviation of 0.995, which is question of ‘Advice from family and friends would motivate me to use sustainable packaging.’ Moreover, the question of ‘Using sustainable packaging would help me to feel acceptable.’ has the mean value of 3.57 and standard deviation of 1.021. Lastly, the lowest mean value is 3.54 with its 1.004 standard deviation value achieved by statement of “Using sustainable packaging would make a good impression on other people.” In conclusions, majority respondents remained neutral or undecided status on the social value of the sustainable packaging acceptance. They maintained medium to high level of acceptance towards sustainable

packaging in social value aspects because all mean value almost achieved 3.68 which able to be considered as high-level acceptance.

4.2.2.4 Independent Variable: Emotional value

Table 4.7: Emotional value

[Source: Data Analysis of SPSS]

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Emotional value (EmoV) [Using sustainable packaging would feel like contributing to the environment.]	212	1	5	3.59	.991
Emotional value (EmoV) [Using sustainable packaging would make me feels morally right.]	212	1	5	3.63	.953
Emotional value (EmoV) [Using sustainable packaging make me feels like I am a better person.]	212	1	5	3.72	1.004
Valid N (listwise)	212				

Descriptive analysis of emotional value is shown in Table 4.7. The mean values for all the items in emotional are above 3.55. Since 5-point Likert scale was used thus anything value which above 3 is going in favour of our hypothesis. However, consumers did not strongly support all the statement about emotional value towards sustainable product packaging. It may be due to ethical issues or moral dilemma, current online shoppers more environmentally conscious about packaging, but they still struggle to trade-off about convenience and sustainability in their purchase decision. The standard deviations for the question of “Using sustainable packaging would feel like contributing to the environment.”, “Using sustainable packaging would make me feels morally right.”, “Using sustainable packaging make me feels like I am a better person.” are 0.991, 0.953 and 1.004, respectively.

4.2.2.5 Independent Variable: Epistemic value

Table 4.8:Emotional value

[Source: Data Analysis of SPSS]

	N	Minimum	Maximum	Mean	Std. Deviation
Epistemic Value (EpiV) [I prefer sustainable packaging when there is a new design or material which attract me.]	212	1	5	3.46	.999
Epistemic Value (EpiV) [I prefer sustainable packaging when there is new, unique, and creative innovation.]	212	1	5	3.51	.971
Epistemic Value (EpiV) [I prefer sustainable packaging when it provides new experience.]	212	1	5	3.53	.961
Valid N (listwise)	212				

Table 4.8 shows the descriptive statistics of epistemic value towards consumer acceptance sustainable packaging. First and foremost, the highest mean value of this variable is 3.53 with its standard deviation 0.961, which is 'I prefer sustainable packaging when it provides new experience.' This is followed by the mean value 3.51 and standard deviation of 0.971, which is question of 'I prefer sustainable packaging when there is new, unique, and creative innovation.' Last, the statement of 'I prefer sustainable packaging when there is a new design or material which attract me.' achieved the lowest mean value of 3.46 and standard deviation of 0.999. In summary, researcher able to conclude that respondents more focus on sustainable packaging cost performance rather than its usage experiences.

4.2.2.6 Independent Variable: Conditional value

Table 4.9: Conditional value

[Source: Data Analysis of SPSS]

	N	Minimum	Maximum	Mean	Std. Deviation
Conditional Value (ConV) [I will use sustainable packaging when there is a subsidy by the government or any parties.]	212	2	5	4.03	.915
Conditional Value (ConV) [I will use sustainable packaging whenever it is available.]	212	1	5	3.53	1.000
Conditional Value (ConV) [I will use sustainable packaging when there is a mandatory legal regulation from government.]	212	2	5	4.09	.849
Conditional Value (ConV) [I will use sustainable packaging when there is reduction of environmental issues.]	212	1	5	3.65	.950
Valid N (listwise)	212				

From the table 4.9 we can see, the most agreed statement in conditional value can be rank by the highest mean is “Consumers will use sustainable packaging when there is a mandatory legal regulation from government” with 4.09 and standard deviation of 0.849. Then, second is “They will purchase sustainable packaging when there is a subsidy.” by mean value of 4.03 and standard deviation of 0.915, followed by “When there is a proven of reduction of environmental issues, consumers will use sustainable packaging.” by 3.65 and standard deviation of 0.95. Lastly, the statement of “I will use sustainable packaging whenever it is available.” Achieved the lowest value of mean, 3.53 but the highest value of standard deviation, 1. From online shoppers’ perspectives, they may think their product packaging from a lots of sectors like affordability, functional, design, economical, reusable instead of the availability of sustainable packaging.

4.3 Reliability analysis

Researchers use the tool of Cronbach's Alpha analysis to measure the variables' reliability and internal consistency. In order to determine the items of independent variables and dependent variable in survey questionnaire are related to each other, Cronbach's Alpha analysis will be calculated by using SPSS. It able to help researcher to obtain overall index of the repeatability or internal consistency of the scale, and it can identify problem items that should be excluded from the scale. There are four level of reliability test and showed as follows:

- If Cronbach's Alpha ≥ 0.90 = Excellent internal consistency
- If Cronbach's Alpha $0.70 \geq \alpha > 0.90$ = Good internal consistency
- If Cronbach's Alpha $0.50 \geq \alpha > 0.70$ = Fairly good internal consistency
- If Cronbach's Alpha > 0.50 = Poor internal consistency

Table 4.10: Reliability test of 21 respondents

[Source: Data analysis of SPSS]

Case Processing Summary

Cases	Valid	212	100.0
	Excluded ^a	0	.0
	Total	212	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.881	25

The table 4.10 shows the reliability test of questionnaire among 212 respondents. The twenty-five items have an alpha coefficient of 0.881, representing

that they have relatively high internal consistency in this study. The purpose of survey questionnaires is asking the respondents' acceptance towards sustainable packaging products online. The Likert scale in section B and C is designed to examine how strongly consumers agree and disagree with statements on point 5-point scale. Reliability test is 0.881 which is more than 0.7, means majority of respondents have positive perception towards sustainable product packaging.

4.4 Pearson correlation analysis

Pearson Correlation Analysis is a best quantitative assessment to measures the strength and direction of linear relationships between pairs of continuous variables in current study. The strength of linear relationships between IV and DV can represent that how close the relationship is to being a perfectly straight line, while the direction of linear relationships can consider as trends they are having increasing or decreasing. As stated in Saunders et al., 2019, the strength of Pearson Correlation Coefficient is shown in table 4.11:

Table 4.11: The strength of the correlation

[Source: Saunders et al., 2019]

r	Interpretation
0.81 to 1.00	Very Strong
0.61 to 0.80	Strong
0.41 to 0.60	Moderate
0.21 to 0.40	Weak
0.00 to 0.20	Very Weak

Table 4.12: Person Correlation Coefficient Analysis

[Source: Data Analysis of SPSS]

		Correlations					
		Mean_of_Fun ctional_Value	Mean_of_Soc ial_Value	Mean_of_Em otional_Value	Mean_of_Epi stemic_Value	Mean_of_Con ditional_Valu e	Mean_of_Sus tainable_Pac kaging_Accep tance
Mean_of_Functional_Val ue	Pearson Correlation	1	.551**	.635**	.505**	.544**	.719**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	212	212	212	212	212	212
Mean_of_Social_Value	Pearson Correlation	.551**	1	.504**	.489**	.414**	.600**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	212	212	212	212	212	212
Mean_of_Emotional_Valu e	Pearson Correlation	.635**	.504**	1	.575**	.484**	.684**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	212	212	212	212	212	212
Mean_of_Epistemic_Valu e	Pearson Correlation	.505**	.489**	.575**	1	.538**	.604**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	212	212	212	212	212	212
Mean_of_Conditional_Val ue	Pearson Correlation	.544**	.414**	.484**	.538**	1	.642**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	212	212	212	212	212	212
Mean_of_Sustainable_P ackaging_Acceptance	Pearson Correlation	.719**	.600**	.684**	.604**	.642**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	212	212	212	212	212	212

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

Table 4.12 shows the Pearson Correlation Analysis of independents and dependent variable in this research. Based on the result, it shows all the independent variables is positive correlate to the dependent variable. Firstly, the correlation between functional value and consumer sustainable packaging acceptance has a statistically significant strong linear relationship ($r=.719$, $n=212$, $p < .001$). Secondly, the correlation between social value and consumer sustainable packaging acceptance also has moderate positive linear relationship ($r=.60$, $n=212$, $p < .001$).

Next, the relationship between emotional value and consumer sustainable packaging acceptance has strong positive correlation with r value = $.684$, $n=212$, $p < 0.01$. Last two variables (epistemic value, conditional value) also have strong linear relationship which is ($r=.604$, $n=212$, $p < .001$) and ($r=.642$, $n=212$, $p < .001$) with its dependent variable (consumer sustainable packaging acceptance). All their direction of the relationship is positive (i.e., functional value and consumer sustainable packaging acceptance are positively correlated), meaning that these variables tend to

increase together (i.e., greater consumer acceptance is associated with greater value of functional).

In a nutshell, the correlation among pairs of variables is all statistically significant strong or moderate positive relationship. In the meantime, all correlation coefficients at the level of 0.01 (2-tailed) have significance level of .000, which indicates that their relationship is highly significant and concluded as it there is a relationship between the two variables in the population as well as the sample.

4.5 Multiple Regression Analysis

Multiple Regression Analysis is a statistical technique that allows the researcher to determine the intensity of an effect and causal relationship with five independent variable and using only one dependent variable. By using SPSS, the result show that the multiple regression analysis with five independent variables (functional, social, emotional, epistemic, and conditional value) and one dependent variable (Consumer acceptance towards sustainable packaging).

Table 4.13: Model Summary

[Source: Data Analysis of SPSS]

Model Summary ^b									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.832 ^a	.692	.684	.33636	.692	92.367	5	206	.000

a. Predictors: (Constant), Mean_of_Conditional_Value, Mean_of_Social_Value, Mean_of_Emotional_Value, Mean_of_Epistemic_Value, Mean_of_Functional_Value

b. Dependent Variable: Mean_of_Sustainable_Packaging_Acceptance

Table 4.13 shows the modal summary result of Multiple Regression Analysis. Based on the table 4.13, the r value is 0.832, means that there was a relationship between dependent and independents variables. Next, the r square value is 0.692, this means that the five independent variables are accounted for 0.69 (69%) of variation in dependent variable. This also can be explained that 69% variation in consumer sustainable packaging acceptance can influence by the factors of functional value, social value, emotional value, epistemic value, and conditional value.

Table 4.14: ANOVA

[Source: Data Analysis of SPSS]

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	52.252	5	10.450	92.367	.000 ^b
	Residual	23.307	206	.113		
	Total	75.559	211			

a. Dependent Variable: Mean_of_Sustainable_Packaging_Acceptance

b. Predictors: (Constant), Mean_of_Conditional_Value, Mean_of_Social_Value, Mean_of_Emotional_Value, Mean_of_Epistemic_Value, Mean_of_Functional_Value

Table 4.14 shows the ANOVA analysis by using SPSS. The result show that model has more systematic variation than non-systematic variation because the p value is 0.000 which is less than 0.05.

Table 4.15: Coefficients

[Source: Data Analysis of SPSS]

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-.143	.185		-.774	.440	-.508	.221
	Mean_of_Functional_Value	.318	.061	.290	5.174	.000	.197	.439
	Mean_of_Social_Value	.146	.043	.168	3.417	.001	.062	.231
	Mean_of_Emotional_Value	.218	.051	.234	4.263	.000	.117	.319
	Mean_of_Epistemic_Value	.101	.047	.111	2.128	.034	.007	.195
	Mean_of_Conditional_Value	.260	.053	.242	4.868	.000	.154	.365

a. Dependent Variable: Mean_of_Sustainable_Packaging_Acceptance

Table 4.15 shows the coefficient of multiple regression analysis. Based on the result, functional value has highest beta which is 0.29. Second is conditional value, which is 0.242. This followed by the emotional value, which is 0.234, and last following are social value and epistemic value, which is 0.168 and 0.111. The constant is -0.143. Therefore, the equation is formed as shown as below:

$$y = a + bx_1 + cx_2 + dx_3 + ex_4$$

$$a = -0.143,$$

$$b = 0.318,$$

$$c = 0.146,$$

$$d = 0.218,$$

$$e = 0.101,$$

$$f = 0.260$$

$$\text{Thus, } y = -0.143 + 0.318 x_1 + 0.146 x_2 + 0.218 x_3 + 0.101 x_4 + 0.260 x_5$$

Based on the linear regression above, there are positive relationship between all independent variables towards dependent variable. If p-value less than 0.05 means that it is statistically significant, while when p-value higher than 0.05 indicates the null hypothesis is true; thus, it is not statistically significant. In summary, all independent variables had the significant value that lower than 0.05. Based on the table 4.15, functional value, emotional value and conditional has 0.000 of significant value, while social value and epistemic value had significant value that which is 0.001 and 0.034 respectively. However, they still lower than 0.05. This means that all the independent variables (functional value, social value, emotional value, epistemic value, and conditional value) had relationship to consumer sustainable packaging acceptance.

In addition, relationship between independent variables and dependent variable can be evidenced by the result of t-value. The greater the magnitude of T value, the greater the evidence to against the null hypothesis because it proven there is a significant difference. The t-value more farer from 0, the significant difference is more likely. If the t-value is higher than 1.96, there is the relationship to dependent variable. The table 4.15 had shown that all the variables (functional value, social value, emotional value, epistemic value, and conditional value) have t-value which higher than 1.96, which is 5.174, 3.417, 4.263, 2.128 and 4.868.

4.6 Discussion of Objectives

In this section, the researcher was discussed each objective and based on the result to understand the factors that influence the sustainable product packaging

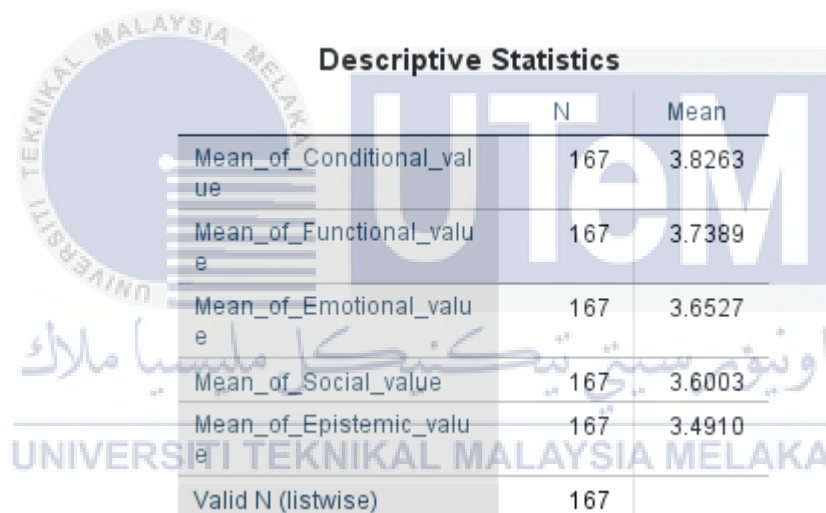
acceptance among online consumers in e-commerce platform, the findings were analyzed to measure to meet the objectives of the study.

4.6.1 Objective 1: To identify the factors that influence the sustainable product packaging acceptance among online consumers in e-commerce platform.

This study decides the five theory of consumptions values as the predictors of sustainable packaging acceptance. Through SPSS correlation and multiple regression analysis, researcher able to be proved that 5 values are accepted and have a direct impact and relationship on sustainable packaging acceptance.

Table 4.16:Mean score analysis

[Source: Data Analysis of SPSS]



	N	Mean
Mean_of_Conditional_value	167	3.8263
Mean_of_Functional_value	167	3.7389
Mean_of_Emotional_value	167	3.6527
Mean_of_Social_value	167	3.6003
Mean_of_Epistemic_value	167	3.4910
Valid N (listwise)	167	

The mean score analysis was used to achieve the first objective, which was based on the data collected from the questionnaire. The most often used measure of central tendency is the mean, which is an average of data. As a result, the researcher summarized the mean of the question that the customer answered that was related to the dependent variable that used a Likert scale from 1 to 5, with strongly disagree (1), disagree (2), neutral (3), agree (4), and strongly agree (5) as the responses.

The result of mean score analysis that show on table 4.16 above are the factor that investigate the factor that influence the effectiveness of AR application towards

ecommerce platforms on customer awareness. Almost all the factor has value near 5.0 and it show that respondents is agree with the factor.

4.6.2 Objective 2: To determine the levels of acceptance towards sustainable product packaging in e-commerce platform.

To answer RO2 which is to identify the levels of consumers acceptance towards sustainable product packaging in e-commerce platform, Pearson correlation and MRA was used. There are five hypotheses proposed in this study. The five hypotheses tested and all were found supported.

Hypothesis 1: There is a significant positive relation between the **functional value** and the sustainable product packaging acceptance.

The finding of lead to similar conclusion where there is a significant positive relationship between the functional value and sustainable product packaging acceptance and constant with previous studies by Wilson et al. (2016) It has been demonstrated that price is not always the determining factor in consumer acceptance of sustainable packaging; consumers also influenced by its functional performance like recyclable, reusable, and compostable or hygiene and food safety, shelf life, and ease of use. This result suggests that consumer acceptance towards sustainable packaging is significantly influenced by its price and quality.

In the meantime, online shoppers are willing to pay for sustainable packaging because the price is reasonable based on the excellent functional performance of sustainable packaging. Therefore, packaging converters and the industry should take action to guarantee sustainability and hygiene with additional requirements, including costs, performance, and convenience. If this were fulfilled, the quality of sustainable packaging would be ensured for shoppers and will drive growth, capture value, and improve consumers' acceptance towards sustainable packaging directly.

Hypothesis 2: There is a significant positive relation between the **social value** and the sustainable product packaging acceptance.

According to the results obtained from SPSS analysis, this study also finds out a positive relationship between social value and sustainable product packaging acceptance. Based on previous study of Biswas & Roy (2015) who stated that consumers sustainable behaviours were stimulus by social value. Consumers strongly believed that sustainable product packaging creates a good impression. Their consciousness about the environment showed that they care about the environment and are responsible consumers. According to Veblen & Mills (2017), humans prefer symbolic or conspicuous consumption value over functional utility. In this study, it been evidenced that they prefer to follow group membership (neighborhood, family, and acquaintances) actions like purchasing sustainable packaging and are likely to engage in pro-environmental behavior because they feel their choice as a result of interpersonal communication and information dissemination.

According to Bartels & Hoogendam (2011), stated that Generation Z is the group which the most easily influenced by their peer pressure or role models, because they are still searching their own identify. This proved that social value play is the main influencer in the acceptance of sustainable packaging. Furthermore, social media platforms like Tiktok, Facebook and Instagram also affected and stimulated them to have a positive perspective towards sustainable packaging and choose them in their life.

Hypothesis 3: There is a significant positive relation between the **emotional value** and the sustainable product packaging acceptance.

The findings from Chapter 4 also agreed that emotional value substantially influences consumers' acceptance of sustainable packaging. These results build on existing evidence from (Kumar et al., 2009; Wang et al., 2018). Previous research has supported the idea that emotional value is vital in forecasting consumer purchase intentions. It also performs well in this study because consumers believe their action is preserving the planet, and they experience positive feelings by doing good for their society and environmental responsibility. Based on Higher logic 2018, it stated that consumers always prefer make purchases based on feelings. When shoppers feel their action (buying sustainable packaging) will make him/her a better person, they will

generate positive experiences appeal more to emotion than a static product or service. Finally, they showed more awareness in accepting sustainable product packaging.

Furthermore, these findings are in accordance with findings reported by Wahab et al. (2021); Zailani et al. (2019) stated that emotional value is expected to increase consumers' consumption and acceptance of sustainable packaging and lead them to recognize themselves as environmental defenders. Both rational and moral decision making from consumers encourage them to accept eco-friendly packaging.

Hypothesis 4: There is a significant positive relation between the **epistemic value** and the sustainable product packaging acceptance.

The results of this study show indicate a positive significant relationship between epistemic value and consumers acceptance sustainable product packaging, which is in line with the ideas of Rahnema & Rajabpour (2017) ; Zailani et al. (2019a). There was more concern shown towards sustainable packaging by the consumers who want unique shopping experience and provide novelty value to them. Value proposition of consumers stand as being “new and improved” or “revolutionary.” attract them to try sustainable products which consists of new design, features, and usage experience. The alternative may be chosen because the consumer is bored or satiated with his or her current packaging (as in trying sustainable packaging) because it provides totally new and superior experience like water-soluble packaging or refillable packaging with low costs.

Exploratory, novelty seeking, and variety seeking motives encourages consumers to approach sustainable packaging, finding information about it and gives them a try and repurchase when experiences is satisfied. The marketing of experience economy from Pine & Gilmore (2013) stated that consumers nowadays seeking experience above and beyond products and services. A study from Haris Group showed that younger adult (Generation Z and Millennials) prefers to value their experiences more than their products. Therefore, packaging industry should focus on customer touchpoints and superior experience that will optimize their customer journey and deliver an experience-based, emotional connection with consumers. It may encourage consumers to feel excited about your brand and convince them to buy.

In addition, packaging innovators and FMCG companies should position their product design, material, experience as fundamental value and process in consumers' minds in order to produce positive effect on sustainable packaging acceptance.

Hypothesis 5: There is a significant positive relation between the **conditional value** and the sustainable product packaging acceptance.

Last but not least, from the discussion, one may conclude that there is a positive relation between the conditional value and the sustainable product packaging acceptance. A similar pattern of results obtained in Gugkang et al. (2013); Mohd Suki, (2015); Wang et al. (2018); Zailani et al. (2019b). Based on Sheth et al. (1991), conditional value is obtained from benefits that result from a specific situation in front of the decision-making consumer. In other words, the benefits resulting from these anticipated situations and unexpected events are known as conditional values. Consumers will be further lured to accept sustainable product packaging when additional considerations like financial subsidies from government, availability of sustainable, and mandatory regulations and evidence of reduction of environment issues are being embedded. With additional drivers, it will ultimately influence a consumer's decision choice and acceptance towards sustainable packaging. For example, consumers will prioritize their sustainable packaging choice based on subsidy from government in order to get cheaper price compared to overpacked product packaging.

Hence, government policy makers should emphasize in creating and enabling conditions to allow sustainable packaging market to develop and grow. By emerging action plans and offering incentives, governments can increase investment and provides cash rebate or vouchers to consumers, making sustainable packaging available in variety of supermarket or mandatory regulations about usage of sustainable packaging to generate more occasions for consumers to engage with sustainable packaging awareness and environmental consciousness, and eventually lead to higher likelihood of sustainable packaging acceptance.

4.7 Hypothesis Testing

When dealing with t-statistics, we reject the null hypothesis ($H_0: \beta=0$) if the t value is greater than 1.96 in absolute value with a level of significance of 0.05.

i. Functional value

H_0 : There is significant negative relationship between the functional value and the sustainable product packaging acceptance.

H_1 : There is a significant positive relation between the functional value and the sustainable product packaging acceptance.

Reject H_0 if p lower than 0.05, t higher than 1.96

Based on the table 4.21, the p value of functional value is 0.000 which is lower than 0.05, and t value is 5.174 which is higher than 1.96. We can reject the null hypothesis and conclude because we have sufficient evidence to say that the alternative hypothesis is true. Therefore, H_1 is accepted. There is a significant positive relationship between the functional value and the sustainable product packaging acceptance.

ii. Social value

H_0 : There is significant negative relationship between the social value and the sustainable product packaging acceptance.

H_2 : There is a significant positive relation between the social value and the sustainable product packaging acceptance.

Reject H_0 if p lower than 0.05, t higher than 1.96

Based on the table 4.21, the p value of social value is 0.001 which is lower than 0.05, and t value is 3.417 which is higher than 1.96. We can reject the null hypothesis and conclude because we have sufficient evidence to say that the alternative hypothesis

is true. Therefore, H2 is accepted. There is a significant positive relationship between the social value and the sustainable product packaging acceptance.

iii. Emotional value

H0: There is significant negative relationship between the emotional value and the sustainable product packaging acceptance.

H3: There is a significant positive relation between the emotional value and the sustainable product packaging acceptance.

Reject H0 if p lower than 0.05, t higher than 1.96

Based on the table 4.21, the p value of emotional value is 0.000 which is lower than 0.05, and t value is 4.263 which is higher than 1.96. We can reject the null hypothesis and conclude because we have sufficient evidence to say that the alternative hypothesis is true. Hence, H3 is accepted. There is a significant positive relationship between the emotional value and the sustainable product packaging acceptance.

iv. Epistemic value

H0: There is significant negative relationship between the epistemic value and the sustainable product packaging acceptance.

H4: There is a significant positive relation between the epistemic value and the sustainable product packaging acceptance.

Reject H0 if p lower than 0.05, t higher than 1.96

Based on the table 4.21, the p value of epistemic value is 0.034 which is lower than 0.05, and t value is 2.128 which is higher than 1.96. We can reject the null hypothesis and conclude since we have sufficient evidence to say that the alternative hypothesis is true. Thus, H4 is accepted. There is a significant positive relationship between the epistemic and the sustainable product packaging acceptance.

v. Conditional value

H0: There is significant negative relationship between the conditional value and the sustainable product packaging acceptance.

H5: There is a significant positive relation between the conditional value and the sustainable product packaging acceptance.

Reject H0 if p lower than 0.05, t higher than 1.96

Based on the table 4.21, the p value of conditional value is 0.000 which is lower than 0.05, and t value is 4.868 which is higher than 1.96. We can reject the null hypothesis and conclude that we have sufficient evidence to say that the alternative hypothesis is true. Consequently, H5 is accepted. There is a significant positive relationship between the conditional value and the sustainable product packaging acceptance.

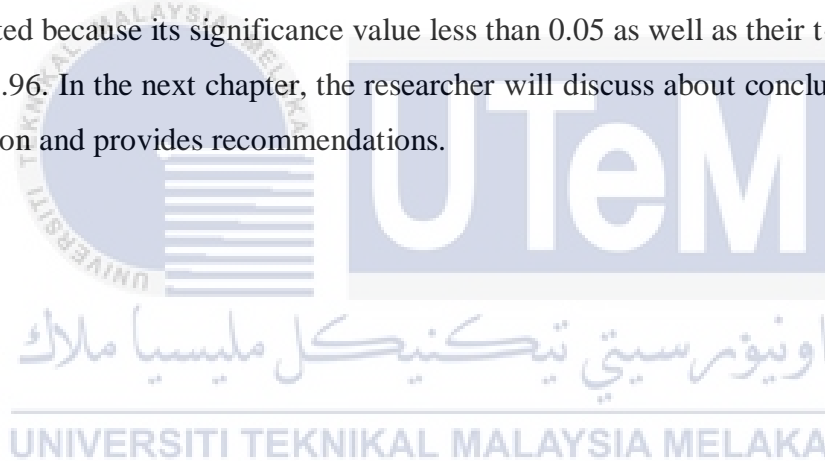
Table 4.17:Hypotheses Results

In summary:

Hypotheses	Result
Hypotheses 1	Accepted
Hypotheses 2	Accepted
Hypotheses 3	Accepted
Hypotheses 4	Accepted
Hypotheses 5	Accepted

4.8 Summary

In a nutshell, the researcher had discussed the data results of 212 survey questionnaires. Until this chapter, researcher successfully did collection of data, analysis of data, interpretation of data and presentation of data in chart form. For descriptive analysis, researcher categorized the demographic questions like gender, age range, status in employment, household income category by percentage and frequency, while for continuous data in independent variables by mean and standard deviation. More than that, data analysis tools (SPSS version 26) also help researcher to define its reliability analysis, Pearson correlation analysis, and multiple linear regression analysis. During this phase, the researcher had derived conclusions about the relationship between the dependent and four independents' variable is moderate strong to strong positive linear relationship. For hypothesis testing, all hypotheses are accepted because its significance value less than 0.05 as well as their t-value all more than 1.96. In the next chapter, the researcher will discuss about conclusion of current situation and provides recommendations.



CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

In this chapter, the researcher will discuss the result from the previous chapter and analyze all the objectives respectively in different subtopics. This chapter will also discuss whether the proposed hypotheses are supported. All research questions will be answered subsequently and finally the achievement of research objectives are determined. Furthermore, the researcher will summarize current studies' arguments or findings and examine the theoretical and practical implications for parties involved in sustainable packaging issues. Finally, the researcher will end with suggestions for future research.



5.1 Summary Descriptive Analysis

Table 5.1: Summary of descriptive analysis of demographic respondents

Demographic	Frequency with Highest Value (mode)	Frequency	Percentage (%)
Gender	Male	116	54.7
Age range	20- 29 years old	71	33.5
Employment Status	Student	46	21.7
Education Level	Bachelor's degree	68	32.7
Household income category	M40 (Between RM4,51 to RM10,970 per month)	104	49.1
How frequently do you purchase sustainable product packaging online?	Once every couple of months	62	29.2%

Most of the respondents shares the same characteristics as male, in the age range of 20-29 years old and have their education level of bachelor's degree. They have their purchases on sustainable packaging online once every couple of months. This is because, majority of Gen Z is emerging as a generation that is willing to spend more for products that meet their sustainability standards. Even though they may not come from high income level, but a desire to help the environment encourage them to purchases sustainable packaging every couple of months. Furthermore, global pandemic (Covid-19) also as a stimulus to cause many younger adults to rethink their consumption and its impact on the health of the planet. It may cause Gen Z to have been consistent in remaining true to their sustainability values while also educating and influencing the generations that came before them.

5.2 Summary of study and research objective achievement

This was conducted for the purpose of determining the factors which influencing consume sustainable packaging acceptance in e-commerce platform. The quantitative method and survey questionnaire served as the instrument for collecting data. All the respondents are selected purposive and convenient sampling techniques to filter the active online shoppers who purchased online past 90 days. Researcher collected 212 valid responses and analyzed by using Statistical Package for the Social Sciences (SPSS). In order to test the relationship between analytical methods and hypothesis testing with research objectives, researcher will start by building a theoretical framework based on the lens of theory of consumption value and synthesizing the results of previous research.

Research objectives, analysis methods, and hypothesis testing have a close relationship with one another. Each research objective requires analytical methods to test research hypotheses. There are two major research questions raised in this study. First research question is what are the factors that influence the sustainable product packaging acceptance among online consumers in e-commerce platform. From the finding showed that all the independent variables which are functional value, social value, emotional value, epistemic value, and conditional value based on theory of consumption value are the importance antecedents have influenced consumer acceptance towards sustainable packaging in e-commerce platform. This is because, all their mean score analysis is at medium-high level, 3.49 to 3.83.

The second question is what the levels of consumers acceptance towards sustainable product packaging in e-commerce platform are. The findings showed that Pearson correlation and MRA was used. In summary, all of the five variables also had a moderately high correlation to the DV which is the consumer acceptance. Consumers also agreed that functional value has the strongest correlation with its dependent variable. Through multiple regression analysis, all 5 hypotheses were accepted. These results were also backed with findings from previous researchers who stated in chapter 4.6. It means all 5 hypotheses are accepted and have positive significant relationship towards sustainable packaging acceptance in e-commerce platform.

5.3 Implications of study

The paper provides a new understanding of the theory of consumption values and relate it with consumer acceptance towards sustainable packaging. By determining the consumer acceptance of sustainable packaging, it provides valuable implications on their decision-making for various parties like FMCG companies, packaging industry and government policy makers and also consumers. Firstly, researcher contributes to the value literature by proposing and testing the roles of theory consumption values on consumer acceptance towards sustainable packaging in e-commerce platform. Through survey questionnaires, it helps the consumers and retail business to forecast the level of acceptance towards sustainable packaging and how the five theory values (functional value, social value, emotional value, epistemic value, and conditional value) affect consumers' consumption. As a result, companies are able to analyse insights and feedback from Chapter 4 and 5 and proactively embrace sustainability issues and their solutions in order to fulfil consumers' needs and wants in designing eco-friendly products' packaging.

5.3.1 Theoretical implication

In terms of theoretical contribution, this study improves on prior research effort to understand consumer acceptance towards sustainable packaging on e-commerce platform. By studying body of literature which associate with consumption-value based perspective, this paper helps consumers be aware of long-term benefits of using sustainable packaging and change their habits in the direction of sustainability, like increasing favouring brands with a commitment to environmental sustainability and making sustainability an important purchase criterion for their purchases. Moreover, the empirical result from current study reveals how the five-consumption values link with consumer sustainable packaging acceptance. The findings presented in this study may help to advance a better thought to all parties who involved in sustainable packaging like consumers, FCMG companies, packaging industry and government regulators. Overall, these findings are in accordance with findings reported by (Rajendran et al., 2019; Wilson et al., 2016) in their study, shown that functional, social, emotional, epistemic, and conditional value are as important drivers and have strongly positive images and effect towards consumer sustainable packaging

acceptance. Researcher able to conclude that sustainable packaging should have functional value based on its cost performance, attractive in packaging design or material, provides new usage experience and delivers social responsibility to consumers from the application of TCV.

In addition, this study clarifies the factors which influencing sustainable packaging acceptance by extending TVC framework. It presents ample explanation of the sustainable packaging acceptance among Melaka and Johor's consumers and eventually widens the mounting literature which aligned with sustainable packaging and sustainable practice with consumers, packaging converters with its value chain. Through current study, packaging industries with right focus and innovation capabilities, the new landscape of sustainable packaging provide significant growth and innovative opportunities to supports consumers in revising their packaging portfolios. As consumer demands and regulatory requirements increase in the future, converters will have to have a proactive approach on sustainability concerns. The contributions and benefits will be maximized when this research framework can be replicated, extended, and further studied and applies it as supporting article to do related article about sustainable packaging.

5.3.2 Practical implication

In the meanwhile, current study provides contributions to retail industries and government regulators on achieving significant progress toward sustainable packaging solutions which more satisfactory to consumers from a practical standpoint. They take the responsibilities of stimulating the core values of sustainable packaging in marketing activities towards encouraging consumers to keep aware of the importance of sustainable packing to preserve the environment and planet.

Finding from chapter 4 and 5 all show all significant positive correlation between each consumption value and consumer acceptance towards sustainable packaging in e-commerce platform. This represents those online shoppers generally accepted sustainable packaging based on these consumption values. With a basic model of five consumptions value, it provides companies directions and business goals so they can engage with green suppliers who integrate environmental policies into their

business processes to make sure their packaging system are met based on their sustainability commitments. Therefore, companies should priority functional value by managing trade-off between performance and cost as well as conventional packaging benefits against sustainability. Furthermore, companies should also pay attention in marketing and design team to explore alternative packaging innovation designs, solutions, and available recycling opportunities to provide unique usage experiences where they can learn something new.

Recognizing the importance of sustainable packaging to achieve sustainable development goals, retail companies and packaging converters should integrate their packaging sustainability goals in their corporate strategy and develop packaging sustainability strategy. As a result, FMCG companies and retailers will collaborate with upstream players, packaging converters, and recyclers in order to make sure their packaging match with consumer demands in terms of sustainability, cost, and convenience. Last but not least, this study successfully to offer different perspectives for key players such as retailer industry, packaging converters and government policy makers to understand the acceptance of sustainable packaging within Johor and Melaka and re-think on their delivery chains with complete packaging redesigns. Sustainable packaging with features of consumer consumption value able to help packaging players stay ahead of the game in marketplace.

5.4 Limitation of study

Even though the study's objectives have been successfully met, our research still has some limitations. Firstly, although the findings showed that five independent variables (functional, social, emotional, epistemic, and conditional value) have a significant relationship with the dependent variable (consumer acceptance towards sustainable packaging), but the exact factors that affect these values are blurred. Secondly, this study may be too population-specific because it only collected data in the selected state of Malaysia, Johor and Melaka. The researcher cannot guarantee its consistency is still available for other states or countries.

Finally, the study was also limited by acquiescence and social desirability bias. Based on the structure of the Likert Scale, which is always uni-dimensional and

provides 5 options of scale (from strongly disagree to agree strongly), it may cause failure to measure respondents' actual attitudes. Respondents may only give “agree” or “strongly agree” responses because they prefer to be viewed favourably by the researcher that they are concerned about environmental awareness and sustainable packaging issues. Additionally, the gap between respondents' expectations and their actual attitudes and acceptance of sustainable packaging led to contradictory data in this study. Therefore, future research is needed to measure the actual behaviour of consumers' attitudes or buying experiences in purchasing sustainable product packaging.

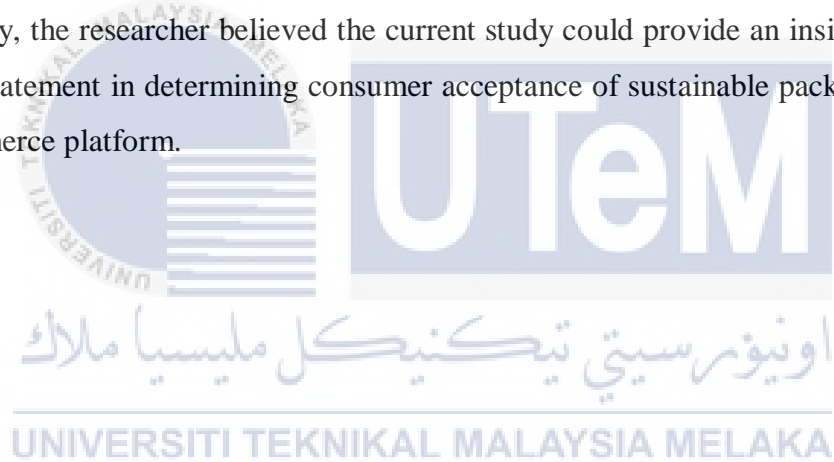
5.5 Recommendation for future research

Based on the above conclusion analysis, researcher recommend that future research on a detailed comparison of two selected sustainable packaging options may extend the explanations of how consumers accept the packaging's strengths and weaknesses based on the theory of consumption value. Re-evaluating a conceptual framework from actual consumer behavior is important for more extensive samples to attain better generalizability of findings. By focusing on five values derived from the TCV, researchers can examine the viewpoints of industrial customers, FMCG enterprises, and the retail industry.

On the other hand, researchers may also include local culture as a moderating variable influencing customer acceptance or preference for sustainable packaging on e-commerce platforms. To determine whether these metrics or criteria are accepted and recognized by most customers in particular regions, additional research could focus on a small, controlled group to examine the relationship between local culture and consumers' adoption of sustainable packaging. Another aspect that could be further investigated is other factors that influence consumer acceptance of sustainable packaging, such as environment effects on the local and worldwide impact, protection & safety concerns, and costs in production processes. These factors could investigate further to assess the impact of moderating and mediating variables in the proposed research framework, thereby increasing the overall explanatory power of the study.

5.6 Conclusion

The study's main objective is to identify the factors that influence sustainable product packaging acceptance among online consumers in e-commerce platforms and to determine the acceptance levels towards sustainable product packaging in e-commerce platforms. In the previous discussions, the outcomes of each objective are reviewed and compared to earlier research and literature. This study used purposive sampling to collect data questionnaires from 212 individuals in the states of Johor and Melaka. It analyzed by SPSS Statistics 26 to evaluate all the data collected from the questionnaires. These statistical techniques revealed that all independent factors have a significant relationship with the dependent variable. Furthermore, this chapter discussed the study's theoretical and practical implications to explain how researchers contributed to sustainable packaging and how it was applied in the marketplace. Finally, the researcher believed the current study could provide an insightful opinion and statement in determining consumer acceptance of sustainable packaging in an e-commerce platform.



REFERENCES

- Adams, R., Jeanrenaud, S., Bessant, J., Overy, P., & Denyer, D. (2012). *Innovating for Sustainability. A Systematic Review of the Body of Knowledge*. NBS.
- Agyeman, C. (2014). Consumers' Buying Behavior Towards Green Products: An Exploratory Study. *International Journal of Management Research and Business Strategy*, 3, 188–197.
- Ahmed, R., Ahmad, N., Parmar, V., & Khoso, I. (2014). Role Of Packaging And Labeling On Pakistani Consumers Purchase Decision. *European Scientific Journal*, 10, 464–473.
- Ajayi, V. (2017). *Primary Sources of Data and Secondary Sources of Data*.
- Al-Kumaim, N. H., Shabbir, M. S., Alfarisi, S., Hassan, S. H., Alhazmi, A. K., Hishan, S. S., Al-Shami, S., Gazem, N. A., Mohammed, F., & Abu Al-Rejal, H. M. (2021). Fostering a Clean and Sustainable Environment through Green Product Purchasing Behavior: Insights from Malaysian Consumers' Perspective. *Sustainability*, 13(22). <https://doi.org/10.3390/su132212585>
- Altheide, D., & Johnson, J. (1988). Criteria for assessing interpretive validity in qualitative research.
- Andrade, C. (2018). Internal, External, and Ecological Validity in Research Design, Conduct, and Evaluation. *Indian Journal of Psychological Medicine*, 40, 498. https://doi.org/10.4103/IJPSYM.IJPSYM_334_18
- Anvar, M., & Venter de Villiers, M. (2014). Attitudes and Purchase Behaviour of Green Products among Generation Y Consumers in South Africa. *Mediterranean Journal of Social Sciences*, 5, 183–194. <https://doi.org/10.5901/mjss.2014.v5n21p183>
- Aydin, G., & Ziya, S. (2008). Pricing Promotional Products Under Upselling. *Manufacturing & Service Operations Management*, 10(3), 360–376. <https://doi.org/10.1287/msom.1070.0187>
- Bartels, J., & Hoogendam, K. (2011). The role of social identity and attitudes toward sustainability brands in buying behavior for organic products. *Journal of Brand Management*, 18(9), 697–708. <https://doi.org/10.1057/bm.2011.3>
- Baumann, H., Boons, F., & Bragd, A. (2002). Mapping the green product development field: Engineering, policy and business perspectives. *Journal of Cleaner Production*, 10, 409–425. [https://doi.org/10.1016/S0959-6526\(02\)00015-X](https://doi.org/10.1016/S0959-6526(02)00015-X)
- Belk, R. W. (1974). An exploratory assessment of situational effects in buyer behavior. In *Journal of Marketing Research* (Vol. 11, Issue 2, pp. 156–163).
- Belle, G. (2008). *Statistical Rules of Thumb*. Wiley Series in Probability and Statistics, 699. <https://doi.org/10.1002/9780470377963>

- Biswas, A., & Roy, M. (2015). Leveraging factors for sustained green consumption behavior based on consumption value perceptions: Testing the structural model. *Journal of Cleaner Production*, 95, 332–340. <https://doi.org/10.1016/j.jclepro.2015.02.042>
- Bolton, R. N., & Drew, J. H. (1991). A Multistage Model of Customers' Assessments of Service Quality and Value. *Journal of Consumer Research*, 17, 375–384.
- Boz, Z., Korhonen, V., & Koelsch Sand, C. (2020). Consumer Considerations for the Implementation of Sustainable Packaging: A Review. *Sustainability*, 12(6). <https://doi.org/10.3390/su12062192>
- Brinker, J., & Gündüz, H. (2016). Optimization of demand-related packaging sizes using a p-median approach. *The International Journal of Advanced Manufacturing Technology*, 87. <https://doi.org/10.1007/s00170-016-8630-4>
- Chekima, B., Wafa, S. A. W. S. K., Igau, O. A., Chekima, S., & Sondoh, S. L. (2016). Examining green consumerism motivational drivers: Does premium price and demographics matter to green purchasing? *Journal of Cleaner Production*, 112, 3436–3450. <https://doi.org/10.1016/j.jclepro.2015.09.102>
- Chen, Y.-S., Hung, S.-T., Wang, T.-Y., Huang, A.-F., & Liao, Y.-W. (2017). The Influence of Excessive Product Packaging on Green Brand Attachment: The Mediation Roles of Green Brand Attitude and Green Brand Image. *Sustainability*, 9(4). <https://doi.org/10.3390/su9040654>
- Cheng, K.-H., Liang, J.-C., & Tsai, C.-C. (2013). The Role of Internet-Specific Epistemic Beliefs and Self-Regulation in High School Students' Online Academic Help Seeking: A Structural Equation Modeling Analysis. *Journal of Educational Computing Research*, 48, 469–489. <https://doi.org/10.2190/EC.48.4.d>
- Cheng, M. H. M., Chan, K., Tang, S., & Cheng, A. (2009). Pre-service teacher education students' epistemological beliefs and their conceptions of teaching. *Teaching and Teacher Education*, 25, 319–327. <https://doi.org/10.1016/j.tate.2008.09.018>
- Cheung, M. F. Y., & To, W. M. (2019). An extended model of value-attitude-behavior to explain Chinese consumers' green purchase behavior. *Journal of Retailing and Consumer Services*, 50, 145–153. <https://doi.org/10.1016/j.jretconser.2019.04.006>
- Classics Cronbach, L. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16, 297–334.
- Clemes, M., Gan, C., & Ren, M. (2011). Synthesizing the Effects of Service Quality, Value, and Customer Satisfaction on Behavioral Intentions in the Motel Industry: An Empirical Analysis. *Journal of Hospitality & Tourism Research - J Hospit Tourism Res*, 35, 530–568. <https://doi.org/10.1177/1096348010382239>
- Creswell, J. (2009). *Research Design: Qualitative, Quantitative, and Mixed-Method Approaches*.
- Curtis, K. (2008). *Conducting Market Research Using Primary Data*.

- Divyapriyadharshini, N., Devayani, S., Agalya, V., & Gokulapriya, J. (2019). Consumer Awareness towards Green Products and Its Impact.
- D'Souza, C., Taghian, M., & Lamb, P. (2006). An empirical study on the influence of environmental labels on consumers. *Corporate Communications: An International Journal*, 11, 162–173. <https://doi.org/10.1108/13563280610661697>
- Dyllick, T., & Hockerts, K. (2002). Beyond the Business Case for Corporate Sustainability. *University of St.Gallen*, 11. <https://doi.org/10.1002/bse.323>
- Elgaaied-Gambier, L. (2014). Who Buys Overpackaged Grocery Products and Why? Understanding Consumers' Reactions to Overpackaging in the Food Sector. *Journal of Business Ethics*, 135. <https://doi.org/10.1007/s10551-014-2491-2>
- Ertz, M., Karakas, F., & Sarigöllü, E. (2016). Exploring pro-environmental behaviors of consumers: An analysis of contextual factors, attitude, and behaviors. *Journal of Business Research*, 69(10), 3971–3980. <https://doi.org/10.1016/j.jbusres.2016.06.010>
- Escursell, S., Llorach-Massana, P., & Roncero, M. B. (2021). Sustainability in e-commerce packaging: A review. *Journal of Cleaner Production*, 280, 124314. <https://doi.org/10.1016/j.jclepro.2020.124314>
- Ferber, R. (1973). Uses Of Applied Mathematics In Political Science. *Policy Studies Journal*, 2(1), 48–51. <https://doi.org/10.1111/j.1541-0072.1973.tb00123.x>
- Gan, C., & Wang, W. (2017). The influence of perceived value on purchase intention in social commerce context. *Internet Research*, 27, 00–00. <https://doi.org/10.1108/IntR-06-2016-0164>
- Georgakoudis, E. D., & Tipi, N. S. (n.d.). An investigation into the issue of overpackaging—Examining the case of paper packaging. 2020, 14(4), 590. <https://doi.org/10.1080/19397038.2020.1780337>
- Georgakoudis, E. D., & Tipi, N. S. (2021). An investigation into the issue of overpackaging—Examining the case of paper packaging. *International Journal of Sustainable Engineering*, 14(4), 590–599. <https://doi.org/10.1080/19397038.2020.1780337>
- Ghauri, P., Grønhaug, K., & Strange, R. (2020). *Research Methods in Business Studies*. <https://doi.org/10.1017/9781108762427>
- Gonçalves, H., Lourenço, T., & Silva, G. (2015). Green buying behavior and the theory of consumption values: A fuzzy-set approach. *Journal of Business Research*, 69. <https://doi.org/10.1016/j.jbusres.2015.10.129>
- Gug kang, A. S., Sondoh, S. L., & Tanakinjal, G. H. (2013). Consumption Values, Environmental Concern, Attitude and Purchase Intention in the Context of Green Products. *International Journal of Global Management Studies Professional*, 5(1).
- Guillard, V., Gaucel, S., Fornaciari, C., Angellier-Coussy, H., Buche, P., & Gontard, N. (2018). The Next Generation of Sustainable Food Packaging to Preserve Our

Environment in a Circular Economy Context. *Frontiers in Nutrition*, 5. <https://doi.org/10.3389/fnut.2018.00121>

Guojie, X., Huang, L., Apostolidis, C., Huang, Z., Cai, W., & Li, G. (2021). Assessing Consumer Preference for Overpackaging Solutions in E-Commerce. *International Journal of Environmental Research and Public Health*, 18, 7951. <https://doi.org/10.3390/ijerph18157951>

Gustavo, J. U., Pereira, G. M., Bond, A. J., Viegas, C. V., & Borchardt, M. (2018). Drivers, opportunities and barriers for a retailer in the pursuit of more sustainable packaging redesign. *Journal of Cleaner Production*, 187, 18–28. <https://doi.org/10.1016/j.jclepro.2018.03.197>

Halder, P., Hansen, E. N., Kangas, J., & Laukkanen, T. (2020). How national culture and ethics matter in consumers' green consumption values. *Journal of Cleaner Production*, 265, 121754. <https://doi.org/10.1016/j.jclepro.2020.121754>

Hassan, Z. (2017). Impact of Social, Epistemic and Conditional Values on Customer Satisfaction and Loyalty in Automobile Industry: A Structural Equation Modelling. *Journal of Marketing and Consumer Behaviour in Emerging Markets*, 1, 29–44. <https://doi.org/10.7172/2449-6634.jmcbe.2017.2.3>

Hill, R., & Hamilton, W. P. (1998). What Sample Size Is “Enough” In Internet Survey Research?

Inns, G. R. (2012). The packaging supply chain.

Jain, P., & Hudnurkar, D. M. (2022). Sustainable packaging in the FMCG industry. *Cleaner and Responsible Consumption*, 7, 100075. <https://doi.org/10.1016/j.clrc.2022.100075>

Jamsheer K. (2019). Impact Of E-Commerce On Society: Advantages And Disadvantages. <https://acowebs.com/impact-e-commerce-society/>

Jensen, A. A., & Agency, E. E. (1998). Life Cycle Assessment (LCA): A Guide to Approaches, Experiences and Information Sources. European Environment Agency. <https://books.google.com.my/books?id=BzAD\ T1yOJwC>

Johansson, G. (2002). Success factors for integration of ecodesign in product development: A review of state of the art. *Environmental Management and Health*, 13, 98–107. <https://doi.org/10.1108/09566160210417868>

Joshi, Y., & Rahman, Z. (2015). Factors Affecting Green Purchase Behaviour and Future Research Directions. *International Strategic Management Review*, 3(1), 128–143. <https://doi.org/10.1016/j.ism.2015.04.001>

Kastanakis, M. N., & Balabanis, G. (2012). Between the mass and the class: Antecedents of the “bandwagon” luxury consumption behavior. *Journal of Business Research*, 65(10), 1399–1407.

Kato, T. (2021). Functional value vs emotional value: A comparative study of the values that contribute to a preference for a corporate brand. *International Journal of*

Information Management Data Insights, 1(2), 100024.
<https://doi.org/10.1016/j.jiime.2021.100024>

Kato, T., & Tsuda, K. (2017). Related Verification of Emotional Value and Company Brand Emitted from Pure Recall. *Procedia Computer Science*, 112, 1298–1307.
<https://doi.org/10.1016/j.procs.2017.08.093>

Kerlinger, F. N. (1973). *Foundations of behavioral research* / Fred N. Kerlinger.

Khan, S. N., & Mohsin, M. (2017). The power of emotional value: Exploring the effects of values on green product consumer choice behavior. *Journal of Cleaner Production*, 150, 65–74. <https://doi.org/10.1016/j.jclepro.2017.02.187>

Kim, Y., Kang, J., & Chun, H. (2022). Is online shopping packaging waste a threat to the environment? *Economics Letters*, 214, 110398.
<https://doi.org/10.1016/j.econlet.2022.110398>

Kim, Y.-K., & Sullivan, P. (2019). Emotional branding speaks to consumers' hearts: The case of fashion brands <https://rdcu.be/bkQYp>. 6, 1.

Kumar, A., Lee, H.-J., & Kim, Y.-K. (2009). Indian consumers' purchase intention toward a United States versus local brand. *Journal of Business Research*, 62, 521–527.
<https://doi.org/10.1016/j.jbusres.2008.06.018>

Kushwah, S., Dhir, A., & Sagar, M. (2019). Ethical consumption intentions and choice behavior towards organic food. Moderation role of buying and environmental concerns. *Journal of Cleaner Production*, 236, 117519.
<https://doi.org/10.1016/j.jclepro.2019.06.350>

Laaksonen, M. (1993). Retail patronage dynamics: Learning about daily shopping behavior in contexts of changing retail structures. *Journal of Business Research*, 28(1), 3–174. [https://doi.org/10.1016/0148-2963\(93\)90024-J](https://doi.org/10.1016/0148-2963(93)90024-J)

Lekesiztürk, D., & Oflaç, B. (2022). Investigating sustainable packaging practices: A framework approach. *Present Environment and Sustainable Development*, 16, 171–186. <https://doi.org/10.47743/pesd2022161013>

Loeb, S. J., Dynarski, S. M., McFarland, D. A., Morris, P., Reardon, S. F., & Reber, S. J. (2017). *Descriptive Analysis in Education: A Guide for Researchers*. NCEE 2017-4023.

Long, M. M., & Schiffman, L. G. (2000). Consumption values and relationships: Segmenting the market for frequency programs. *Journal of Consumer Marketing*, 17, 214–232.

Long-Sutehall, T., Sque, M., & Addington-Hall, J. (2011). Secondary Analysis of Qualitative Data: A Valuable Method for Exploring Sensitive Issues with an Elusive Population? *Journal of Research in Nursing*, 16, 335–344.
<https://doi.org/10.1177/1744987110381553>

- Luo, B., Li, L., & Sun, Y. (2022). Understanding the Influence of Consumers' Perceived Value on Energy-Saving Products Purchase Intention. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.640376>
- Magnier, L., & Schoormans, J. (2015). Consumer reactions to sustainable packaging: The interplay of visual appearance, verbal claim and environmental concern. *Journal of Environmental Psychology*, 44, 53–62. <https://doi.org/10.1016/j.jenvp.2015.09.005>
- Mahbod, K., Nikoomaram, H., & Hamdi, K. and. (2022). Ethical and Social Value Creation of Positive Marketing for the Company, Customer and Community. *International Journal of Ethics & Society*, 4(2). <https://doi.org/10.52547/ijethics.4.2.55>
- Mahenc, P. (2008). Signaling the Environmental Performance of Polluting Products to Green Consumers. *International Journal of Industrial Organization*, 26, 59–68. <https://doi.org/10.1016/j.ijindorg.2006.10.005>
- Mohd Suki, N. (2015). Consumer environmental concern and green product purchase in Malaysia: Structural effects of consumption values. *Journal of Cleaner Production*, 132. <https://doi.org/10.1016/j.jclepro.2015.09.087>
- Monnot, E., Parguel, B., & Reniou, F. (2015). Consumer responses to elimination of overpackaging on private label products. *International Journal of Retail & Distribution Management*, 43, 329–349. <https://doi.org/10.1108/IJRDM-03-2014-0036>
- Mwesiumo, D., & Abdalla, M. J. (2022). Exploring the relative importance of epistemic value, value for money and perceived safety in visitors' evaluation of a destination. *Current Issues in Tourism*, 0(0), 1–6. <https://doi.org/10.1080/13683500.2022.2105197>
- Nekmahmud, M., Naz, F., Ramkissoon, H., & Fekete-Farkas, M. (2022). Transforming consumers' intention to purchase green products: Role of social media. *Technological Forecasting and Social Change*, 185, 122067. <https://doi.org/10.1016/j.techfore.2022.122067>
- Oloyede, O. O., & Lignou, S. (2021). Sustainable Paper-Based Packaging: A Consumer's Perspective. *Foods*, 10(5). <https://doi.org/10.3390/foods10051035>
- Onel, N. (2017). Pro-environmental Purchasing Behavior of Consumers: The Role of Norms. *Social Marketing Quarterly*, 23(2), 103–121. <https://doi.org/10.1177/1524500416672440>
- Pålsson, H., Pettersson, F., & Winslott-Hiselius, L. (2017). Energy consumption in e-commerce versus conventional trade channels Insights into packaging, the last mile, unsold products and product returns. *Journal of Cleaner Production*, 164. <https://doi.org/10.1016/j.jclepro.2017.06.242>
- Pan, C., Lei, Y., Wu, J., & Wang, Y. (2021). The influence of green packaging on consumers' green purchase intention in the context of online-to-offline commerce. *Journal of Systems and Information Technology*, 23, 133–153. <https://doi.org/10.1108/JSIT-11-2019-0242>

- Patel, J. D., Trivedi, R. H., & Yagnik, A. (2020). Self-identity and internal environmental locus of control: Comparing their influences on green purchase intentions in high-context versus low-context cultures. *Journal of Retailing and Consumer Services*, 53, 102003. <https://doi.org/10.1016/j.jretconser.2019.102003>
- Payne, K., & Grey, L. (2014). Quantitative Methodologies. In *An Introduction to Health Services Research*. Sage Publications Ltd.
- Pearson, K. (1908). Mendelian Characters among Shorthorns. *Nature*, 77, 559–559.
- Pine, B. J., & Gilmore, J. H. (2013). The experience economy: Past, present and future. In *Handbook on the experience economy* (pp. 21–44). Edward Elgar Publishing.
- Pinochet, L., Lopes, E., Srulzon, C., & Onusic, L. (2018). The influence of the attributes of “Internet of Things” products on functional and emotional experiences of purchase intention. *Innovation & Management Review*, 15. <https://doi.org/10.1108/INMR-05-2018-0028>
- Poon, S., & Joseph, M. (2001). A preliminary study of product nature and electronic commerce. *Marketing Intelligence & Planning*.
- Pop, R.-A., Saplacan, Z., & Alt, M. (2020). Social Media Goes Green—The Impact of Social Media on Green Cosmetics Purchase Motivation and Intention. *Information*, 11. <https://doi.org/10.3390/info11090447>
- Prabowo, D., & Aji, H. (2021). Visual Packaging and Perceived Emotional Value: A Study on Islamic Branded Cosmetics. *The Southeast Asian Journal of Management*, 15. <https://doi.org/10.21002/seam.v15i1.12995>
- Prendergast Gerard, & Leyland, P. (1996). Packaging, marketing, logistics and the environment: Are there trade-offs? *International Journal of Physical Distribution & Logistics Management*, 26(6), 60–72. <https://doi.org/10.1108/09600039610125206>
- Purwaningsih, I., Surachman, S., Pratikto, P., & Santoso, I. (2019). Influence of Packaging Element on Beverage Product Marketing. *International Review of Management and Marketing*, 9, 205–210. <https://doi.org/10.32479/irmm.8831>
- Qing, G., & Guirong, Z. (2012). The green packaging management for the logistics enterprises. 2012 International Conference on Information Management, Innovation Management and Industrial Engineering, 1, 134–137. <https://doi.org/10.1109/ICIII.2012.6339750>
- Rahnama, H., & Rajabpour, S. (2017). Identifying effective factors on consumers’ choice behavior toward green products: The case of Tehran, the capital of Iran. *Environmental Science and Pollution Research*, 24. <https://doi.org/10.1007/s11356-016-7791-x>
- Rajendran, S., Wahab, S., & Kaur, M. (2019). Malaysian consumers’ preference for green packaging. *International Journal of Society Systems Science*, 11, 312–331. <https://doi.org/10.1504/IJSSS.2019.103629>

Reyes-Menendez, A., Palos-Sanchez, P., Saura, J. R., & Santos, C. R. (2022). Revisiting the impact of perceived social value on consumer behavior toward luxury brands. *European Management Journal*, 40(2), 224–233. <https://doi.org/10.1016/j.emj.2021.06.006>

Roscoe, J. T. (1975). *Fundamental Research Statistics for the Behavioral Sciences*.

Rusyani, E., Rambabu, L., & Gunardi, A. (2021). Purchasing Eco-Sustainable Products: Interrelationship between Environmental Knowledge, Environmental Concern, Green Attitude, and Perceived Behavior. *Sustainability*, 13, 4601. <https://doi.org/10.3390/su13094601>

Salzmann, O., Ionescu-Somers, A., & Steger, U. (2005). The Business Case for Corporate Sustainability: Literature Review and Research Options. *European Management Journal*, 23, 27–36. <https://doi.org/10.1016/j.emj.2004.12.007>

Saunders, M., Lewis, P. E. T., & Thornhill, A. (2000). In *Research Methods for Business Students* (3rd edition).

Saunders, M., Lewis, P., Thornhill, A., & Bristow, A. (2019). “Research Methods for Business Students” Chapter 4: Understanding research philosophy and approaches to theory development (pp. 128–171).

Schiederig, T., Tietze, F., & Herstatt, C. (2012). Green innovation in technology and innovation management – an exploratory literature review. *R&D Management*, 42(2), 180–192. <https://doi.org/10.1111/j.1467-9310.2011.00672.x>

Sekaran, U., & Bougie, R. (2009). *Research Methods for Business: A Skill Building Approach* (5th Edition). In *International Journal of Information Technology and Management—IJITM*.

Sheth, J. N., Newman, B. I., & Gross, B. L. (1991). Why we buy what we buy: A theory of consumption values. *Journal of Business Research*, 22(2), 159–170.

Singh, A., & Masuku, M. (2014). Sampling Techniques and Determination of Sample Size in Applied Statistics Research: An Overview. *International Journal of Commerce and Management*, 2, 1–22.

Stucki, T., Woerter, M., Arvanitis, S., Peneder, M., & Rammer, C. (2018). How different policy instruments affect green product innovation: A differentiated perspective. *Energy Policy*, 114, 245–261. <https://doi.org/10.1016/j.enpol.2017.11.049>

Sukamolson, S. (2007). *Fundamentals of quantitative research*.

Tan, B. C., & Lau, T.-C. (2010). Attitude towards the Environment and Green Products: Consumers’ Perspective. *Management Science and Engineering*, 4.

Terry, D. J., Hogg, M. A., & White, K. M. (1999). The theory of planned behaviour: Self-identity, social identity and group norms. *British Journal of Social Psychology*, 38(3), 225–244. <https://doi.org/10.1348/014466699164149>

- Trivedi, R. H., Patel, J. D., & Acharya, N. (2018). Causality analysis of media influence on environmental attitude, intention and behaviors leading to green purchasing. *Journal of Cleaner Production*, 196, 11–22. <https://doi.org/10.1016/j.jclepro.2018.06.024>
- Turel, O., Serenko, A., & Bontis, N. (2010). User acceptance of hedonic digital artifacts: A theory of consumption values perspective. *Information & Management*, 47, 53–59. <https://doi.org/10.1016/j.im.2009.10.002>
- Tze San, O., Boon Heng, T., & Nur Fatin, K. (2020). Electronic Commerce Adoption among Malaysian SMEs. 2020, 7(19), 555–565. <https://doi.org/10.31838/jcr.07.19.71>
- Veblen, T., & Mills, C. W. (2017). *The theory of the leisure class*. Routledge.
- Wahab, S., Osman, L., Koay, S., & Long, K. (2021). Exploring Green Packaging Acceptance in Fast Moving Consumer Goods in Emerging Economy: The Case of Malaysia. *Logforum*, 17, 503–517. <https://doi.org/10.17270/J.LOG.2021.616>
- Wang, S., Lin, S., & Li, J. (2018). Exploring the effects of non-cognitive and emotional factors on household electricity saving behavior. *Energy Policy*, 115, 171–180. <https://doi.org/10.1016/j.enpol.2018.01.012>
- Williams, K., & Williams, C. (2011). Williams, Kaylene C. and Caroline C. Williams (2011), “Five Key Ingredients for Improving Student Motivation,” *Research in Higher Education Journal*, 12, August, 104-122. *Research in Higher Education Journal*, 12, 104–122.
- Wilson, N., Rickard, B., Saputo, R., & Ho, S.-T. (2016). Food waste: The role of date labels, package size, and product category. *Food Quality and Preference*, 55. <https://doi.org/10.1016/j.foodqual.2016.08.004>
- Xu, X., Hua, Y., Wang, S., & Xu, G. (2020). Determinants of consumer’s intention to purchase authentic green furniture. *Resources, Conservation and Recycling*, 156, 104721. <https://doi.org/10.1016/j.resconrec.2020.104721>
- Yang, M., Mamun, A. A., Mohiuddin, M., Nawi, N. C., & Zainol, N. R. (2021). Cashless Transactions: A Study on Intention and Adoption of e-Wallets. *Sustainability*, 13(2). <https://doi.org/10.3390/su13020831>
- Zahari, A. R. (2020). University Students’ Reactions to Ecologically Responsible Packaging. 331–340. <https://doi.org/10.15405/epsbs.2020.12.05.35>
- Zailani, S., Iranmanesh, M., Hyun, S., & Ali, M. H. (2019a). Applying the Theory of Consumption Values to Explain Drivers’ Willingness to Pay for Biofuels. *Sustainability*, 21, 1–13. <https://doi.org/10.3390/su11030668>
- Zailani, S., Iranmanesh, M., Hyun, S., & Ali, M. H. (2019b). Applying the Theory of Consumption Values to Explain Drivers’ Willingness to Pay for Biofuels. *Sustainability*, 21, 1–13. <https://doi.org/10.3390/su11030668>

Zhang, X., & Dong, F. (2020). Why Do Consumers Make Green Purchase Decisions? Insights from a Systematic Review. *International Journal of Environmental Research and Public Health*, 17(18). <https://doi.org/10.3390/ijerph17186607>



APPENDICES

APPENDIX A CARTA GANTT PSM 1

[illegible]

APPEDIX C QUESTIONNAIRE DESIGN

Dear Respondent,

I am a final year student of Bachelor of Technology Management (High Technology Marketing) With Honours from Universiti Teknikal Malaysia Melaka under the Faculty of Technology Management and Technopreneurship (FPTT) and in the process of completing my Final Year Project (FYP). The title of my FYP is '**Factors that influence consumer sustainable product packaging acceptance**' under the supervision of my supervisor Profesor Madya Dr Norfaridatul Akmaliah Othman. The objectives of this research are to identify the factors that influence the sustainable product packaging acceptance among online consumers in e-commerce platform and determine the levels of consumer acceptance towards sustainable product packaging in e-commerce platforms.

This questionnaire consists of three sections, which are Section A: Demographic background of respondents, Section B: Factors that influence the sustainable product packaging acceptance based on Theory of Consumption Values (TCV) and Section C: Consumer acceptance of sustainable product packaging in e-commerce platform.

Your participation in this research is completely voluntary. The survey should take approximately 10 minutes to answer. Please complete all the items in this questionnaire and respond to it honestly. There is no right or wrong answers to these questions. Your responses will be kept strictly confidential and only to be used for the purposes of this research. If you need any further information, please feel free to contact me at 01110798516 or email me at yizing1229@gmail.com. Thank you for your cooperation.



Bachelor of Technology Management (High Technology Marketing) With Honours
Faculty of Technology Management and Technopreneurship
Universiti Teknikal Malaysia Melaka (UTeM)
 Research Project Survey Questionnaire:

FACTORS THAT INFLUENCE CONSUMER SUSTAINABLE PRODUCT PACKAGING ACCEPTANCE

This questionnaire is consisted of 3 sections: Section A, Section B and Section C. You are kindly required to answer all. Your time and responses are highly appreciated. Thank you.

Statement of Confidentiality:

All of the information is confidential and only will be using for research purposes.

References:

Tan Yi Zing

Bachelor of Technology Management

(High Technology Marketing) With Honours

Profesor Madya Dr Norfaridatul

Akmaliah Othman

Supervisor

Faculty of Technology Management
and Technopreneurship

SECTION A: DEMOGRAPHICS BACKGROUND OF RESPONDENTS
--

This section is survey about the demographic of the respondent. Please tick the appropriate column.

Q1: Gender

	1. Male
	2. Female

Q2: Age range

	1. 20-29 years old
	2. 30-39 years old
	3. 40-49 years old
	4. 50-59 years old
	5. 60 years old and above

Q3: Status in employment

	1. Student
	2. Housemaker
	3. Public sector
	4. Private sector
	5. Self-employed
	6. Unemployed

Q4: Education level

	1. SPM or lower
	2. Diploma/STPM
	3. Bachelor's degree
	4. Master's degree
	5. Doctor of philosophy

Q5: Household income category

1. B40 (less than RM4,850 per month)
2. M40 (between RM4,851 to RM10,970 per month)
3. T20 (exceeding RM10,971 a month)

Q6: How frequently do you purchase sustainable product packaging online?

1. Once a day
2. Once a week
3. Once a month
4. Once every couple of months
5. Once every 6 months
6. Never and rarely



اونيورسيتي تيكنيكل مليسيا ملاك

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

SECTION B:
**FACTORS THAT INFLUENCE THE SUSTAINABLE PRODUCT PACKAGING
 ACCEPTANCE BASED ON THEORY OF CONSUMPTION VALUES (TCV)**

Respondents need to read through all the questions and indicate the agreement level by using the seven-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. Based on the given scale, please TICK (/) one that represents your answer.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

i. Functional value (FunV)

No	Statement	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1	Sustainable packaging has consistency in quality.					
2	Sustainable packaging has acceptable standard of quality.					
3	Sustainable packaging					

	would be economical. (Reusable, recyclable, refillable)					
4	Sustainable packaging is reasonably priced.					
5	Sustainable packaging offer value for the price.					

ii. Social value (SocV)

No	Statement	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1	Using sustainable packaging would help me to feel acceptable.					
2	Using sustainable packaging would make a					

	good impression on other people.					
3	Advice from family and friends would motivate me to use sustainable packaging.					
4	Government initiatives and social media would motivate me to use sustainable packaging.					

iii. Emotional value (EmoV)

No	Statement	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1	Using sustainable packaging would feel like contributing to the environment.					

2	Using sustainable packaging would make me feels morally right.					
3	Using sustainable packaging make me feels like I am a better person.					

iv. **Epistemic Value (EpiV)**

No	Statement	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1	I prefer sustainable packaging when there is a new design or material which attract me.					
2	I prefer sustainable packaging when there is new, unique,					

	and creative innovation.					
3	I prefer sustainable packaging when it provides new experience.					

v. **Conditional Value (ConV)**

No	Statement	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1	I will use sustainable packaging when there is a subsidy by the government or any parties.					
2	I will use sustainable packaging whenever it is available.					
3	I will use sustainable packaging when there is a					

	mandatory legal regulation.					
4	I will use sustainable packaging when there is reduction of environmental issues.					



اونيورسيتي تيكنيكل مليسيا ملاك

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

SECTION C:
CONSUMER ACCEPTANCE OF SUSTAINABLE PRODUCT PACKAGING IN E-
COMMERCE PLATFORM

No	Sustainable packaging acceptance Statement	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1	I am environmentally responsible.					
2	I am aware of the benefit of sustainable products on the environment and human health.					
3	I am aware that environmentally friendly packaged products are available in the market.					
4	I likely to choose non-overpackaged products in e-					

	commerce platform.					
5	I will buy a more expensive product if its packaging is more environmentally friendly.					
6	I will recommend sustainable product packaging to my friends and family.					

Thank you for filling the questionnaire.

I really appreciate your effort and time you devoted to filling the questionnaire. I truly value the information provided by you, as your comments will help me in my analysis.