UNIVERSITI MALAYSIA KELANTAN

Transformation of Technology in the Supply Chain Management and Logistics Industry

ZAMINOR ZAMZAMIR @ ZAMZAMIN
AFIFAH HANIM MD PAZIL
NIK NOORHAZILA NIK MUD
KASMARUDDIN CHE HUSSIN

For information contact: zaminor@umk.edu.my

e-ISBN: 978-629-7555-12-6

First Edition: March 2023

Publish by:
Faculty of Entrepreneurship and Business
Universiti Malaysia Kelantan
City Campus, Pengkalan Chepa
Kota Bharu, Kelantan
Malaysia

PREFACE

The FKP Undergraduate Colloquium 2022/2023 was held in Kampus Kota, Universiti Malaysia Kelantan on 30 January 2023. It was a delightful event with consists of students and lecturers and had many fruitful discussions and exchanges that contributed to the success of the colloquium.

The main objectives of the FKP Undergraduate Colloquium 2022/2023 with the theme "5th Multidisciplinary Research on The Entrepreneurship and Business Colloquium" are to be a platform for students to present and publish their works as well as to share their research progress with their colleagues and expert. Moreover, it gives knowledge to them about high impact of publications and enables them to encourage their understanding of basic research on issues in current logistics. 16 papers for the field of Transformation of Technology in the Supply Chain Management and Logistics Industry from the Logistic and Distributive Trade students were presented during the colloquium.

All in all, the FKP Undergraduate Colloquium 2022/2023 was very successful. The editors would like to express their gratitude to all participants and the committees that have helped in ensuring the smooth sailing of making the colloquium a reality.

Editors:
Zaminor Binti Zamzamir @ Zamzamin
Afifah Hanim Binti Md Pazil
Nik Noorhazila Binti Nik Mud
Kasmaruddin Bin Che Hussin

Graphic designer:
Mohammad Faeez bin Zakaria

Web designer:
Zul Karami bin Che Musa

Faculty of Entrepreneurship and Business
Universiti Malaysia Kelantan
City Campus, Pengkalan
Chepa Kota Bharu, Kelantan
Malaysia

Table of Contents

Factor that Influences Consumers Stance Towards Sustainability Green Packaging in Kota Bharu, Kelantan

Gahyathry A/P Letchmanan, Ursella Mitchell Dass, Nurkamilia Husna, Athirah Musa & Muhamad Saufi Che Rusuli*

Faculty of Entrepreneurship and Business,
Universiti Malaysia Kelantan,
Malaysia

Email: msaufi@umk.edu.my

Abstract: *The goal of sustainable development is to address the societal issues of resource efficiency, raw resources, climate action, and the environment. The promotion of green packaging, or the use of environmentally friendly materials and packaging designs, is thus a crucial strategy. Due to the growing acceptance of environmental protection on a global scale and the idea of sustainable development, eco-friendliness has turned into a fashion statement. In this sense, the logistics sector has begun to pay more attention to green packaging. Thus, Malaysians' awareness of the concept of green packaging is still far from being satisfactory. The aim of the research is to investigate the factors that most influence consumers stance towards sustainability green packaging in Kota Bharu. Besides that, the result of this research could be to determine the level of awareness towards sustainability green packaging. The methodology used to collect using a quantitative research methodology and 348 participants took part in the study was conducted via questionnaire survey through Google form and face to face form. The target population for this survey will be people in Kota Bharu. Last but not least, the results of this study will be helpful for both businesses and marketers in figuring out how to make their green packaging more appealing to consumers.*

Keywords*: Green packaging, sustainability, consumer behaviour, green logistics*

1 Introduction

Green packaging has received a lot of attention in the last 10 years from both consumers and merchants. Additionally, it is consistent with the growing consumer awareness of environmental sustainability. Packaging which is one of the core activities in logistics is intended to be environmentally friendly to reduce environmental issues that arises on by the waste from packaging, in addition to safeguarding or protecting the main product. Green packaging must be considered in the commercial sector as one of the firm's competitive strategies. The discussion of the issue, both for green products and green packaged products, must include one of the emerging markets. The term "green packaging," which is also used to refer to "eco-green packaging," "eco-friendly packaging," "sustainable packaging," or "recyclable packaging," refers to the use of environmentally friendly materials for packaging while always keeping in mind that products must be beneficial and secure for the environment as well as for human health (Wandosell, 2021). Green packagings materials are made of recycled materials and have a high use rate over their full life cycle while having a little negative impact on the environment (Zhang and Zhao, 2012). In addition, numerous publications analyse green packaging issues that has been eyed for a long time from the viewpoint of companies. They cover a broad range of topics, such as the ways in which institutional, technological, and human capacities support the use of eco-design innovation in packaging and its advantages for both brand development and environmental protection (Wandosell, 2021). Therefore, the research objectives of this study as stated below:

1. To investigate the factors that most influence consumer's stance towards sustainability green packaging.
2. To examine the relationship sustainability green packaging towards price.
3. To examine the relationship sustainability green packaging towards quality.
4. To examine the relationship sustainability green packaging towards safety.
5. To examine the relationship sustainability green packaging towards durability.
6. To examine the relationship sustainability green packaging towards knowledge

2 Literature Review

2.1 Previous Studies

Even though conventional packaging played a vital role in the beginning evolution of food distribution systems, although it has since been superseded and is still sufficient given how complicated modern society has become. New packaging with improved functionality is constantly sought after as a reaction to customer expectations for minimally processed foods with fewer preservatives, higher legal requirements, market globalisation, attention to food safety, and the current risk of food bioterrorism. Due to growing environmental consciousness and the demand for high-quality, safe food, packaging materials have evolved dramatically over the past few decades. There is controversy over the role that packaging materials play in the overall sustainability of food operations because research demonstrating the benefits of packaging in terms of the potential to reduce food waste conflicts with the widely held belief that packaging has notable negative environmental effects (Licciardello 2017).

Sustainability Green Packaging utilises resources and manufacturing methods to cut down on energy use and the damaging effects that packaging has on the environment. Instead of traditional materials like plastic and Styrofoam, green packaging solutions usually use biodegradable and recyclable materials. Furthermore, green manufacturing techniques take measures to cut their energy usage and the amount of greenhouse gases they produce (Reclamation 2019). According to previous research, consumers purchase products with green packaging for a variety of reasons. Numerous studies reveal that consumers select these goods for a few factors, including their desire to spend more, their personal tastes, and environmental concerns (Prakash, Choudhary et al. 2019). Even though a substantial part of consumers is willing to pay more for products with ecologically friendly packaging, another customer group asserts that a product's price affects their decision to purchase (Sodhi and Singh, 2017). The concept of quality is complicated. Quality may be used to assess a product or service, to put it simply. Different industries value different qualities. Performance, durability, aesthetics, comfort, safety, finish, speed, competence of maintenance, and value are only a few examples of what could be included in the perceived quality of a airline sector. The ease of check-in, clean of the cabin, quick departure and arrival, security, ease of check-out, comfortable seats, foodstuff, and the attitude of the flight attendants are all examples of airline excellence.

For safety, the idea of food safety as the main factor in sustainable packaging choices must rationally circulate thru an organisation from the top to bottom, with operational processes, product design, advertising, ecologic, social, and organisational governance (ESG), corporate social responsibility (CSR), and sustainability as the decision makers vertical groups. Designing for durability has become important to end-of-life actors, suppliers, service providers, and designers. These days, it is crucial to create items for innovative business models focused on licensing and sterilization techniques. Durability also makes it possible to apply circularity tactics, such as reuse, repair, refurbishment, and remanufacture, to extend the lifespan of products (Mesa, Gonzalez-Quiroga. 2022). Knowledge is described as a consumer's ability to learn more about the info given and how much a consumer learns about the specifics of a product. (Karbala and Wandabori, 2012). Knowledge is the term that included the analysis of the choice, organisation, and value comparison elements related to the product as well. As a tool for forming good or negative opinions about any products or commodities, knowledge can also be used to explain the review stage of a product from various consumer stances.

Conceptual Framework

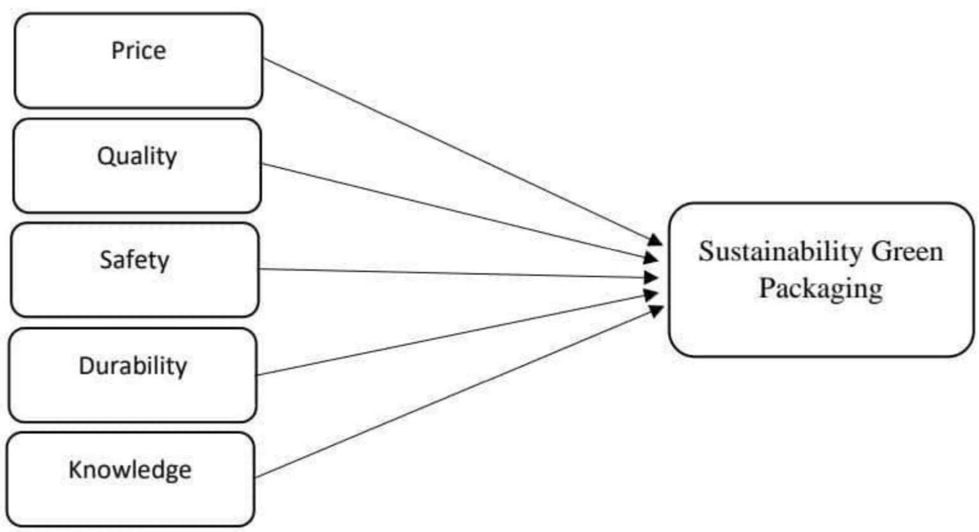


Figure 1: The Conceptual Framework of the Research

3 Research Methodology

As first descriptive analysis is a term for the use of information about the attributes of the variables in a situation with the aim to identify and get understanding detail about the current societal issue as well. (Sekaran, 2013) Reversion analysis is one of the ways as is used when customizing and dissecting several diverse variables part of our study where has a relationship between one or more points of independent variables and dependent variable, and it’s a quantitative approach that is accustomed to interrogating as the nature of the relation between one or more point of independent variables and dependent variable (Dudovskiy 2011). Quantitative research is the technique used in this study to collect and analyze numerical data (Kumar et al., 2013). Quantitative study where the research is intended to take the role of an impartial observer. The selection of a sample that is representative of the population is the goal of quantitative research. To gather the information and data that affects the variables in this study, the researcher will utilize this quantitative method to analyze the feedback from the respondents by distributing the questionnaires online and physical form. In this examination, the study may make use of primary data collection techniques. This study used a quantitative approach to determine consumer awareness of and preferences for eco-friendly packaging. A structured questionnaire was used in the study’s survey methodology.

Target population is a group of individuals that identify as the unit for the findings of research to meet the researcher objective (Thomas & Harden, 2008). Thus, the population for this research would be the consumer of product packaging in Kota Bharu, Kelantan. The population in Kota Bharu area is 1,552,450 people and it is one of the capitals of Kelantan, Malaysia. There are many retail, food and beverage industries as well as residents who often use this packaging product. Therefore, it makes it easier for the researcher to conduct research questionnaire because there are many target respondents in the area. Consequently, the sample size is adequate to accurately reflect the population (Bowen, 2009). Researchers are able to produce conclusions about the population of interest through research. Due to the ambiguity and influence of the sample selection process, the researcher has chosen a sample size of 348 respondents Krejcie and Morgan’s (1970) methodology in order to obtain reliable results. Consumers were questioned about their knowledge of green packaging and preferences for packaged goods with green packaging. A pilot test is a preliminary examination carried out on 30 respondents to confirm the validity and reliability of the questionnaire. Using descriptive statistics like mean, mode, and median, the Statistical Package for the Social Sciences (SPSS) will be used to analyze percentage and frequency data. The associations between a dependent variable and one or more independent variables are then evaluated using regression analysis. When using linear regression or to determine the link between two continuous variables, Pearson's correlation is used.

4 Data Analysis and Findings

4.1 Demographic Profile of Respondents

The demographic profile of the respondents consists of the part of Gender, Race, Age, Academic qualification, monthly income, level of awareness about sustainability Green Packaging and Consumer attitudes about green packaging.

Table 4.1: Table of Level of awareness about sustainability Green Packaging

Gender	Frequency	Percent (%)
Male	97	25.3
Female	287	74.7
Race		
Malay	169	44.0
Chinese	42	10.9

Indian	171	44.5
Others	2	0.5
Age		
20-25 Years Old	212	55.2
26-30 Years Old	80	20.8
31 –35 Years Old	50	13.0
36 Years Old and Above	42	10.9
Academic Qualification		
SPM	71	18.5
STPM/DIPLOMA	117	30.5
Degree	157	40.9
Master	29	7.6
Phd	10	2.6
Monthly Income		
	Frequency	Percent (%)
Below RM 1,000	111	28.9
RM 1,000-RM 1,999	96	25.0
RM 2,000-RM 2,999	91	23.7
RM 3,000-RM 3,999	33	8.6
RM 4,000 and Above	23	6.0

Table 4.2 Level of awareness about sustainability Green Packaging

	Frequency	**Percent (%)**
I completely know about it	177	46.1
I know a bit	198	51.6
I do not know anything	9	2.3
Total	384	100.0

Table 4.3 Consumer attitudes about green packaging

	Frequency	**Percent (%)**
I like to purchase green products which store in the eco-friendly method as it made effortless to recycle or compost.	133	34.6
I'm aware that eco-packaged products are available at Market	123	32.0
I'm able to fee extra to purchase green packaging which help to protect the surrounding	128	33.3
Total	384	100.0

4.2 Descriptive Analysis

4.2.1 Descriptive Statistic for Price

Table 4.4 show the mean and standard deviation for Price. According to this table, the standard deviation for this category shows the value was more reliable because of it less than 1.

Table 4.4 Descriptive Statistic for Price

Descriptive Statistics	**Mean**	**Std. Deviation**
1. I'm eager to choose sustainability green packaging if the cost remains as same as ordinary packaging.	4.40	0.708
2. I'm eager to spend more money on sustainability green packaging.	4.30	0.783
3. I'm eager to spend more money to demonstrate my concern for the environment.	4.39	0.742
4. I'm eager to select sustainability green packaging if can be affordable.	4.46	0.692
5. I'm eager to spend more money on sustainability green packaged products even if they are costly compared to environmentally unfriendly.	4.29	0.851
6. I'm eager to stop buying from companies that disrespect environment even it cost lower that green packaging.	4.37	0.729
7. I'm eager to change the brand choice to buy from companies that care the environment.	4.40	0.765
Valid N (Listwise)	384	

4.2.2 Descriptive statistic for Knowledge

Table 4.5 below show the mean and standard deviation for Knowledge. According to this table, the standard deviation for this category shows the value was more reliable because of it less than 1.

Table 4.5 Descriptive Statistic for Knowledge

Descriptive Statistics	**Mean**	**Std. Deviation**
1. I derive that sustainability of green packaging steers to green consumerism	4.52	0.747
2. I derive that sustainability of green packaging helps to enhance environmental responsibility.	4.41	0.713

3. I derive that sustainability of green packaging contributes to the well-being of society.	4.53	0.704
4. I derive that sustainability of green packaging maintains the planet from pollutants	4.54	0.669
5. I derive that information about sustainability green packaging.	4.47	0.726
6. I derive that supporting environment protection makes me special.	4.58	0.653
7. I derive that my action on sustainability of green packaging makes a difference.	4.49	.666
Valid N (Listwise)	384	

4.2.3 Descriptive statistic for Quality

Table 4.6 below show the mean and standard deviation for Quality. According to this table, the standard deviation for this category shows the value was more reliable because of it less than 1.

Table 4.6 Descriptive Statistic for Quality

Descriptive Statistics		
	Mean	**Std. Deviation**
1. I understand that sustainability green packaging maintains the ingredient of the products.	4.22	0.676
2. I understand that sustainability green packaging prevent the products from any damage.	4.30	0.680
3. I understand that sustainability green packaging more durable compared to traditional packaging.	4.38	0.727
4. I understand that sustainability green packaging quite limited quality.	3.50	1.396
5. I understand that sustainability green packaging safe to use.	4.44	0.695
6. I understand that sustainability green packaging easy disposal.	4.42	0.707
7. I understand that sustainability green packaging biodegradable.	4.49	0.674
Valid N (Listwise)	384	

4.2.4 Descriptive statistic for Durability

Table 4.7 below show the mean and standard deviation for Durability. According to this table, the standard deviation for this category shows the value was more reliable because of it less than 1.

Table 4.7 Descriptive Statistic for Durability

Descriptive Statistics	**Mean**	**Std. Deviation**
1. I will consider that sustainability green packaging will not be replaced or repaired.	4.09	1.111
2. I will consider sustainability green packaging is needed for the production and replacement of material.	4.30	0.728
3. I will consider it encourages the surroundings by preventing reducing waste, resources, and the surrounding effects of replacement and repair.	4.38	0.715
4. I will consider that sustainability green products are durable and reusable.	4.39	0.729
5. I will consider contamination since ecofriendly packaging can easily breakdown.	4.09	1.011
6. I will consider green packaging as better protection for food quality.	4.39	0.714
7. I will consider green packaging as easier to open as well as disclosure.	4.45	0.710
Valid N (Listwise)	384	

4.2.5 Descriptive statistic for Safety

Table 4.8 below show the mean and standard deviation for Durability. According to this table, the standard deviation for this category shows the value was more reliable because of it less than 1.

Table 4.8 Descriptive Statistic for Safety

Descriptive Statistics	**Mean**	**Std. Deviation**
1. I ensure it does not use any kind of material which is harmful to environment.	4.48	0.697

2. I ensure it reduces the harmful impact of packaging on the environment.	4.52	0.670
3. I ensure it is safe due to including biodegradable and recyclable materials in green packaging.	4.52	0.662
4. I ensure it is made from materials that are healthy.	4.55	0.644
5. I ensure that sustainability green packaging is harmful to the environment.	2.12	1.359
6. I ensure green packaging has better hygienic design.	4.40	0.758
7. I ensure green packaging has greater packaging-handling range.	4.45	0.717
Valid N (Listwise)	384	

4.2.6 Descriptive statistic for Consumers' stances towards sustainability green packaging

Table 4.9 below show the mean and standard deviation for Consumers' stances towards sustainability green packaging. According to this table, the standard deviation for this category shows the value was more reliable because of it less than 1.

Table 4.9 Descriptive Statistic for Consumers' Stances Towards Sustainability Green Packaging

Descriptive Statistics	**Mean**	**Std. Deviation**
1. I wish for sustainability green package since I notice that current environment is getting bad.	4.45	0.777
2. I wish for sustainability green package since It is an eco-friendly method.	4.55	0.703
3. I wish for sustainability green package since It will be simpler to recycle.	4.58	0.685
4. I wish for sustainability green package since It encourages high environmental protection.	4.57	0.693
5. I wish for sustainability green package sinceI desire to perceive a setup of a less waste environment.	4.57	0.708

6. I wish for sustainability green package since It will give us a cleaner and safer ocean and environment.	4.60	0.704
7. I wish for sustainability green package since It helps to reduce the usage of natural resources.	4.58	0.670
Valid N (Listwise)	384	

4.3 Hypothesis Testing

4.3.1 Price

H_0: there is no relationship between price and sustainability green packaging in Kota Bharu, Kelantan.
H_1: there is relationship between price and sustainability green packaging in Kota Bharu, Kelantan.

Table 4.10: Output Correlation of Price

	Correlation		
		IV 1	**DV**
Iv 1	Pearson Correlation	1	.760
	Sig. (2-Tailed)		.000
	N	384	384
Dv	Pearson Correlation	.760	1
	Sig. (2-Tailed)	.000	
	N	384	384
** Correlation Is Significant At The 0.01 Level (2-Tailed)			

Table 4.10 shows the interpret data of relationship between price and sustainability green packaging in Kota Bharu, Kelantan. From the result, H0 is rejected because the p-value is 0.00 which is value is less than 0.01 and it show there no significant relationship between the both independent and dependent variables. Therefore, the null hypothesis is rejected and H1 is accepted.

4.3.2 Quality

H_0: there is no relationship between quality and sustainability green packaging in Kota Bharu, Kelantan.
H_2: there is relationship between quality and sustainability green packaging in Kota Bharu, Kelantan.

Table 4.11: Output Correlation of Quality

	Correlation	**IV 2**	**DV**
IV 2	Pearson Correlation	1	.823
	Sig. (2-tailed)		.000
	N	384	384
DV	Pearson Correlation	.823	1
	Sig. (2-tailed)	.000	
	N	384	384

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

Table 4.11 shows the interpret data of relationship between quality and sustainability green packaging in Kota Bharu, Kelantan. From the result, H0 is rejected because the p-value is 0.00 which is value is less than 0.01 and it show there no significant relationship between both independent and dependent variables. Therefore, the null hypothesis is rejected and H2 is accepted.

4.3.3 Safety

$H_{0:}$ there is no relationship between safety and sustainability green packaging in Kota Bharu, Kelantan.
$H_{3:}$ there is relationship between safety and sustainability green packaging in Kota Bharu, Kelantan.

Table 4.12: Output Correlation of Safety

	Correlation	**IV 3**	**DV**
IV 3	Pearson Correlation	1	.649
	Sig. (2-tailed)		.000
	N	384	384
DV	Pearson Correlation	.649	1
	Sig. (2-tailed)	.000	
	N	384	384

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

Table 4.12 shows the interpret data of relationship between safety and sustainability green packaging in Kota Bharu, Kelantan. From the result, H0 is rejected because the p-value is 0.00 which is value is less than 0.01 and it show there no significant relationship between both independent and dependent variables. Therefore, the null hypothesis is rejected and H3 is accepted.

4.3.4 Durability

$H_{0:}$ there is no relationship between durability and sustainability green packaging in Kota Bharu, Kelantan.
$H_{4:}$ there is relationship between durability and sustainability green packaging in Kota Bharu, Kelantan.

Table 4.13: Output Correlation of Durability

Correlation		IV 4	DV
IV 4	Pearson Correlation	1	.607
	Sig. (2-tailed)		.000
	N	384	384
DV	Pearson Correlation	.607	1
	Sig. (2-tailed)	.000	
	N	384	384
** correlation is significant at the 0.01 level (2-tailed)			

Table 4.13 shows the interpret data of relationship between durability and sustainability green packaging in Kota Bharu, Kelantan. From the result, H0 is rejected because the p-value is 0.00 which is value is less than 0.01 and it show there no significant relationship between both independent and dependent variables. Therefore, the null hypothesis is rejected and H4 is accepted.

4.6.5 Knowledge

$H_{0:}$ there is no relationship between knowledge and sustainability green packaging in Kota Bharu, Kelantan.
$H_{5:}$ there is relationship between knowledge sustainability green packaging in Kota Bharu, Kelantan.

Table 4.14: Output Correlation of Knowledge

	Correlation	**IV 5**	**DV**
IV 5	Pearson Correlation	1	.663
	Sig. (2-tailed)		.000
	N	384	384

DV	Pearson Correlation	.663	1
	Sig. (2-tailed)	.000	
	N	384	384
** correlation is significant at the 0.01 level (2-tailed)			

Table 4.14 shows the interpret data of relationship knowledge between and sustainability green packaging in Kota Bharu, Kelantan. From the result, H0 is rejected because the p-value is 0.00 which is value is less than 0.01 and it show there no significant relationship between both independent and dependent variables. Therefore, the null hypothesis is rejected and H5 is accepted.

5 Conclusions

As conclude, research study aimed to investigate the factors that most influence Consumer's stance towards Sustainability Green Packaging in Kota Bharu, Kelantan. All previous research studies in Chapters 1–3 was mostly concerned with determining to examine the relationship quality, safety, durability, and knowledge toward sustainable green packaging in Kota Bharu, Kelantan. This research concludes the key findings, discussions, implications, limitations and recommendations set out in Chapters 4 and 5. The Pearson Correlation Analysis showed that all variables, including price (IV 1), quality (IV 2), safety (IV 3), durability (IV 4) and knowledge (IV 5) had a strong positive relationship on sustainability green packaging in Kota Bharu, Kelantan (DV). Furthermore, all data collection was collected by the researchers themselves through an online questionnaire and the data was analysed by using SPSS software based on descriptive analysis, reliability analysis, Pearson's Correlation Coefficient analysis. As a result, the relationship between the independent variable and the dependent variable was positively associated with the very strong relationship. Finally, the researcher discussed about some of the research's limitations as well as some suggestions for making it better in the future. An overview of this research study is intended as a final statement for this research.

6 Acknowledgements

The Author like to thank and appreciate everyone in general who have been involved in preparing this project directly and indirectly especially to our supervisor.

7 References

Abd Rahim, M.H., Ahmad Zukni, R.Z., Ahmad, F. and Lyndon, N. (2012). Green advertising and environmentally responsible consumer behavior: the level of awareness and perception of Malaysian youth', *Asian Social Science*, 8(5),46–54.

Abdullah, M., Al-Nasser, A. D., & Husain, N. (2000). Evaluating functional relationship between image, customer satisfaction and customer loyalty using general maximum entropy. *Total Quality Management*, *11*(4-6), 826-829.

Ahmed, A., Ahmed, N., & Salman, A. (2005). Critical issues in packaged food business. British Food Journal, 107(10), 760–780.

Alavi, M., & Leidner, D. (2001). Review: Knowledge Management and Knowledge Management Systems. *Conceptual Foundations and Research Issues*, 25(1), 107-136.

Barbara, S. (2012),Puma Embraces Sustainable Packaging with Their Clever Little Bag

Bhardwaj, P. (2019). Types of sampling in research. *Journal of the Practice of Cardiovascular Sciences,* 5(3): 157.

Byrne, S. (2017). Purposeful packaging: Global trends in sustainable packaging confirm that consumers support brands that reflect their values and preferences. Brand Packaging, 21, 2225.

Chen, T.B. and Chai, L.T. (2010). Attitude towards the environment and green products: consumers perspective, *Management Science and Engineering*, 4(2),27–39.

Concept, Be Green Packaging LCC, Malaysia. Retrieved October 09, 2022 from https://begreenpackaging.wordpress.com/ 2012/09/28/puma-embraces-sustainable-packagingwith-their-clever-little-bag-concept/

D'Souza, C., Taghian, M. and Khosla, R. (2007), Examination of environmental beliefs and its impact on the influence of price, quality and demographic characteristics with respect to green purchase intention*, Journal of Targeting, Measurement and Analysis for Marketing*, Vol. 15 No. 2, pp. 69-7

Dey, A., et al. (2021). Challenges and possible solutions to mitigate the problems of singleuse plastics used for packaging food items: a review. *Journal of Food Science and Technology,* 58(9), 3251-3269.

Draskovic, N., Temperley J. and Pavicic, J. (2009). Comparative perceptions of consumer goods packaging: Croatian consumers' perspectives, *International Journal of Management Cases*, 11(2),154–163.

Dudovskiy, J. (2011). "Regression Analysis." Retrieved November 11, 2022, from https://research-methodology.net/about-us/.

Eltayeb, T., & Zailani, S. (2014). Going green through green supply chain initiatives toward environmental sustainability. *Operations and Supply Chain Management: An International Journal*, *2*(2), 93-110.

Groh, K. J., Backhaus, T., Carney-Almroth, B., Geueke, B., Inostroza, P. A., Lennquist, A., ... & Muncke, J. (2019). Overview of known plastic packaging-associated chemicals and their hazards. *Science of the total environment*, *651*, 3253-3268.

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.

Holdway, R., Walker, D., & Hilton, M. (2002). Eco-design and successful packaging. *Design Management Journal*, 13(4), 5.

Hospital, T. H. 2006, "Sampling In Research ". Retrieved November 11, 2022) from https://www.thh.nhs.uk/documents/_Departments/Research/InfoSheets/16_samplin g_researc h.pdf.

Jeong, E. H., Jang, S. C.(H)., Day, J., & Ha, S. (2014). The impact of eco-friendly practices on green image and customer attitudes: An investigation in a café setting. *International Journal of Hospitality Management*, 41, 10-20

Johnson MD, Ettlie JE (2001). Technology, customization, and reliability. J. Qual. Manage., 6(2): 193-210

Juran, J. M.: Quality Control Handbook. McGraw-Hill, New York, 1974.

Karbala, A., & Wandebori, H. (2012, October). Analyzing the factors that affecting consumers purchase intention in Toimoi store, Indonesia. In *2nd International Conference on Business, Economics, Management and Behavioral Sciences* (pp. 80-83).

Kassaye, W. W., & Verma, D. (1992). Balancing Traditional Packaging Functions with the New'Gree. *SAM Advanced Management Journal*, *57*(4), 15.

Kim, Y., & Han, H. (2010). Intention to pay conventional-hotel prices at a green hotel–a modification of the theory of planned behavior. *Journal of Sustainable Tourism*, 18(8), 9971014.

Kimaryo, L. (2011). Integrating environmental education in primary school education in

Kong, W., Harun, A., Sulong, R.S. and Lily, J. (2014). The influence of consumers' perception of green products on green purchase intention, *International Journal of Asian Social Science*, 4(8),924–939.

Korb K. 2012. Conducting Educational Research. Validity of Instruments. Retrieved November 03, 2022 from http://korbedpsych.com/R09eValidity.htm

Kuhn TS. 1996. The structure of scientific revolutions. Chicago: Univ. of Chicago Press. 212

Kumar, P. K., & Anand, B. (2013). Green Marketing: Theory, Practice, and Strategies. *Indian Journal of Marketing*, 43(1), 54-56.

Lawson, E. (2017). 10 Advantages of Green Packaging to the Environment. Retrieved October 28, 2022, from https://greenbusinessbureau.com/blog/10-advantages-of-green-packaging-to the environment/ .

Marsh, K., & Bugusu, B. (2007). Food packaging—roles, materials, and environmental issues. *Journal of food science*, *72*(3), R39-R55.

Martinho, G., Pires, A., Portela, G., & Fonseca, M. (2015). Factors affecting consumers' choices concerning sustainable packaging during product purchase and recycling. *Resources, Conservation and Recycling*, 103, 58-68.

Metcalfe, J. (1986). Feeling of knowing in memory and problem solving. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *12*(2), 288.

Mishra, P., & Sharma, P. (2010). Green marketing in India: Emerging opportunities and challenges. *Journal of Engineering, Science and Management Education*, *3*(1), 9-14.

Mishra, P., Jain, T., & Motiani, M. (2017). Have green, pay more: An empirical investigation of consumer's attitude towards green packaging in an emerging economy. *Essays on Sustainability and Management: Emerging Perspectives*, 125-150.

Mittal B, Walfried ML (1998). Why do customers switch? The dynamics of satisfaction versus loyalty. J. Serv. Mark., 12(3): 177–194.

Molina-Besch, K. (2016). Prioritization guidelines for green food packaging development. *British Food Journal*.

Morel, M., & Kwakye, F. (2012). Green marketing: Consumers Attitude towards Eco-friendly Products and Purchase Intention in the Fast-Moving Consumer Goods (FMCG) sector.

Munnukka, J. (2008). Customers' purchase intentions as a reflection of price perception', *Journal of Product & Brand Management*, 17(3),188–196.

Nelson , B., & Barbara, A. A. (2006). Influence of Wine Packaging on Consumers' Decision to Purchase. *Journal of Foodservice Business Research*, 9(4), 86.

Olsen, M.C., Slotegraaf, R.J. and Chandukala, S.R. (2014) 'Green claims and message frames: how green new products change brand attitude', *Journal of Marketing, September*, 78(5), 119–137

Prakash, G., & Pathak, P. (2017). Intention to buy eco-friendly packaged products among young consumers of India: A study on developing nation. *Journal of Cleaner Production,* 141, 385-393

Rashid, N.R.N.A. (2009). Awareness of eco-label in Malaysia's green marketing initiative', International Journal of Business and Management, 4(8).132–141.

Reclamation, B. B. (2019). "What Is Green Packaging?". Retrieved November 03, 2022, from https://bulkbagreclamation.com/what-is-green-packaging/

Rokka, J., & Uusitalo, L. (2008). Preference for green packaging in consumer product choices – Do consumers care? *International Journal of Consumer Studies*, 32, 516-525

Schellhase R, Hardock P, Ohlwein M (2000). Customer satisfaction in business-to-business marketing: the case of retail organizations and their suppliers. J. Bus. Ind. Mark., 13(2): 106-121.

Sekaran, U., & Bougie, R. (2013). Research methods for business: A skill building approach. John Wiley & sons

Sharratt, M., & Usoro, A. (2003). Understanding Knowledge-Sharing in Online Communities of Practice. *Electronic Journal on Knowledge Management*, 1(2), 187-196.

Sileyew, K. J. (2019). Research design and methodology. In Cyberspace: IntechOpen

Simmonds, G., & Spence, C. (2017). Thinking inside the box: How seeing products on, or through, the packaging influences consumer perceptions and purchase behavior. *Food Quality and Preference*, 62, 340-351.

Singh, G., & Pandey, N. (2018). The determinants of green packaging that influence buyers' willingness to pay a price premium. *Australasian Marketing Journal*, 26(3), 221-230.

Sinnappan, P. and Abd Rahman, A. (2011). Antecedents of green purchasing behaviour among Malaysian consumers, *International Business Management*, 5 (3),129–139.

Sønderskov, K. M., & Daugbjerg, C. (2011). The state and consumer confidence in eco-labeling: organic labeling in Denmark, Sweden, The United Kingdom and The United States. *Agriculture and human values*, *28*, 507-517.

Steenis, N. D., van Herpen, E., van der Lans, I. A., Ligthart, T behavior (2018). *Ecological Economics*, 134, 114-122.

Su, D. N., Duong, T. H., Dinh, M. T. T., Nguyen-Phuoc, D. Q., & Johnson, L. W. Behavior towards shopping at retailers practicing sustainable grocery packaging: The influences of intrapersonal and retailer-based contextual factors. *Journal of Cleaner Production*, 279, 123683.

Wandosell, G., et al. (2021). Green Packaging from Consumer and Business Perspectives. *Sustainability*, 13(3), 1356.

Williams, C. (2007). Research Methods. *Journal of Business & Economics Research (JBER)*, *5*(3).

Yadav, R., & Pathak, G. S. (2016). Young consumers' intention towards buying green products in a developing nation: Extending the theory of planned behavior. *Journal of Cleaner Production*, 135, 732-739.

Zhang, G., & Zhao, Z. (2012). Green packaging management of logistics enterprises. *Physics Procedia*, *24*, 900-905.

Factor that Influences the Intention to Buy Eco-Friendly Packaging Among Young Consumers on the Development of the Logistics Industry in Malaysia

Nur Antasha Alias, Nur Nasirah Pe'in, and Nur Fatihah Mohd Fitri & Muhammad Khalilur Rahman*

Faculty of Entrepreneurship and Business,
Universiti Malaysia Kelantan,
Malaysia

Eemail: khalilur.r@umk.edu.my

Abstract: *Eco-friendly packaging is composed of materials that are easy to recycle and do not consume a lot of energy or natural resources. Sustainable packaging, also known as ecologically friendly packaging, has a significant impact on Malaysia's logistic industry's growth. The development of eco-friendly packaging improves the efficiency of the manufacturing process by lowering the demand for new materials and reducing the company's environmental effect. The proper technique for tackling this issue is to examine the aspects that can impact customers' inclinations to purchase and utilize eco- friendly packaging in their daily lives. A conceptual model consists of several characteristics such as social influence, environmental concern, willingness to pay, and attitude influences the intention of young Malaysian customers to purchase eco-friendly packaging. The researcher chose 353 respondents as the sample size, with young Malaysian consumers as the target demographic. The sample for this quantitative research methodology was chosen using a simple random sampling process. The questionnaire was distributed using Google Form, and 353 participants completed it for this study. The data was analyzed using the Statistical Package for the Social Sciences (SPSS) and partial least squares (PLS) software. Based on the survey questionnaire information, several data analysis procedures such as descriptive analysis, reliability, Pearson correlation, assessment of the measurement model, assessment of the structural model, assessment of the mediating model, and hypothesis testing were performed. This study investigated five hypotheses, and the findings suggest that all variables had a positive significant effect on the intention to purchase eco-friendly packaging. Eco-friendly packaging can help conserve the environment and eliminate the demand for new materials. Furthermore, this study can be used as a reference for academics undertaking future research on customer intentions to buy environmentally friendly packaging.*

***Keywords**: Eco-Friendly Packaging, Logistics Industry, Natural Resources, Recycling, Sustainability.*

1 Introduction

This opening chapter provides a general overview of the full research investigation. This chapter discusses the specifics of the present study issue. The background of the study, problem statement, research question, research objective, study significance, dissertation structure, and summation are all included. The primary focus of this research is on community issues or issues that occur. Due to the lack of research on this topic that has been conducted in the context of Malaysian consumers, the topic of the factor that influences the intention of young consumers to purchase eco-friendly packaging on the development of the logistic industry in Malaysia has been chosen. The management of how resources or inputs are obtained, stored, and transported to their final destination to meet customer demand is referred to as logistic.

Packaging is one of the most common logistical tasks performed by consumers, businesses, the manufacturing industry, and others. Rajendran et al. say that (By focusing on the three pillars of sustainable development—economic, environmental, and social—packaging becomes one of the main elements that can support improvements in the logistical support of sustainable activities. The sustainability of the environment will be affected if packaging is used in an uncontrolled way. The problem of pollution in the environment is getting worse every day. This is caused by the increasingly out-of-control daily activities that people engage in. Both human life and the surrounding environment suffer as a result.

The Department of Environment reports that the number of people polluting the environment as a result of human activities has increased in Malaysia. However, this issue can be resolved by taking proactive measures, such as using environmentally friendly products like eco-friendly packaging, which Malaysians are required to use. According to Prakash and Pathak (2017), consumers today are more motivated to support sustainable development, particularly environmental protection, by purchasing products with eco-friendly packaging. As a result, the purpose of this study was to determine the factors that influence young consumers' intentions to purchase eco- friendly packaging and their impact on Malaysia's logistic industry growth.

1.1 Problem Statement

This study examines the factors that influence young consumers' intentions to purchase eco-friendly packaging in relation to Malaysia's expansion of the logistics sector. The majority of researchers in the previous study looked into whether young consumers' intentions to purchase eco-friendly packaging were significantly influenced by social influence, environmental concern, and willingness. There hasn't been a study done yet that looks at that factor in the context of Malaysian consumers and focuses on young customers. Green packaging practice has been on the rise for a long time in Western nations, but the Malaysian consumer is still unfamiliar with it. In order to convince consumers, particularly young consumers in Malaysia, to purchase and use eco-friendly packaging on a daily basis, this presents a significant obstacle. Malaysia faces a significant obstacle when it comes to ensuring a sustainable development. This is because business organizations do not use eco-friendly packaging. The majority of shops and hypermarkets still use plastic bags for sales, so Malaysians still have a low level of a culture of using environmentally friendly packaging. Rajendran et al.'s study (2019), Malaysians' awareness of the idea of eco-friendly packaging is still very low. Problems arise, particularly within the community, as a result of the absence of an environmental awareness campaign. As a result, Malaysia continues to lag behind in green practices.

1.2 Research Objective

1. To determine the relationship between social influence and the intention to purchase eco-friendly packaging among young consumer, in the development of the logistic industry in Malaysia.
2. To identify the relationship between environmental concern and the intention to purchase eco-friendly packaging among young consumer, in the development of the logistic industry in Malaysia.
3. To determine the relationship between willingness to pay and the intention to purchase eco-friendly packaging among young consumer, in the development of the logistic industry in Malaysia.
4. To examine the relationship between attitude and the intention to buy eco- friendly packaging among young consumer, in the development of the logistic industry in Malaysia.
5. To determine the relationship between the social influence, environmental concern, willingness to pay and mediating effect of attitude toward intention to buy eco-friendly packaging.

1.3 Research Question

1. Is there a relationship between social influence and the intention to purchase eco-friendly packaging among young consumers, in the development of the logistics industry in Malaysia.

2. Is there a relationship between environmental concerns and the intention to purchase eco-friendly packaging among young consumers, in the development of the logistics industry in Malaysia.

3. Is there a relationship between the willingness to pay and the intention to purchase eco-friendly packaging among young consumers, in the development of the logistics industry in Malaysia.

4. Is there a relationship between attitude and the intention to buy eco-friendly packaging among young consumer, in the development of the logistic industry in Malaysia.

5. Is there a relationship between the social influence, environmental concern, willingness to pay and mediating effect of attitude toward intention to buy eco-friendly packaging.

2 Literature Review

According to Sekaran (2000), the literature review demonstrates an exhaustive examination of both previously published and unpublished research papers. This study's literature review is based on journal articles and can be modified to include relevant research topics, theories, contents, and research methods. In addition, the empirical concepts, theories, and models in the literature review that are related to social influence, environmental concern, the willingness, attitude, and intention to purchase eco-friendly packaging studies assist in establishing the research conceptual framework, which is prominently highlighted in this chapter. The purpose of the literature review is to make sure that the research takes into account all of the independent, dependent, and mediating factors, not just a few of them at a time like in previous studies. It can be changed, made, developed, or improved to fill in holes in previous research and direct future researchers in the right direction. The majority of important factors are taken into consideration and described in the intention to buy eco-friendly packaging among young consumers' perspective. Previous research indicates that all variables are not conclusive. According to the findings of this study, the primary determinant is social influence, environmental concern, willingness, attitude, and intention to purchase eco- friendly packaging.

2.1 Intention to Purchase Eco-Friendly Packaging (Dependent Variable)

The term "eco-friendly packaging purchase intention" refers to a buyer's intention to purchase environmentally friendly goods and avoid environmentally harmful ones. People's lives have been made better by rapid advancements in economics and technology, but they have also contributed to environmental issues like climate change, air pollution, and global warming. Green products are organic, non-toxic, friendly to the environment, and primarily made of recycled materials (2010). A person's green buy intention is their willingness to purchase green products when making a purchase decision. A person who consumes in a socially responsible manner is concerned about the food they are consuming and makes an effort to focus on green products in order to effect social change (Moisander, 2007). Eco-friendly packaging is any that can be recycled easily, is safe for people and the environment, and is made of recycled materials. Also known as sustainable or green packaging. Eco-packaging, ecological packaging, green packaging, sustainable packaging, eco-design, design for the environment, and environmentally conscious design are among the terms used by researchers to describe eco-friendly packaging (Boks and Stevels, 2007, Koenig-Lewis et al., 2007). Magnier and Crié (2015), 2014).

2.2 Social Influence (Independent Variable)

Social influence, which is defined as changes in an individual's attitude or behavior as a result of interactions with other people or social groups (Rashotte, 2007), is getting more and more attention. Any alteration in thinking, feeling, or behaving brought on by the presence of other people, even if it is only a figment of one's imagination. Participating in charitable or environmental activities may be characterized as a strong moral obligation (Moser, 2015; (1977, Schwartz) Customers regarded green packaging as "healthy" and "environmentally friendly." They also recommend it to others "highly." Additionally, customers will purchase environmentally friendly products if they believe they will gain social acceptance (Arli et al., 2018). The government and businesses seeking to influence consumer attitude and behavior in terms of environmental consciousness would greatly benefit from understanding the factors that influence customers' intentions to purchase green packaging (van Birgelen et al., 2009). A person's intention to buy green products will be high as well if their social environment shows a high regard for those goals. a study that was carried out by van Birgelen et al. However, the societal influence on the use of environmentally friendly products has received less attention. In conclusion, research on eco-friendly packaging has primarily focused on the individual factors that influence consumers' decisions to purchase environmentally friendly goods. However, the impact of social influence and context has not been investigated. By examining the impact of various social groups as a potential factor in purchasing decisions, this article contributes to the existing literature on eco-friendly packaging.

2.3 Environmental Concern (Independent Variable)

Concerns about the environment are becoming an increasingly significant factor in consumer purchasing decisions. Consumers' overall attitude toward environmental preservation is reflected in their environmental concerns (Chen and Chai, 2010; Wei and co., 2018). It is essential for environmentally conscious consumer behavior. According to Berg (2003), environmental concern emerges as the primary motivator for ecologically responsible behavior. In order to comprehend green consumer behavior, environmental concern is frequently mentioned (Heo & Muralidharan, 2019). These three components are ecological value orientation categories, according to Stern and Dietz (1994). Thompson and Barton (1994) describe these three components as motivating environmental concerns based on the individual's sense of his relationship with the environment. According to Kalafatis et al., the rise in environmentally friendly purchasing habits is inversely proportional to the degree of environmental concern. 1999; Laroche and group, 2001; 2007 (Manakotla and Jauhari). According to Braga Junior et al.'s research, consumers are more likely to purchase environmentally friendly products if they are concerned about the environment. 2014). Their pro-environmental purchasing habits are influenced by environmental concerns. For instance, environmental concern has been shown to positively correlate with intention to purchase eco-friendly packaging (Magnier and Schoormans, 2015, Martinho et al., Prakash and Pathak, 2017, According to Kanchanapibul et al., young customers who are concerned about the environment are more likely to shop green. 2014). Customers, according to Follows and Jobber (2000), weigh environmental concerns against product qualities when purchasing green products.

2.4 Willingness to Pay (Independent Variable)

This concept is officially referred to as someone's willingness to pay for produced goods and services. A variable in this study that measures a person's willingness to pay the price difference between green and non-green goods is called "willingness to pay." A person's intention is their conscious motivation or willingness to put in the effort to perform a particular act. In the current scenario, customers' willingness to pay for environmentally friendly products may be considered a "green buy intention," indicating that they are interested in reducing pollution and are willing to make environmentally friendly purchases. According to Nordin and Selke (2010), consumers are willing to pay for environmentally friendly packaging to some extent. Ajzen asserts that having a stronger intention indicates a greater likelihood of engaging in a particular behavior. In the case of green consumption, empirical data suggests that behavioral intention influences actual behavior. Green products are frequently thought to cost more than regular ones. According to Nasir and Karakaya (2014)a, (2014)b, a barrier to environmentally friendly consumption is the high cost of products.

2.5 Attitude (Mediating)

According to Eggly & Chaiken (1995), attitude is a psychological trait that is demonstrated by evaluating a particular item in light of either positive or negative factors. A person's actions and reactions are influenced by their attitude, according to the ABC theory of attitude. A general attitude, according to Schwartz (1992), is a collection of thoughts about the issue at hand that are translated into actions. According to Kotchen and Reiling (2000), attitudes are important interpreters of behavior, the intention of behavior, and factors that explain individual differences in behavior. An individual's attitudes are formed by examining both the individual's beliefs about an item and their future convictions. According to previous studies, causation occurs in the following order: values, behavior, and attitude (Thgersen & Lander, 2002). This suggests that attitudes are influenced by values, which in turn are influenced by behavior. Green product attitudes are thought to be influenced by awareness of personal hygiene or health awareness, environmental concern or attitude, and perceived quality. According to the findings of this study, people are sensible, act logically, and have a consistent attitude and behavior. A person's behavior is influenced by their attitude, and one aspect of consumer behavior is making purchases. The attitudes of individuals have a significant impact on green purchasing. Customer perceptions of eco-friendly packaged goods influence purchase intent, according to previous research (Ahmed and Varshney, 2011; Limbu and other, 2012). According to Cheah and Phau (2011), environmentally conscious products are more likely to be purchased by consumers. People who are more supportive of eco-friendly packaging are more likely to purchase it. Teenage behavior intention is strongly correlated with attitude, according to meta- analysis research.

2.6 Research Hypothesis

Based on limited information, a researcher's hypothesis is an explanation or interpretive framework. The purpose of hypothesis testing is to determine whether a study's outcomes are the result of chance or a meaningful connection between the variables. The study's hypothesis is based on the connection between young consumers' intention to purchase eco-friendly packaging and social influence, environmental concern, willingness, attitude, and the mediating effect of attitude.

H1: There is relationship between social influence and attitude towards intention to purchase eco-friendly packaging.

H2: There is relationship between environmental concern and attitude towards intention to purchase eco-friendly packaging.

H3: There is relationship between willingness and attitude towards intention to purchase eco-friendly packaging.

H4: There is relationship between attitude and intention to purchase eco-friendly packaging.

H5: There is relationship between social influence, environmental concern, willingness and mediating effect of attitude towards intention to purchase eco- friendly packaging.

2.7 Research Framework

A conceptual framework, according to Sekaran (2003), is a model of how one theory makes logical sense of the relationship between the various parts of the problem that have been identified as being important. A research framework was used to investigate the relationship between independent and dependent variables. Social influence, environmental concern, and willingness to pay are the independent variables. The intention to purchase environmentally friendly packaging is the dependent variable, with attitude serving as a mediator. Figure 1 depicts the research framework for this study.

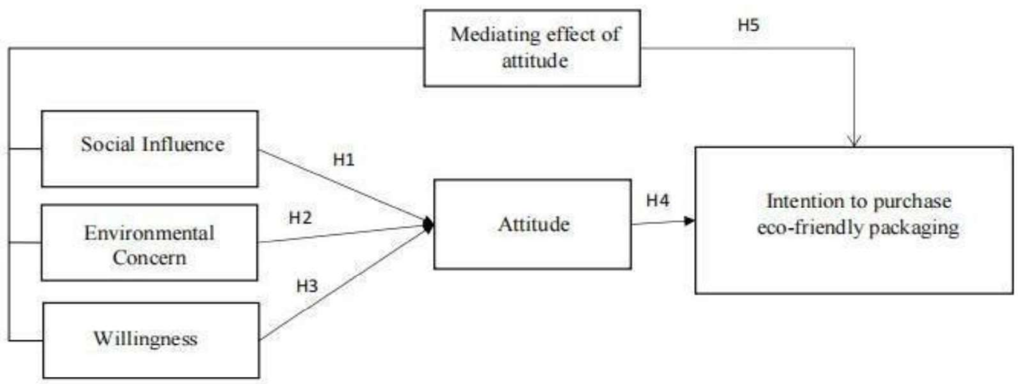


Figure 1: Research Framework

3 Methodology

3.1 Research Design

A correlational cross-cross sectional research design was used in this study, which employed a quantitative research strategy. An online survey was used to collect the data. An online survey, according to Hair, Black, Babin, and Anderson (2010), can assist in reducing process errors. This study begins with theory and empirical evidence to support the theory. It then conducts exploratory research to quantify the impact of young customer intention to purchase eco-friendly packaging on logistics sector development.

3.2 Data Collection

The online questionnaire was created with the help of Google Forms. After that, the researcher's personal contacts and social media platforms like Facebook and WhatsApp were used to distribute the link to the online questionnaire. There were 353 people who answered this study. The four sections of the questionnaire are A, B, C, and D. In Section A, questions about gender, age, race, marital status, education level, and occupation are included. The measurement of the independent and dependent variables can be found in sections B and C, while the measurement of the mediating variables can be found in section D. Both of these sections make use of a 5-point Likert scale, with 1 denoting strongly disagree and 5 denoting strongly agree.

3.3 Sampling

In this study, the purposive non-probability method was used because the sampling frame was unavailable. The researcher chose young consumers in Malaysia who were between the ages of 15 and 24 and expected to comprehend the concept of "eco-friendly packaging." Because the respondents had to meet certain requirements in order to be selected as respondents, the purposive sampling method was appropriate for this study. Based on conceptual frameworks, non-probability sampling methods are appropriate for studying theoretical impact (Hulland et al., 2017; Rahayu, Hayat, Ngah, Hashim, Dahri, and Malik, 2019).

3.4 Data Analysis

In light of the study's exploratory nature (Hair et al., 2017), the Partial Least Squares Structural Equation Modeling (PLS-SEM) method and IBM SPSS Statistics were used to analyze the data.

4 Finding

4.1 Result of Frequency Analysis

Table 4.1: Frequency Analysis

Characteristics	Frequency	Percentage (%)
Gender		
Male	83	23.5
Female	270	76.55
Age		
15 – 17 years	14	4.00
18 – 20 years	64	18.1
21 – 24 years	275	77.9
Race		
Malay	269	76.2
Chinese	38	10.8
Indian	35	9.9
Other	11	3.2
Marital Status		
Single.	332	94.1

Married.	21	5.90
Highest Education		
SPM	32	9.1
STPM	45	12.7
Diploma	52	14.7
Degree	217	61.5
Other	6	2.1
Occupation		
Employed.	59	16.7
Self-Employed.	8	2.30
Student.	277	78.5
Unemployed.	9	2.50

In this study, the researcher used a Google Form to distribute a questionnaire to the young Malaysian consumers who were the study's target audience. There were 353 people who answered the questions in this study. The demographic profile is one important piece of information that the researcher needed to get from the respondents in order to finish this study. The respondents will first fill out a demographic profile that includes their gender, age, race, marital status, highest level of education, and occupation before continuing to answer the questionnaires that are related to this study on the Google form. The Malaysian young adults who responded are listed in Table 1; 76.5 percent of respondents were women, and the remaining 32.5 percent were men. There was a wide range of age among the respondents; 4.0% of respondents were between the ages of 15 and 17; 77.6% of respondents were between the ages of 21 and 24, and 18.1% were between the ages of 18 and 20. The majority of respondents were Malay (76.2 percent), followed by Indians (10.8%), Chinese (9.9%), and other races (3.2%). 5.90% of respondents were unmarried, while 94.1% were married. In terms of education level, the respondents had a SPM (9.1%), STPM (12.7%), Diploma (14.7%), and Degree (61.5%) for more than half of the respondents. Only 2.10 percent of respondents had a higher level of education. Last but not least, the descriptive analysis revealed that the majority of respondents (78.5%) were students, while 16.7% were employed either by the government or another organization. The remaining 2.30 percent of respondents work for themselves, and the remaining 2.50% are unemployed.

4.2 Result of Descriptive Analysis

Table 4.2: Descriptive Statistic

Descriptive Statistic			
	N	**Mean**	**Std. Deviation**
Social Influence.	353	3.8459	0.88256
Environmental Concern.	353	4.0527	0.76355
Willingness to Pay.	353	3.7694	0.92058
Attitude.	353	4.1558	0.75909

Intention to buy eco- friendly packaging among young consumer on the development of the logistic industry in Malaysia.	353	4.1309	0.83936
Valid N (listwise).	353		

The descriptive statistics for the independent, mediating, and dependent variables are shown in table 4.2. The values of the mean and standard deviation for the independent variables (social influence, environmental concern, and willingness to pay), the mediating variable (attitude), and the dependent variable (intention to purchase eco- friendly packaging among young consumers on the development of the logistic industry in Malaysia) are shown in the table. There were 353 people who took part in this study and filled out the questionnaire, which primarily targeted Malaysian young consumers between the ages of 15 and 24.

According to table 4.2, the mediating variable—attitude—has the highest mean, which is 4.1558, with a standard deviation of 0.75909. The dependent variable— intention to buy eco-friendly packaging among young consumers on the development of the logistic industry in Malaysia—has the lowest mean, which is 4.1309, with a standard deviation of 0.83936. Other than that, the independent variables' mean values are 4.0527 for environmental concern and 3.8459 for social influence, respectively, with a standard deviation of 0.88256. The independent variable, willingness to pay, has a mean of 3.7694 and a standard deviation of 0.92058.

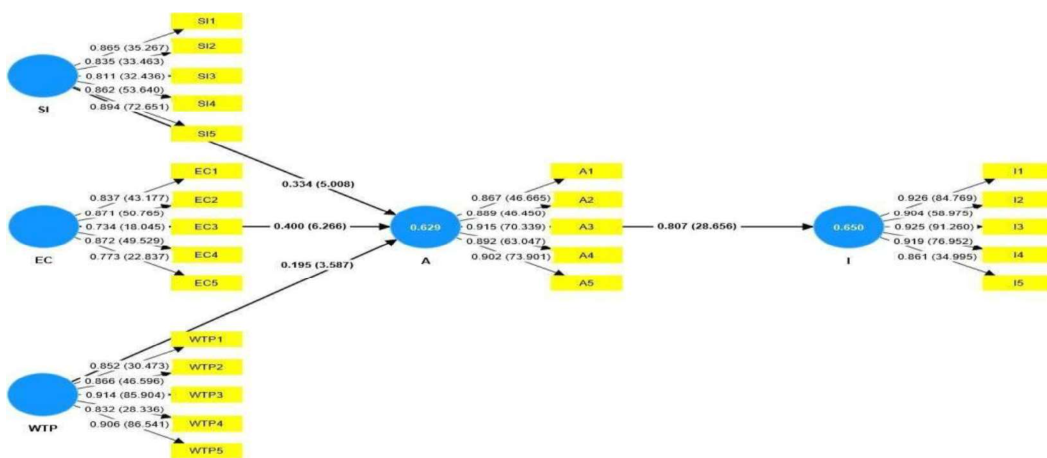
4.3 Result of Measurement Model Analysis

Table 4.3: Measurement Model (Construct Reliability and Validity)

Construct	Items	Loadings	Cronbach alpha (α)	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Social Influence	SI1	0.865	0.907	0.912	0.931	0.729
	SI2	0.835				
	SI3	0.811				
	SI4	0.862				
	SI5	0.894				
Environmental Concern	EC1	0.837	0.876	0.879	0.910	0.671
	EC2	0.871				
	EC3	0.734				
	EC4	0.872				
	EC5	0.773				
Willingness To Pay	WTP1	0.852	0.923	0.927	0.942	0.765
	WTP2	0.866				
	WTP3	0.914				
	WTP4	0.832				
	WTP5	0.906				

Attitude	A1	0.867	0.937	0.938	0.952	0.798
	A2	0.889				
	A3	0.915				
	A4	0.892				
	A5	0.902				
Intention to purchase eco-friendly packaging	I1	0.926	0.946	0.948	0.959	0.823
	I2	0.904				
	I3	0.925				
	I4	0.919				
	I5	0.861				

If the obtained value is greater than 0.5, the average variance extracted (AVE) value is greater than 0.5, and the composite reliability (CR) value is greater than 0.7, the measurement model is deemed valid and reliable (Rana et al., 2017). Consequently, the study discovered that the investigation does not pose a problem for convergent validity. All of the conditions necessary to establish convergent validity have been met based on the obtained values. Consequently, the measurement model's convergent reliability is summarized in Table 4.33. With a Cronbach's alpha value of 0.907 and an AVE value of 0.729, the data can be considered valid and reliable. Next, the AVE value is 0.671 and the cronbach's alpha value for environmental concern is 0.876, indicating a valid value. Cronbach's alpha for willingness to pay is 0.923, which is acceptable when compared to the AVE value of 0.765. In addition, the AVE value of 0.798 and the cronbach's alpha value of 0.937 for attitude are both acceptable and valid. Last but not least, the AVE value is 0.823 and the cronbach's alpha value is 0.946 for the intention to purchase environmentally friendly packaging, both of which are valid and reliable.



Note: SI= Social Influence; EC= Environmental Concern; WTP= Willingness To Pay; A= Attitude; I= Intention

Figure 2: Structural Model and Measurement Model

4.4 Result of Mediating Model Analysis

Table 4.4: Summarized Results of Mediating Model

	Loading	Cronbach alpha (α)	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
SI1	0.865	0.907	0.912	0.931	0.729
SI2	0.835				
SI3	0.811				
SI4	0.862				
SI5	0.894				
EC1	0.837	0.876	0.879	0.910	0.671
EC2	0.871				
EC3	0.734				
EC4	0.872				
EC5	0.773				
WTP1	0.852	0.923	0.927	0.942	0.765
WTP2	0.866				
WTP3	0.914				
WTP4	0.832				
WTP5	0.906				

As a result, five items were looked at, and the mediation model's summary results for social influence are shown in table 4.4. The obtained Cronbach's Alpha value is as high as 0.907, which is higher than the target of 0.70. This indicates that the data and fit index results are well achieved in a mediation model that is suitable and satisfactory. In point of fact, the obtained mediation model 1 for social influence exhibited strong convergent validity, reliability, and multidimensionality evidence. The composite reliability (CR) is greater than 0.7, indicating that the data are valid and trustworthy, and the average variance extracted (AVE) is 0.729. The analysis of five items and the summary results of the mediation model for environmental concern are shown in table 4.6. The mediation model's Cronbach's Alpha is 0.876, which is higher than the recommended value of 0.70. All fit indices' results are in a good fit, and the mediation model's fit to the data is satisfactory. Indeed, the convergent validity, reliability, and multidimensionality of the second mediation model for environmental concern elements were strongly demonstrated. The composite reliability (CR) is greater than 0.7, indicating that the data are valid and trustworthy, and the average variance extracted (AVE) is 0.671.

Five items have been analyzed on the basis of the table above, and the mediation model's formulation for the factor of willingness to pay is also shown in this table. With a Cronbach's Alpha of 0.923, it is recommended that the mediation model exhibits a good fit to the data and that all fit indices yield good results. In fact, the convergent validity, reliability, and multidimensionality of the three-mediated model of willingness to pay were well-established. The composite reliability (CR) is greater than 0.7, which indicates that the data are valid and reliable, and the average value of variance extracted (AVE) was found to be 0.765.

4.6 Result of Discriminant Validity

Table 4.5: Discriminant Validity Using HTMT Criterian

	A	EC	I	SI	WTP
Attitude					
Environmental Concern	0.765				
Intention to purchase eco-friendly packaging	0.854	0.637			
Social Influence	0.735	0.619	0.697		
Willingness To Pay	0.675	0.610	0.533	0.702	

Table 4.6: Fornell- Larcker Criterion

	A	EC	I	SI	WTP
Attitude	0.893				
Environmental Concern	0.693	0.819			
Intention to purchase eco-friendly packaging	0.807	0.582	0.907		
Social Influence	0.682	0.555	0.650	0.854	
Willingness To Pay	0.630	0.550	0.500	0.642	0.875

The evaluation of the construct's discriminant validity, which demonstrates that it is statistically distinct from other constructs (Hair et al., 2019). This analysis can use a variety of discriminant validity measures. However, the Hetrotrait-Monotrait (HTMT) and Fornell-Larcker (Fornell & Larcker, 1981) The correlation ratios (Henseler, Ringle, & Sarstedt, 2015) are extremely significant. HTMT, as the latter is a brand-new technique that is preferred for evaluating discriminant validity in PLS-SEM. As a traditional measure of discriminatory validity, Fornell-Larker has historical value (Hair et al., 2019). Table 4.5 displays the Forkell-Larker value reading. The current study used HTMT values to measure discriminant validity, following Buil, Martnez, and Matute's (2019) previous PLS research. According to Franke & Sarstedt (2019), the HTMT criteria are satisfied when all values are less than 0.90. The discriminant validity set based on the HTMT criteria is shown in Table 4.6 above. It is possible to draw the conclusion that the respondents are aware that the provided construct is distinct. All of the measurement items passed the validity test and were found to be legitimate and reliable.

Table 4.7: Cross Loadings

	A	EC	I	SI	WTP
A1	0.867	0.602	0.666	0.606	0.577
A2	0.889	0.612	0.677	0.568	0.582
A3	0.915	0.666	0.745	0.615	0.545
A4	0.892	0.594	0.719	0.588	0.532
A5	0.902	0.621	0.786	0.663	0.579
EC1	0.562	0.837	0.450	0.402	0.456
EC2	0.578	0.871	0.459	0.419	0.481
EC3	0.513	0.734	0.398	0.430	0.384
EC4	0.592	0.872	0.533	0.471	0.421

EC5	0.589	0.773	0.534	0.546	0.503
I1	0.787	0.565	0.926	0.656	0.514
I2	0.735	0.516	0.904	0.601	0.479
I3	0.736	0.548	0.925	0.556	0.415
I4	0.726	0.531	0.919	0.544	0.430
I5	0.667	0.476	0.861	0.588	0.426
SI1	0.543	0.494	0.549	0.865	0.535
SI2	0.567	0.434	0.511	0.835	0.527
SI3	0.519	0.400	0.500	0.811	0.577
SI4	0.657	0.546	0.639	0.862	0.535
SI5	0.609	0.482	0.560	0.894	0.574
WTP1	0.479	0.476	0.379	0.537	0.852
WTP2	0.596	0.546	0.453	0.590	0.866
WTP3	0.546	0.496	0.418	0.557	0.914
WTP4	0.533	0.446	0.481	0.526	0.832
WTP5	0.587	0.438	0.449	0.592	0.906

Cross-loading refers to the condition in which a given item should have a higher loading on its own parent construct than on any other constructs in the study. There is a problem with discriminant validity if an item loads well on another construct in comparison to its own parent construct. Cross-loading occurs when a variable has more than one significant loading, depending on the sample size. This makes it difficult to label all factors that share the same variable and, as a result, makes it difficult to make distinct factors representative concepts. can be seen in the list of changes that have been made. Where it may be necessary to remove items from the model, model fit will not be optimal. Cross-loadings with very few constructs suggest that the discriminant validity is high. Cross-loadings are common items for the same construct, and bolded items in the table represent factor loadings for each construct. This is evident from table 4.7.

4.7 Result of Direct Hypothesis Analysis

Table 4.8: Hypothesis Testing

	Relationship	Std Beta (ß)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	onfidence Interval		VIF	Decision
						LL	UL		
H1	SI -> A	0.334	0.067	5.008	0	0.473	0.627	2.882	Supported
H2	EC -> A	0.4	0.064	6.266	0	0.610	0.773	2.824	Supported
H3	WTP -> A	0.195	0.054	3.587	0	0.429	0.580	2.755	Supported
H4	A -> I	0.807	0.028	28.656	0	0.748	0.859	2.760	Supported
H5	IV -> A-> I	0.634	0.035	18.304	0	0.567	0.701	2.960	Supported

Note: UL= Upper Level, LL= Lower Level

According to the first hypothesis, attitude was positively correlated with social influence (ß = 0.334, t = 5.008, LL = 0.473, UL = 0.627, p 0.000), as shown in Table 4.8 above. The second hypothesis found a correlation between attitude and environmental concern (ß = 0.400, t = 6.266, LL = 0.610, UL = 0.773, p 0.000). Next, the third hypothesis states that attitude was associated with willingness to pay (ß = 0.195, t = 3.587, LL = 0.429, UL = 0.580, p 0.000). The fourth hypothesis, which states that attitude is also related to intention (ß = 0.807, t = 28.656, LL = 0.748, UL = 0.859, p 0.000), comes after this one. Last but not least, the fifth hypothesis found a positive correlation between intention and social influence, environmental concern, willingness, and the mediating effect of attitude (ß = 0.634, t = 18.304, LL = 0.567, UL = 0.701, p 0.000). Five of the model's direct hypotheses were found to be significant, as shown in Table 4.8; As a result, H1, H2, H3, H4, and H5 were approved and backed.

5 Discussion and Recommendation

Even though all kinds of research have their limitations, these projects often lead to new discoveries that make people want to use or buy environmentally friendly packaging. The following sections offer opportunities for additional research in this area in light of the research carried out in this study. The majority of respondents to this study are Malaysians between the ages of 15 and 24 who live in Peninsular Malaysia. In addition, young non-adult users over the age of 25 should be included in future research. This will also make it easier to compare the sample that was studied based on the intention to buy environmentally friendly packaging. This is about social influence, environmental concern, and willingness to use mediation, which is the attitude that will make people aware of how important it is to use products that are good for the environment.

As a result, other study designs, such as experimental studies with interventions to investigate the causal relationship between predictors and burnout, can enhance this study's contribution. To reach a conclusion regarding the tested hypothesis, this kind of study design is essential. In addition, marker variables should be tested in future research to avoid the common method bias caused by self-reported measurements. Multiple informants can also be used in future studies to improve the validity of the findings. To avoid common method bias caused by self-reported measurements, it is also recommended that future studies test for marker variables. Multiple informants can also be used in future studies to improve the validity of the findings. Additionally, as a suggestion for future research, future studies can examine the intention of adults in Malaysia to purchase environmentally friendly packaging. The analysis of these two components and their intention to purchase environmentally friendly packaging is valuable because it will provide additional information. clarification regarding the significance of constructs in representing eco-friendly products.

Finally, in order to investigate attitudes toward the intention to purchase environmentally friendly packaging, it is important to investigate the addition of factors that influence the intention to purchase environmentally friendly packaging, such as individual negative thoughts or the personality of young adults. As a result, the extended model of the research framework should be further improved by examining whether including additional factors related to the intention to purchase eco-friendly packaging will increase young consumers' interest in eco-friendly products.

6 Conclusion

The intention of young Malaysian consumers to purchase environmentally friendly packaging is included in this study's scope. The results' statistical significance was also assessed with the help of the SEM-PLS method. Our research has demonstrated that TAM and TRA can serve as a solid theoretical foundation for describing the independent variables and outcomes of young Malaysian consumers' intentions to purchase eco-friendly packaging.

In addition, the primary objective and intention of this study is to provide a deeper comprehension of young Malaysian consumers' intentions regarding the purchase of environmentally friendly packaging. This study proposes and validates a model that incorporates social influence, environmental concern, willingness to pay, and attitude mediation in order to accomplish this goal.

Social influence was found to be positively correlated with the intention to purchase environmentally friendly packaging, and perceived environmental concern was also found to be positively correlated with the intention, according to the proposed model developed in this study. In the meantime, intention was positively correlated with willingness to pay. However, it was discovered that intention was also positively correlated with attitude. For the majority of the hypotheses tested, the findings had a high statistical significance overall. The study's statistical findings lead us to the conclusion that this model has higher predictive power than the baseline model.

7 References

Ahmad, H., & Halim, H. (2017). Determining sample size for research activities. *Selangor Business Review*, 20-34.

Ajzen, I., 1991. The theory of planned behavior. Organ. Behav. Hum. Decis. Process. 50 (2), 179e211

Analysis of Research Methodology and Research Methods. (2022, July 14). *Edubirdie.*https://edubirdie.com/examples/analysis-of-research-methodology- and-research methods/

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin,103*(3),411–423. https://doi.org/10.1037/0033-2909.103.3.411

Akhtar, M. I. (2016). Research Design. Research in Social Science: *Interdisciplinary Perspectives*, 68

Al Mamun, A.; Fazal, S.A.; Ahmad, G.B.; Yaacob, M.R.B.; Mohamad, M.R. (2018). Willingness to Pay for Environmentally Friendly Products among Low-Income Households along Coastal Peninsular Malaysia. Sustainability, 10, 1316.

Asiamah, N., Mensah, H. K., & Oteng-Abayie, E. F. (2017). General, target, and accessible population: Demystifying the concepts for effective sampling. *The qualitative report*, *22*(6), 1607.

Asim, Z.; Shamsi, I.R.A.; Wahaj, M.; Raza, A.; Abul Hasan, S.; Siddiqui, S.A.; Aladresi, A.; Sorooshian, S.; Seng Teck, T. Significance of Sustainable Packaging: A Case-Study from a Supply Chain Perspective. Appl. Syst. Innov. 2022, 5, 117.

Attitude. (2022). In *The Merriam-Webster.com Dictionary*. Retrieved October 03, 2020, from https://www.merriam- webster.com/dictionary/attitude

Bhardwaj, P. (2019). Types of sampling in research. *Journal of the Practice of Cardiovascular Sciences*, *5*(3), 157.

Bujang, M. A., Omar, E. D., & Baharum, N. A. (2018). A review on sample size determination for Cronbach's alpha test: a simple guide for researchers. *The Malaysian journal of medical sciences: MJMS*, *25*(6), 85.

Burns, A. C. and Bush, R. F. (2000). Marketing Research (3rd ed.). Upper Saddle River: Prentice.

Cooper, D., & Schindler, P. (2008). Business research methods (10th ed.). New York, McGraw-Hill/Irwin.

Cheung, M. F., & To, W. M. (2019). An extended model of value attitude-behavior to explainChinese consumers' green purchase behavior. *Journal of Retailing and Consumer Services, 50,* 145- 153

Chen X, Rahman MK, Rana MS,Gazi MAI, Rahaman MA and Nawi NC (2022) Predicting Consumer Green Product Purchase Attitudes and Behavioral Intention DuringCOVID-19Pandemic.Front.Psychol.12:760051

Chyong-Huey Tsen, Phang, G., Hasan, H., & Buncha, M. R. (2006). Going Green: A Study Of Consumers' Willingness To Pay For Green Products In Kota Kinabalu. International Journal of Business andSociety, 7(2), 40-54. Retrieved November 20, 2022, from https://www.proquest.com/scholarly- journals/going-green-study-consumers-willingness-pay/docview/275111447/se-2

Daniel Ofori & Christina Appiah-Nimo | Len Tiu Wright (Reviewing editor:) (2019) Determinants of online shopping among tertiary students in Ghana: An extended technology acceptance model, Cogent Business & Management, 6,1,

D. Davis & R.M. Cosenza, 1993. Business Research For Decision Making (3rd ed.). Belmont, CA.: Wadsworth Inc.

De Leeuw, E. (2008). Self-administered questionnaires and stamdardized interviews. *Handbook of social research methods*, 313-327.

De Canio, F., Martinelli, E. and Endrighi, E. (2021), "Enhancing consumers' pro-environmental purchase intentions: the moderating role of environmental concern", International Journal of Retail & Distribution Management, Vol. 49 No. 9, pp. 1312-1329.

Dunlap, R. E., & Jones, R. E. (2002). Environmental concern: Conceptual and measurement issues. *Handbook of Environmental Sociology, 3*(6), 482-524.

Elfil, M., & Negida, A. (2017). Sampling methods in clinical research; an educational review. *Emergency*, *5*(1).

Finn, M., M. Elliott- White and M. Walton (2000) Tourism and Leisure Research Methods: *Data Collection, Analysis, and Interpretation*, Harlow, UK: Pearson.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39–50.

Franke, G. and Sarstedt, M. (2019), "Heuristics versus statistics in discriminant validity testing: a comparison of four procedures", *Internet Research*, 29 (3), 430-447.

Green, S. B. (1991). How many subjects does it take to do a regression analysis. *Multivariate behavioral research*, *26*(3), 499-510.

Gupta, A., & Gupta, N. (2022). *Research methodology*. SBPD Publications.

Hair.Jr., J. F., Black., W. C., Babin., B. J., Anderson., R. E., & L.Tatham., R. (2006). Multivariant Data Analysis. New Jersey: Pearson International Edition.

Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2017). A primer on partial least squares structural equation modeling (PLS-SEM). United States: Sage Publications.

Han, H., Yoon, H.J., 2015. Hotel customers' environmentally responsible behavioral Intention:impact of key constructs on decision in green consumerism. Int. J. Hosp. Manag. 45, 22-33.

Heale, R., & Twycross, A. (2015). Validity and reliability in quantitative studies. *Evidence-based nursing*, *18*(3), 66-67.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the Academy of Marketing Science, 43(1), 115-135.

Hashim, N. H., Yahya, W. K., Bakar, S. A., & Asrul, S. A. (2018). Social influence and eco-label factors towards purchase intention of home products: A PLS approach. *Journal of Emerging Economies and Islamic Research*, *6*(3), 39-47.

In, J. (2017). Introduction of a pilot study. *Korean journal of anesthesiology*, *70*(6), 601-605.

Lestari, E., Hanifa, K., & Hartawan, S. (2020). Antecedents of attitude toward green products and its impact on purchase intention. IOP Conference Series: Earth and Environmental Science, *iwant2b - Laluan TVET dan Akademik dan Kerjaya di Malaysi*a (n.d). https://www.iwant2b. my/industries/sektor-pembungkusan

Jang, Y.J., Kim, W.G., Bonn, M.A., 2011. Generation Y consumers' selection attributes and behavioral intentions concerning green restaurants. Int. J.Hosp. Manag. 30 (4), 803-811.

Khoiriyah, S., & Toro, M. J. S. (2018). Attitude toward green product, willingness to pay and intention to purchase. International Journal of Business and Society, 19(S4), 620-628.

Koenig-Lewis, N., Palmer, A., Dermody, J., Urbye, A., 2014. Consumers' evaluations of ecological packagingeRational and emotional approaches. J. Environ. Psychol.,37, 94e105.

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and psychological measurement*, *30*(3), 607-610.

Kumar, R. (2018). *Research methodology: A step-by-step guide for beginners*. Sage.Lekuu, P. N. (2021). *The Impact of Branding on Customer Purchasing Decision: A Study of the Telecommunication Sectors in Ghana* Ghana Institute of Journalism].

MacKenzie, S. B., & P. M. Podsakoff. (2012). Common method bias in marketing: Causes, mechanisms, and procedural remedies. Journal of Retailing, 88, 4, 542– 55.

Mahidin, M. U., & Ab Razak, M. Y. (2020). Current Population Estimates, Malaysia, 2020. *Retrieved from Department of Statistics, Malaysia website: https://www. dosm. gov. my/v1/index. php*.

Malik, M.I., Nawaz Mir, F., Hussain, S., Hyder, S., Anwar, A., Khan, Z.U., Nawab, N., Shah, S.F.A. and Waseem, M. (2019), "Contradictory results on environmental concern while re-visiting green purchase awareness and behavior", Asia Pacific Journal of Innovation and Entrepreneurship, 13 (1),17-28.

Malhotra, N. K. (2004). Marketing research: An applied orientation (4th ed.). Upper Saddle River, NJ: Prentice Hall

McCombes, S. (2022, October 10). What Is a Research Methodology? | *Steps & Tips. Scribbr.* https://www.scribbr.com/dissertation/methodology/

Memon, M. A., Ramayah, T., Cheah, J., Ting, H., Chuah, F., & Cham, T. (2021). PLS-SEM statistical programs: a review. *Journal of Applied Structural Equation Modeling*, *5*(1), 1-14.

Meng, J., Jiang, L., & Wu, X. (2019). Demand Analysis of Advanced Energy-saving Consulting Service Based on SPSS Questionnaire Survey. IOP Conference Series: Earth and Environmental Science.

Mishra, P., Pandey, C. M., Singh, U., Gupta, A., Sahu, C., & Keshri, A. (2019). Descriptive statistics and normality tests for statistical data. *Annals of cardiac anaesthesia*, *22*(1), 67.

Moustafa, H., Youssef, A. M., Darwish, N. A., & Abou-Kandil, A. I. (2019). Eco- friendly polymer composites for green packaging: Future vision and challenges. *Composites Part B: Engineering*, *172*, 16-25.

Nayak, J. K., & Singh, P. (2021). *Fundamentals of research methodology problems and prospects*. SSDN Publishers & Distributors.

Nguyen, A. T., Parker, L., Brennan, L., & Lockrey, S. (2020). A consumer definition of eco-friendly packaging. *Journal of cleaner production*, *252*, 119792.

Nguyen, N. T., Nguyen, L. H. A., & Tran, T. T. (2021). Purchase behavior of young consumers toward green packaged products in Vietnam. *The Journal of Asian Finance, Economics and Business*, *8*(1), 985-996.

Nunnally, J., & Bernstein, I. (1979). This week's citation classic. *Psychom. theory*, *34*, 1982.

Ong, M. H. A., & Puteh, F. (2017). Quantitative data analysis: Choosing between SPSS, PLS, and AMOS in social science research. *International Interdisciplinary Journal of Scientific Research*, *3*(1), 14-25.

Ottenbacher, M.C., Kuechle, G., Harrington, R.J. and Kim, W.-H. (2019), "QSR customer sustainable behaviors and brand practice perceptions on willingness to pay a premium", International Hospitality Review, 33(2), 106-125.

Pandey, P., & Pandey, M. M. (2021). *Research methodology tools and techniques*. Bridge Center.

Parasuraman, A., Zeithaml, V., Berry, L. (1991). "Understanding customer expectations of service." Sloan Management Review, 39-48.

Patton, M. (1990). Qualitative evaluation and research methods (pp. 169-186). Beverly Hills, CA: Sage.

Pečený, L., Meško, P., Kampf, R., & Gašparík, J. (2020). Optimisation in transport and logistic processes. *Transportation Research Procedia*, *44*, 15-22.

Prakash, G., & Pathak, P. (2017). Intention to buy eco-friendly packaged products among young consumers of India: A study on developing nation. *Journal of cleaner production*, *141*, 385-393.

Purwanto, A., & Sudargini, Y. (2021). Partial least squares structural squation modeling (PLS-SEM) analysis for social and management research: a literature review. *Journal of Industrial Engineering & Management Research*, *2*(4), 114-123.

Radhakrishna, R. B. (2007). Tips for developing and testing questionnaires/instruments,*Journal of extension*, 45(1), 1-4.

Rahi, S. (2017). Research design and methods: A systematic review of research paradigms, sampling issues and instruments development. *International Journal of Economics & Management Sciences*, *6*(2), 1-5.

Rajendran, S. D., Wahab, S. N., & Singh, M. K. P. (2019). Malaysian consumers' preference for green packaging. *International Journal of Society Systems Science*, *11*(4), 312-331

Rana, J., & Paul, J. (2017). Consumer behavior and purchase intention for organic food: A review and research agenda. Journal of Retailing and Consumer Services, 38, 157-165.

Rinjit, K. (2020). Research methodology. Inc.

Sadhna Shukla (2019) A Study on Millennial Purchase Intention of Green Products in India: Applying Extended Theory of Planned Behavior Model, *Journal of Asia-Pacific Business*, 20:4, 322-350,

Schober, P., Boer, C., & Schwarte, L. A. (2018). Correlation coefficients: appropriate use and interpretation. *Anesthesia & Analgesia*, *126*(5), 1763-1768.

Seo, S., Ahn, H.-K., Jeong, J., & Moon, J. (2016). Consumers’ attitude toward sustainable food products: Ingredients vs. Packaging. *Sustainability*, *8*(10), 1073.

Sharma, G. (2017). Pros and cons of different sampling techniques. *International journal of applied research*, *3*(7), 749-752.

Shimul, A.S. and Cheah, I. (2022), "Consumers' preference for eco-friendly packaged products: pride vs guilt appeal", Marketing Intelligence & Planning.

Simona Stojanova, Mila Zečević & Barbara Culiberg (2021) From Words to Deeds: How Do Knowledge, Effectiveness, and Personal Relevance Link Environmental Concern and Buying Behavior?, *Journal of Nonprofit & Public Sector Marketing.*

Soomro, R.B., Mirani, I.A., Sajid Ali, M. and Marvi, S. (2020), "Exploring the green purchasing behavior of young generation in Pakistan: opportunities for green entrepreneurship", Asia Pacific Journal of Innovation and Entrepreneurship, 14 (3), 289-302.

Sobuj, M., Khan, A. M., Habib, M. A., & Islam, M. M. (2021). Factors influencing eco-friendly apparel purchase behavior of Bangladeshi young consumers: case study. *Research Journal of Textile and Apparel*.

Steenkamp, J. B. E., & Van Trijp, H. (1991). The Use of LISREL in Validating Marketing Constructs. *International Journal of Research in Marketing*, 8, 283- 299.

Sürücü, L., & MASLAKÇI, A. (2020). Validity and reliability in quantitative research. *Business & Management Studies: An International Journal*, *8*(3), 2694-2726.

Tella, A. (2015). Electronic and paper based data collection methods in library and information science research. *New Library World.*

Tsagris, M., & Pandis, N. (2021). Normality test: Is it really necessary? *American journal of orthodontics and dentofacial orthopedics*, *159*(4), 548-549.

Wee, C.S., Ariff, M.S.B.M., Zakuan, N., Tajudin, M.N.M., Ismail, K., Ishak, N., 2014. Consumers perception, purchase intention and actual purchase behavior of organic food products. Rev. Integr. Bus. Econ. Res. 3 (2), 378e391.

Zamboni, J. (2018). What is the meaning of sample size. *Probability & statistic*. Zikmund, W. G. (2003). Exploring Marketing Research (8th Ed.). Sydney: Thomson.

The Study on Factors That Influence Consumer's Acceptance Towards Self-Checkout System (SCS) At IKEA Batu Kawan

Dhivyaa Marifan, Luqman Hakim Ahmad Tarmizi, Nur Iesyatirradhiah Nur Muazzam, Syah Nurfarahin Md Fauzi & Muhammad Khalilur Rahman*

Faculty of Entrepreneurship and Business,
Universiti Malaysia Kelantan,
Malaysia

Email: khalilur.r@umk.edu.my

Abstract:

Recently, the issue of most of people do not know about self - checkout system at IKEA Batu Kawan. Therefore, this study aims to study the factors that influence consumers' acceptance towards self - checkout system (SCS) at IKEA Batu Kawan. A quantitative method is used in completing this research. A simple random sampling is used to collect data and the structured questionnaire was designed to collect data from 382 respondents. The Statistical Package for Sciences (SPSS) version 25 and PLS 4.0 was used for data analysis. The results concluded that the independent variables of the perceived usefulness, speed, perceived ease of use, attitude towards technology and customer literacy have a significant relationship with the consumers' acceptance self - checkout system (SCS) at IKEA Batu Kawan. Limitations of this study and recommendations are included in this study to give a better idea for future researchers related to studies involving the self - checkout system (SCS) at IKEA Batu Kawan.

***Keywords**: Perceived usefulness, Speed, Perceived ease of use, Attitude towards technology, Customer literacy and Consumers' acceptance*

1 Introduction

1.1 Background of Study

IKEA has established itself as the biggest mechanized retail chain in the world. Over 151,000 employees, 345 locations in 42 countries, and annual global revenues of EUR 29.2 billion. IKEA believes that the most major things in the society is the home and it proven that children are also one of the most important for parent to give the comfortable places for them to stay. Creating an IKEA store is more like creating a warehouse (MCFARLANE, 2022). A distinctive feature of this contemporary purchasing model is that the consumer must carry out all sales operations alone by taking the trolley or basket, selecting the product from the racks, and bringing it to the counter for payment (Parkley, 2022). As a result, the checkout counter is the only location where there is any contact between the customer and the service provider. Cashiers at the checkout counter serve as the service provider at the point of sale who processes consumer transactions. By reading product bar codes, bagging goods for customers and taking money from customers, they carry out the same employment duties. Due to pressure from consumers in line, cashiers at any retail stores are forced to speed up the checkout procedure in order to boost productivity and efficacy of customer service.

A self-checkout system is one of the effective technology innovations that supports regular company operations. The goal of this technology is to cut down on traffic and driving time (Corgi, 2020)[3]. The global market for self-service technology is anticipated to increase at a compound annual growth rate (CAGR) of 9.9% from $32.35 billion in 2021 to $35.55 billion in 2022. It demonstrates how frequently small shops employ self-checkout systems. According to a recent survey, a self-checkout system in supermarket can cut down on the lengthy wait time for the checkout procedure by 40%, and almost two third of customer believe that self - checkout system offers superior customer service (Lee, 2018). Therefore, this is why the researcher want to determine the factor that affect consumers' acceptance toward self-checkout system in IKEA Batu Kawan.

1.2 Problem Statement

IKEA stores frequently experience long lines during checkout. Customers often decide against making a purchase because of the lengthy line (Hassan, 2014). When customers are paying at an IKEA checkout counter, they have a different perception of time, which makes them more bothered by the wait in line and the speed of the service delivery. Better customers service and more adaptable checkout option are what customers would want. Customers' satisfaction levels will be high if they just have to wait between one and three minutes at the checkout counter as opposed to more than five minutes (Kwak, 2017). Service delivery time at the checkout counter is another concern for hypermarket operations, in addition to waiting in line. Three crucial components of the purchasing process, from the viewpoint of the buyer, are section time, queue time, and transaction period (Hassan, 2014)[7]. Operation for scanning, packing, and payment are activities that take time at the checkout-counter. As a result, it slows down how quickly the service provider delivers services at the checkout counter. Customers' contentment will diminish the more patiently they are kept waiting during the checkout procedure (Fernandes & Pedroso, 2017).

1.3 Research Question

1. What is the relationship between perceived usefulness and consumers acceptance towards self - checkout system at IKEA Batu Kawan?
2. What is the relationship between speed and consumers acceptance towards self - checkout system at IKEA Batu Kawan?
3. What is the impact of perceived ease of use on consumers acceptance towards self - checkout system at IKEA Batu Kawan.
4. What is the relationship between attitude towards technology and consumers acceptance towards self - checkout system at IKEA Batu Kawan?
5. What is the relationship between customer literacy and consumers acceptance towards self - checkout system at IKEA Batu Kawan?

1.4 Research Objective

1. To identify the relationship between perceived usefulness and consumers acceptance towards self - checkout system at IKEA Batu Kawan.
2. To examine the relationship between speed and consumers acceptance towards

self - checkout system at IKEA Batu Kawan.

3. To determine the impact of perceived ease of use on consumers acceptance towards self- checkout system at IKEA Batu Kawan.
4. To investigate the relationship between attitude towards technology and consumers acceptance towards self - checkout system at IKEA Batu Kawan.
5. To assess the relationship between customer literacy and consumers acceptance towards self - checkout system at IKEA Batu Kawan.

8 Literature Review

2.1 Consumers' Acceptance towards Self-Checkout System at IKEA Batu Kawan

Customer acceptance is defined as process of determining whether it is reasonable or not to do business with a specific customer or prospect (Evans, 2016)[9]. Prior studies asserted that behavioral intention and loyalty are related both directly and indirectly through satisfaction with the service quality of self-checkout systems (Masood Ul Hassan & Habibah, 2020)[10]. Previous studies have demonstrated a clear correlation between customer satisfaction and service excellence. Basically, in Malaysia 77.9% of customers have access to self-checkout information compared to 22.1% who do not access self - checkout system.

2.2 Underpinning Theory

The most prominent and widely used theory for characterizing a person's adoption of diverse information systems is known as the technology acceptance model, or TAM. Davis is the one who first proposed TAM (1986). Davis makes the assumption that two key factors- perceived usefulness and perceived ease of use-are what ultimately determine a person's acceptance of an information system. Because of this, this study makes the assumption that it can be used to evaluate self-checkout system in full or in part. As an example, when customers are enthusiastic about technology, their decision to use it will be based on whether the particular technology is accessible. Additionally, the desire to adopt new technology is only related to customer's desire to adopt is created (Lai, 2017)[11]. Based on Technology Acceptance Modal (TAM), this study examine the relationship between perceived usefulness, speed, perceived ease of use, attitude towards technology, customer literacy and customer acceptance towards self - checkout system at IKEA Batu Kawan. Based on Technology Acceptance Modal, in this study we examined the relationship between perceived usefulness, perceived ease of use, speed, attitude to use and customer literacy and consumer acceptance toward self-checkout system in IKEA Batu Kawan.

2.3 Perceived Usefulness and Acceptance towards Self-Checkout System

Perceived usefulness can be defined by prospective consumers' likelihood, where it offers a probability that the technology employed could increase the performance of the person or team from an organizational viewpoint (Malik and Annuar, 2021)[12]. The researcher has analyzed of the perceived usefulness from Davis research, which he mentioned that "perceived usefulness" is the way in which how does the individual thinks that using technology would enhance the quality of the professional task.Various researchers have used different definitions of perceived usefulness in previous studies. Some of past studies conducted by researchers from perceived usefulness is the individual's subjective perceptions of how using a certain system or technology would improve his work performance (Fathema, Shannon, & Ross, 2015)[13]. Perceived usefulness is being analyzed to determine the acceptance of users and their intention to use the self-checkout system at IKEA Batu Kawan. This characteristic will change the views of individuals regarding how to use a specific software system might enhance his work productivity. By investigating and implementing all of the previous research, it has proved that perceived usefulness is positively indicate influence consumers' acceptance towards self - checkout system at IKEA Batu Kawan.

2.3 Speed and Customer' Acceptance toward Self-Checkout System

Speed of service is a statistic that assesses how quickly a customer service operation is completed. Speed of service also play an important thing towards evaluation of customer experience. Some customers who are ready to check out are unable to wait for a delayed cashier. Apart from that, the researcher approved to select speed as the variable on how the consumer's acceptance of users and their intention does to use the self-service counter in IKEA Batu Kawan. If the checkout process was efficient, this factor will have a positive effect on the consumer's evaluation of the service's quality. Past studies by Ng Xin Jie and Kamsin (2021)[14], speed can be applied for identification (RFID) technology to self-checkout systems to tackle the issue of rising thefts brought on by the introduction of self-checkout system in supermarkets. Next, according to Alinda and David (2013)[15], self-service technology has the capability to improve service speed. After reviewing all of the previous studies, it shown that speed is positively point out the influence consumers acceptance towards self-checkout system at IKEA Batu Kawan.

2.4 Perceived Ease of Use and Consumers' Acceptance towards Self-Checkout System

According to Davis (1989)[16], perceived ease of use can define as the degree to which a person thinks a person thinks utilizing a certain technology would be effortless. If the technology is simple to use, then the obstacles has been removed. Perceived ease of use was identified as one of the characteristics that influence user attitudes (Osman, Alwi & Khan, 2016)[17]. Okafor (2016)[18], discovered that although perceived ease of use does not influence the adoption of new online multimedia technologies other factors such as age, gender, local population literacy level, and traditional beliefs do. These authors specifically aimed to assess the psychometric characteristics of usability and utility indices and empirically based determine how the structure related one another. In the study, the term "degree to which a person believes that utilizing a certain system would be devoid of effort" is used to describe the perceived ease of use. This is inferred from the meaning of the word "ease," which is freedom from hardship or excessive effort. Also, they discovered the substantial connection between perceived ease of use and perceived usefulness when using mobile learning Tan (2012)[19]. In the past study, all have shown that perceived ease of use is positive indicate influence consumers acceptance towards self - checkout system at IKEA Batu Kawan.

2.5 Attitude Toward Technology and Consumers' Acceptance towards Self-Checkout Systems

An individual's attitude towards technology can be either positive or negative depending on their intention to engage in the desired behaviour. SSTs are checkout counters where customers scan the bar codes on their products, pay for them and place them in bags without assistance from store staff. Based on the past research, they found that SSTs influenced by how people rate the quality of the self-checkout experience, the criteria they employ and whether customer characteristics have an impact on this rating. (Lin and Hsieh, 2006)[20]. Self-checkout system is a cutting-edge SSTs that offers consumers privacy and time savings as an alternative to checkout (Lee, & Yang, 2013)[21]. All the past studies, all have shown attitudes towards technology is positive indicate influence consumers acceptance towards self - checkout system at IKEA Batu Kawan.

2.6 Customer Literacy and Consumers' Acceptance towards Self-Checkout System

According to Consumer Panel, customer literacy defined as the capacity to select and use communications products effectively. Today, literacy skill levels also consider a person's capacity for understanding and analyzing data, a critical task in a society where better communication and information processing abilities are necessary every day. Previous research suggests that customer adoption of automated service technologies should be influenced by both their functional performance and their capacity to meet social-emotional, and relationship needs. Another previous study shows that, an individual is more likely to have a favourable opinion of autonomous delivery robots if they become the social norm. This is because of positive word-of-mouth and social impact. More consumers have knowledge about self - checkout system which increase the usage of self - checkout system at IKEA Batu Kawan. It was proven in the previous articles which is 70% of consumers who are use the self - checkout system at IKEA Batu Kawan are feel satisfied to use it (Gagliordi, 2012)[22]. All the past studies, all have shown customer literacy is positive indicate influence consumers acceptance towards self - checkout system at IKEA Batu Kawan.

2.7 Hypothesis Statement

H1: There is a significant relationship between perceived usefulness and consumers acceptance towards self - checkout system at IKEA Batu Kawan.

H2: There is a significant relationship between speed and consumers acceptance towards self- checkout system at IKEA Batu Kawan.

H3: There is a significant relationship between perceived ease of use and consumers acceptance towards self - checkout system at IKEA Batu Kawan.

H4: There is a significant relationship between attitude towards technology and consumers acceptance towards self - checkout system at IKEA Batu Kawan.

H5: There is a significant relationship between customer literacy and consumers acceptance towards self - checkout system at IKEA Batu Kawan.

2.8 Research Framework

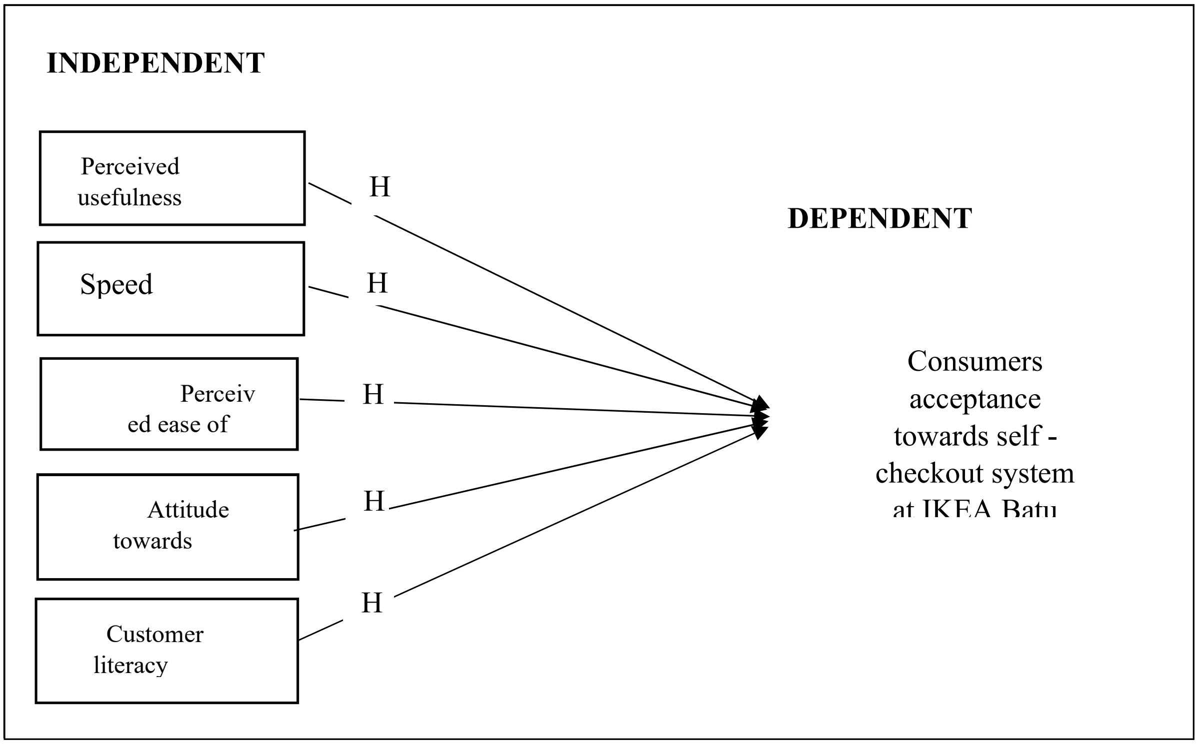


Figure 1 : Research framework for the factors that affect consumer acceptance
towards self-checkout systems in IKEA Batu Kawan.

9 Research Methodology

3.1 Research Design

In the review, the quantitative research methodology was used. Quantitative approaches emphasize evaluations that are factually mathematical or numerically accurate and objective. Quantitative emphasizes precision estimates, factual or mathematical research on the data obtained from questionnaires and research, or computational methods to manage earlier quantifiable information. In this study, this focuses on the consumers acceptance towards self-checkout system at IKEA Batu Kawan. Besides that, there have four essential methods for getting bits of knowledge and acquiring a clearer image of an issue which are secondary data analysis, pilot studies, case studies and questionnaires. A survey questionnaire is also chosen to examine the factors of consumers acceptance towards self-checkout system at IKEA Batu Kawan.

3.2 Data Collection Method

Data and information can be obtained via primary and secondary data. An online survey questionnaire is the main tool used to collected data for this investigation. An online survey questionnaire was distributed for consumers IKEA Batu Kawan. The data that someone else has gathered for an explanation is known as secondary data. Therefore, secondary data is utilized in the research to improve knowledge.

3.3 Sampling

This study focuses on IKEA Batu Kawan customers who utilize the self-checkout system to see what are the factors that affect customers' acceptance toward self-checkout system. This will include only customer who usually shopping at IKEA Batu Kawan which located at Penang. IKEA Batu Kawan expects a weekly traffic from 50,000 to 60,000 people from its entire population (Tan, 2019). We selected this location because it will be easier to ask respondents to complete surveys using a google form in this particular area. Therefore, we target to distribute about 300 to 400 questionnaires to the respondents. The sample size for this research is 382 people. Therefore, we distribute the questionnaire to maximum 401 customers of IKEA Batu Kawan to collect the data for further process.

3.4 Research Instrument Development

A questionnaire is a form of survey instrument that asks respondents a variety of questions or provides additional recommendations in order to collect data from them. The questionnaire in this study is divided into three sections, namely Section A, Section B and Section C. Section A is related to the information and demographic data of the respondents. Next, Section B is related to the perceived usefulness, speed, perceived ease of use, attitude towards technology and customer literacy. The last section, Section C is related to the consumers' acceptance towards self - checkout system at IKEA Batu Kawan.

3.5 Measurement of the Variables

The researcher has two types of variables in this research which are nominal data and ordinal data. This method was chosen to assist in finding more accurate information to complete the research. Researchers use the nominal scale to assign participants to specific groups or categories. As for the ordinal, respondent will be answering the question that created for independent variable and dependent variable based on the Likert scale.

3.6 Data Analysis Method

Statistical Package for the Social Sciences (SPSS) and SmartPLS 4.0 will be used in this research. SPSS software was used to perform pilot test, descriptive analysis and demographic profile of the respondent. Results of the analysis will be displayed using statistical summary tables, charts, and graphs. In PLS-SEM, researchers compare theoretically developed measurement and structural models with reality using sample data and empirical measurements. The researcher assesses the degree to which the theor accounts for the data using the empirical metrics. As a result, they are able to assess the model's predictive potential and competence.

10 Data Analysis and Finding

4.1 Preliminary Analysis

The cronbach alpha value of consumer's acceptance towards self-checkout system at IKEA Batu Kawan is 0.904. The cronbach alpha value of perceived usefulness and speed is 0.904 which is least cronbach value of this study. The cronbach alpha value of perceived ease of use is 0.885. The cronbach alpha value of attitude towards technology is 0.903. The cronbach alpha value of customer literacy is 0.933 which is highest value of this study.

Table 1: Result of pilot test

Variables	Cronbach Alpha	Number of Item
Consumer's acceptance towards self-checkout system at IKEA Batu Kawan	0.904	5
Perceived Usefulness	0.870	5
Speed	0.870	5
Perceived Ease of Use	0.885	5
Attitude Towards Technology	0.903	5
Customer Literacy	0.933	5

4.2 Demographic Profile of Respondents

In this study, there are eight questions were asked under respondents' demographic section such as gender, age, race, occupation, education level, monthly income, frequency of using self - checkout system and type of cashless payment that used. This section discussed the basic analysis of demographic profile of 401 respondents who have answered the question through the goggle form that has been distributed. Next, the frequency and percentage for every demographic profile of respondents were demonstrated through tables and simplified charts.

Table 2: Gender of respondents

	Category	Frequency (N)	Percentage (%)	Valid Percent	Cumulative Percent
Valid	Male	181	45.1	45.1	45.1
	Female	220	54.9	54.9	100.0
	Total	401	100	100	

Table 3: Age of respondent

	Category	'requency (N)	'ercentage (%)	Valid Percent	Cumulative Percent
Valid	19 – 21 years old	67	16.7	16.7	16.7
	22 – 25 years old	117	29.2	29.2	45.9

	26 – 29 years old	80	20.0	20.0	65.8
	30 – 33 years old	78	19.5	19.5	85.3
	34 years old and above	59	14.7	14.7	100.0
	Total	401	100	100	

Table 4: Race of respondent

	Category	Frequency (N)	Percentage (%)	Valid Percent	Cumulative Percent
Valid	Malay	160	39.9	39.9	39.9
	Chinese	125	31.2	31.2	71.1
	Indian	98	24.4	24.4	95.5
	Others	18	4.5	4.5	100.0
	Total	401	100	100	

Table 5: Occupation of respondent

	Category	Frequency (N)	Percentage (%)	Valid Percent	Cumulative Percent
Valid	Government Sector	92	22.9	22.9	22.9
	Private Sector	161	40.1	40.1	63.1
	Unemployed	83	20.7	20.7	83.8
	Others	65	16.2	16.2	100.0
	Total	401	100	100	

Table 6: Education level of respondent

	Category	Frequency (N)	Percentage (%)	Valid Percent	Cumulative Percent
Valid	Government Sector	92	22.9	22.9	22.9
	Private Sector	161	40.1	40.1	63.1
	Unemployed	83	20.7	20.7	83.8
	Others	65	16.2	16.2	100.0
	Total	401	100	100	

Table 7: Monthly income of respondent

	Category	Frequency (N)	Percentage (%)	Valid Percent	Cumulative Percent
Valid	RM0 - RM999	121	30.2	30.2	30.2
	RM1,000 - RM1,999	61	15.2	15.2	45.4
	RM2,000 - RM2,499	87	21.7	21.7	67.1
	RM2,500 - RM2,999	52	13.0	13.0	80.0

	RM3,000 and above	80	20.0	20.0	100.0
	Total	401	100.0	100.0	

Table 8: How many times will you use self-checkout in a year?

	Category	Frequency (N)	Percentage (%)	Valid Percent	Cumulative Percent
Valid	0 - 3 times	146	36.4	36.4	36.4
	4 - 7 times	108	26.9	26.9	63.3
	Above 8 times	120	29.9	29.9	93.3
	Never	27	6.7	6.7	100.0
	Total	401	100.0	100.0	

Table 9: What type of cashless payment method that you prefer when make payment in self- checkout system?

	Category	Frequency (N)	Percentage (%)	Valid Percent	Cumulative Percent
Valid	QR payment	174	43.4	43.4	43.4
	Debit card or credit card	227	56.6	56.6	56.6
	Total	401	100	100	

4.3 Measurement Model Analysis

The outer loading's value between perceived usefulness and consumer's acceptance towards self - checkout system at IKEA Batu Kawan is -0.060, speed and consumer's acceptance towards self - checkout system at IKEA Batu Kawan is 0.133, perceived ease of use and consumer's acceptance towards self - checkout system at IKEA Batu Kawan is 0.110, attitude towards technology and consumer's acceptance towards self - checkout system at IKEA Batu Kawan is 0.268 and customer literacy and consumer's acceptance towards self - checkout system at IKEA Batu Kawan is 0.342.

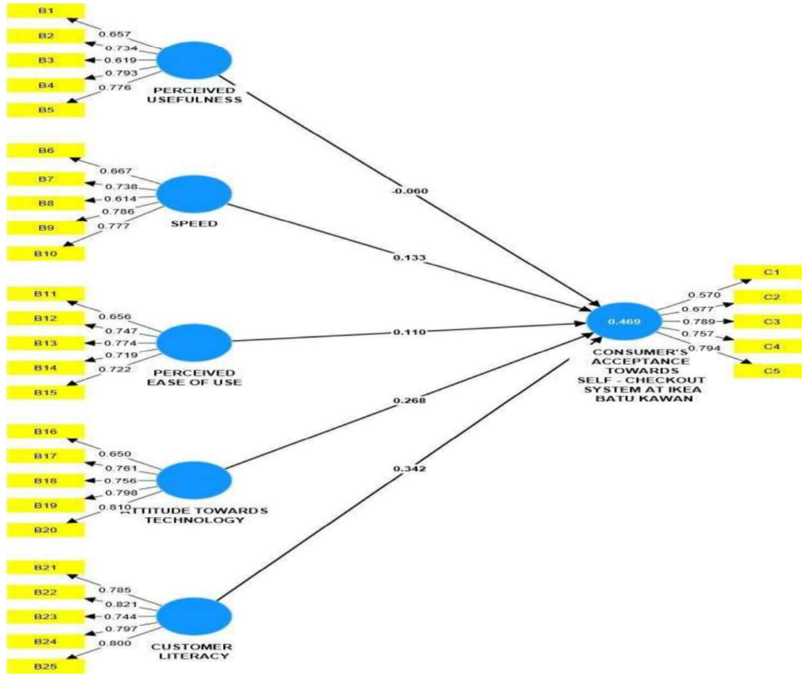


Figure 2: Modal of PLS-SEM

4.3 Reliability and Validity Test

This section discussed the reliability and validity of this research's questionnaire that represents the dependent variable, consumer's acceptance towards self - checkout system at IKEA Batu Kawan and independent variables, which are perceived usefulness, speed, perceived ease of use, attitude towards technology and customer literacy. In this section, Cronbach's Alpha of every question for each variable and section was analyzed and presented. In this study, all independent variables are accepted.

Table 10: Summary of reliability and validity test

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Attitude towards technology	0.812	0.818	0.87	0.573
Consumers' acceptance towards self-checkout systesm at Ikea Batu Kawan	0.767	0.783	0.843	0.522
Customer literacy	0.849	0.851	0.892	0.624
Percieved ease of use	0.774	0.779	0.847	0.525
Perceived usefulness	0.764	0.779	0.841	0.517
Speed	0.765	0.78	0.842	0.518

4.4 Collinearity Statistics

In the table below, we can see that the VIF values for perceived usefulness and speed both greater than 5. It proven that this VIF was multicollinearity. Perceived ease of use, attitude towards technology and customer literacy are less than 5.

Table 11: Collinearity statistics

Collinerity Statistics (VIF)	
	VIF
Perceived Usefulness	24.01 1
Customer Literacy	2.384
Speed	24.05
Attitude Towards Technology	2.276
Perceived Ease of Use	2.188

4.5 Discriminant Validity

Table below showed the square root of AVE as bold figures. When compared to other structures, the bold figures that are decided by diagonal line show a higher number. Since the AVE of a construct is higher than the squared correlations with all other construct in the model, this study demonstrates that discriminant analysis is supported.

Table 12: Fornell lacker criterition

Variables	(1)	(2)	(3)	(4)	(5)	(6)
Attitude Towards Technonology (1)	**0.757**					
Consumer Acceptance Toward Self-Checkout (2)	0.61	**0.722**				
Customer Literacy (3)	0.693	0.635	**0.79**			
Perceived Ease of Use (4)	0.666	0.552	0.684	**0.725**		
Percieved Usefulness (5)	0.434	0.383	0.443	0.408	**0.719**	
Speed (6)	0.438	0.388	0.442	0.409	0.979	**0.72**

The result of cross-loadings indicated the range between 0.57 and 0.81. Henseler, Hubona & Ray (2015)[23] mentioned that discriminant validity is confirmed when the load in its latent variable higher than the other latent variable. The bold figures represent the value that has the greatest cross loading compare to other loading value. Thus, these items are valuable to measure consumer acceptance toward self-checkout in IKEA Batu Kawan.

Table 13: Cross loading's

Variables	Attitude Towards Technology	Consumer Acceptance Toward Self-Checkout	Customer Literacy	Perceived Ease of Use	Perceived Usefulness	Speed
B1	0.246	0.255	0.288	0.221	**0657**	0.655
B2	0.268	0.279	0.291	0.286	**0.734**	0.712
B3	0.283	0.205	0.257	0.267	**0.619**	0.602
B4	0.333	0.298	0.358	0.325	**0.793**	0.776
B5	0.415	0.321	0.381	0.357	**0.776**	0.759
B6	0.25	0.258	0.293	0.227	0.666	**0.667**
B7	0.259	0.283	0.282	0.28	0.704	**0.738**
B8	0.297	0.209	0.256	0.263	0.584	**0.614**
B9	0.329	0.3	0.363	0.329	0.783	**0.786**
B10	0.426	0.328	0.38	0.358	0.765	**0.777**
B11	0.456	0.328	0.403	**0.656**	0.287	0.294
B12	0.44	0.387	0.459	**0.747**	0.405	0.416
B13	0.508	0.423	0.534	**0.774**	0.284	0.288
B14	0.506	0.399	0.524	**0.719**	0.162	0.159
B15	0.5	0.447	0.539	**0.722**	0.343	0.328
B16	**0.65**	0.406	0.425	0.494	0.278	0.281
B17	**0.761**	0.469	0.503	0.534	0.251	0.262
B18	**0.756**	0.429	0.543	0.485	0.42	0.422
B19	**0.798**	0.497	0.574	0.495	0.36	0.358
B20	**0.81**	0.499	0.568	0.515	0.338	0.338
B21	0.547	0.531	**0.785**	0.551	0.431	0.434
B22	0.536	0.504	**0.821**	0.528	0.317	0.311
B23	0.522	0.443	**0.744**	0.534	0.23	0.229
B24	0.535	0.499	**0.797**	0.544	0.409	0.405
B25	0.593	0.522	**0.8**	0.545	0.346	0.351
C1	0.379	**0.57**	0.344	0.376	0.275	0.273
C2	0.32	**0.677**	0.408	0.384	0.372	0.357
C3	0.515	**0.789**	0.548	0.423	0.262	0.28
C4	0.482	**0.757**	0.44	0.362	0.21	0.215
C5	0.48	**0.794**	0.521	0.446	0.287	0.293

This study analyzed the heterotrait-monotrait (HTMT) ratio to assess the discriminant validity. The outcome demonstrated that AVE's square root exceeded latent variable score in the corresponding row and column table, indicating a satisfactory level of discriminant validity. As a result, the HTMT ratio is taken into account since it is a potent replacement for the Fornell-Larcker criterion.

Table 14: HTMT ratio

Variables	(1)	(2)	(3)	(4)	(5)	(6)
Attitude Towards Technology (1)						

Consumer Acceptance Toward Self-Checkout (2)	0.766					
Customer Literacy (3)	0.832	0.777				
Perceived Ease of Use (4)	0.841	0.714	0.838			
Percieved Usefulness (5)	0.548	0.506	0.54	0.53		
Speed (6)	0.554	0.51	0.539	0.529	1.278	

4.6 Structural Model Test

The t-value between perceived usefulness and consumer's acceptance towards self - checkout system at IKEA Batu Kawan is 0.420, speed and consumer's acceptance towards self- checkout system at IKEA Batu Kawan is 0.915, perceived ease of use and consumer's acceptance towards self - checkout system at IKEA Batu Kawan is 1.266, attitude towards technology and consumer's acceptance towards self - checkout system at IKEA Batu Kawan is 3.172 and customer literacy and consumer's acceptance towards self - checkout system at IKEA Batu Kawan is 4.080.

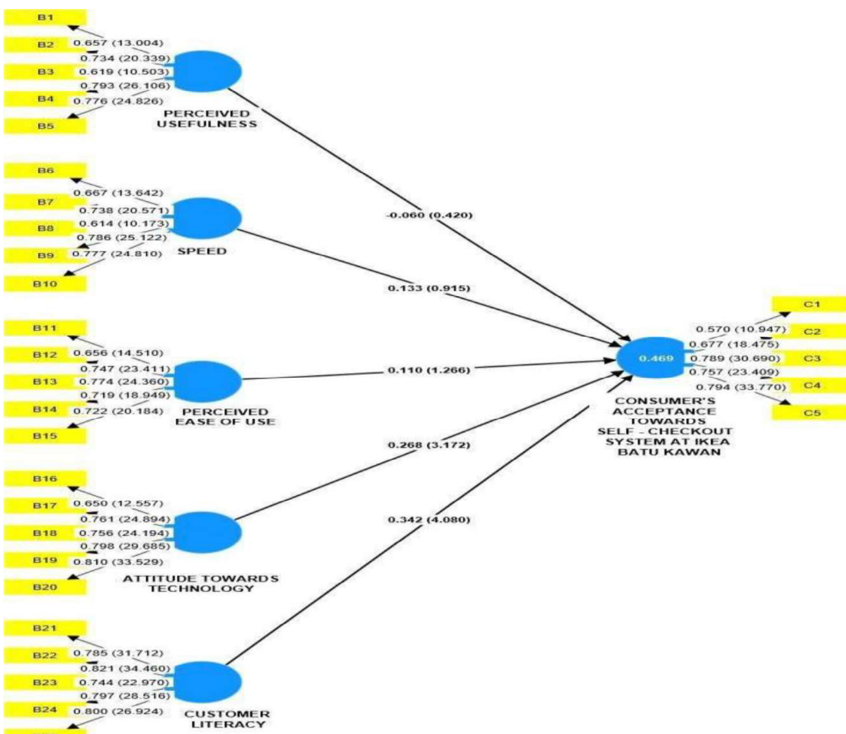


Figure 3 : Modal of bootstrapping

4.7 Hypothesis Testing

The table below shows that the first hypothesis, perceived usefulness was not related to consumer's acceptance towards self - checkout system at IKEA Batu Kawan (ß =-0.06, 57 t = 0.334, p < 0.739). The second hypothesis, speed was not related to consumer's acceptance towards self - checkout system at IKEA Batu Kawan (ß =

0.133, $t = 0.741$, $p < 0.459$). Next, third hypothesis, perceived ease of use was positively related to consumer's acceptance towards self - checkout system at IKEA Batu Kawan (ß = 0.11, $t = 2.024$, $p < 0.044$). This is followed by the fourth hypothesis, attitude towards technology was positively related to consumer's acceptance towards self - checkout system at IKEA Batu Kawan (ß = 0.268, $t = 4.843$, $p < 0.000$). Lastly, the fifth hypothesis, customer literacy was positively related to consumer's acceptance towards self - checkout system at IKEA Batu Kawan (ß = 0.342, $t = 6.036$, $p < 0.000$). Table 4.27 below indicates that fourth direct hypotheses developed for the model were significant; thus H3, H4, and H5 were accepted, and two hypothesis was not supported; thus, H1 and H2 was rejected.

Table 15: Hypothesis testing

Hypothesis relationship	Standard Beta	Standard Error	T value	P value	Decision
H1: PU -> CASCS	-0.06	0.18	0.334	0.739	Not Accept
H2: SPEED -> CASCS	0.133	0.18	0.741	0.459	Not Accept
H3: PEOU -> CASCS	0.11	0.054	2.024	0.044	Accept
H4: ATT -> CASCS	0.268	0.055	4.843	0.000	Accept
H5: CL -> CASCS	0.342	0.057	6.036	0.000	Accept

Note: PU - Perceived Usefulness, PEOU - Perceived Ease of Use, ATT - Attitude Towards Technology, CL - Customer Literacy, CASCS - Consumer's Acceptance

4.8 R - Squared

Other disciplines may have substantially higher requirements for a respectable R-Squared reading, such as 0.9 or higher. In the world of finance, an R-Squared value above 0.7 is typically seen as indicating a high level of correlation, whereas one below 0.4 indicates a low level of correlation (Fernando, 2021)[24]. According to the table below, the R - squared of this study was 0.469.

Table 16: R-squared

	Consumer's Acceptance Towards Self - Checkout System At IKEA Batu Kawan
R-square	0.469
R-square adjusted	0.463
Durbin-Watson test	1.99

11 Conclusion and Recommendation

5.1 Limitation of the Study

Even though this research provided many helpful managements and theoretical, it still has several flaws that will require additional study in the future. The current study is limited more than 300 respondents, which are though to represent a small number of markets in Batu Kawan, Penang. Finding a constraint might be a crucial chance to spot fresh literature gaps and highlight the need for additional research.

The first limitation is the limited sample size to represent the customers from IKEA Batu Kawan. In this study, we found out 401 respondents. As a results, the study's data accuracy will be a concern because respondents in each age group may have opinions and perceptions of self-checkout systems. Besides that, we also give the questionnaire via google form with face to face to get some data from respondent. The questionnaire has bilingual which language English and Malay. Many people skim the questionnaire's material without really reading it. As a result, they select a response to the questionnaire without fully comprehending the question.

Lastly, the questionnaire was designed with a tight end, anticipating respondent to check the option that best describes their thoughts or level of fulfilment. Despite the fact it was advantageous for the respondents to complete the survey quickly and profitably, the specialists were unable to effectively analyse and interpret the data due to time and resource constraints. As a result, it is difficult for research to gather data and establish a framework for comprehending the research problem in self-checkout service IKEA Batu Kawan.

12 Acknowledgement

First of all, we would like to indicate our earnest gratefulness and appreciation to our supervisor, who helped us patiently and provided valuable guidance, attention, enthusiasm and advice in conducting our research project. His enthusiasm and encouragement for this project helped us significantly complete our final year project. Secondly, we would like to acknowledge the help of University Malaysia Kelantan (UMK) for providing us with this opportunity to be involved in the research project, a good environment and facilities to help us complete this research. Then, we would like to thank all the Faculty of Entrepreneurship and Business (FKP) staff and lecturers of the University Malaysia Kelantan (UMK). They have provided valuable technical advice and allowed us to find the related sources to complete this research. Last but not least, our gratitude to family members for their moral support and motivation in helping us complete this project. We also appreciate all of the respondents' time and effort in completing the questionnaires and sincerely filling out the responses.

13 References

Alvi, M. (2016). A manual for selecting sampling techniques in research. https://mpra.ub.uni- muenchen.de/id/eprint/70218

Bernardita , C. (2022, August 25). *What is data analysis? methods, techniques, types & how- to*.datapine. Retrieved November 12, 2022, from https://www.datapine.com/blog/data-analysis-methods-and-techniques/

Company, T. B. R. (2022). *Self-Service Technologies Global Market Report 2022*. https://www.reportlinker.com/p06325446/Self-Service-Technologies-Global-Market- Report.html?utm_source=GNW

Curran, J. M., Meuter, M. L., & Surprenant, C. F. (2003). Intentions to use self- service technologies: a confluence of multiple attitudes. *Journal of Service Research*, *5*(3), 209-224.

Damen, A. (2021) *The future of checkout: How retailers are innovating the payment experience*, *Shopify*. Available at: https://www.shopify.com/retail/trend-watch-the- death-of-the-checkout-line (Accessed: November 5, 2022).

Daoud, J. I. (2017). Multicollinearity and Regression Analysis. *Journal of Physics: Conference Series*, 949, 012009.

Fathema, N., Shannon, D. and Ross, M. (2015) *Expanding the technology acceptance model (TAM) to examine faculty use ..., Expanding The Technology Acceptance Model (TAM) to Examine Faculty Use of Learning Management Systems (LMSs) In Higher Education Institutions* Available at: https://www.researchgate.net/publication/281842180_Expanding_The_Technology_ Acceptance_Model_TAM_to_Examine_Faculty_Use_of_Learning_Management_ Systems_LMSs_In_Higher_Education_Institutions (Accessed: November 2, 2022).

GANTI, A. (2022). Central Limit Theorem (CLT): Definition and Key Characteristics. https://www.investopedia.com/terms/c/central_limit_theorem.asp

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*,*31*(1),2–24.

Ibrahim, M. (2015, April). *Data analysis using SPSS*. Share and Discover Knowledge on SlideShare. Retrieved November 11, 2022, from https://www.slideshare.net/MuhammadIbrahim15/data-analysis-using-spss

J.W.Siah, S. F. F. (2019). Service Quality of Self-Checkout Technology in Malaysian Retail Industry.https://www.ijrte.org/wp-content/uploads/ papers/v8i1S5/ A00330681S519. Pdf

KENTON, W., & (2021). Customer: Definition and How to Study Their Behavior for Marketing. https://www.investopedia.com/terms/c/customer.asp

Kwak, J. K. (2017). Analysis on the effect of express checkouts in retail stores. *Journal of Applied Business Research (JABR)*, *33*(4), 767-774.

Lai, P. C. (2017). The literature review of technology adoption models and theories for the novelty technology. *JISTEM-Journal of Information Systems and Technology Management*, *14*, 21-38

Masood Ul Hassan, M. S. I., & Habibah, a. U. (2020). *Self-Service TechnologyService Quality: Building Loyalty and Intention Through Technology Trust in Pakistani ServiceSector*.19. https://journals.sagepub.com/doi/abs/10.1177/2158244020924412

Pantano, E., & Di Pietro, L. (2012). Understanding consumer's acceptanceof technology based innovations in retailing. *Journal of technology management & innovation*, *7*(4), 1-19.

Parkley, V. (2022) *How to use self-checkout at retail stores: 9 simple steps to take*, *Simple Lifesaver*. Available at: https://simplelifesaver.com/how-to-use-self-checkout-at-retail-stores-9-simple-steps-to-take/ (Accessed: November 5, 2022).

Roberto Graña-Alvarez, E. L.-V., Miguel Gonzalez-Loureiro &, & Coronado, F. (2020). Financial literacy in SMEs: A systematic literature review and a framework for further inquiry. *Journal of Small Business Management*.

Salleh, M. B. (2022). PDRM: Over RM5.2 billion lost to scams in two years. https://www.theedgemarkets.com/article/pdrm-over-rm52-billion-lost-scams-two-years

Sanaz, S. (n.d.). *Steps in research process (partial least square of structural ... -IJSSB*. Steps in Research Process (Partial Least Square of Structural Equation Modeling

(PLS-______SEM)). Retrieved November 25, 2022,from https://ijssb.com/images/vol1no2/5.pdf

Tan, D.(2019). IKEA Batu Kawan to open on March 14. https://www.thestar.com.my/business/business-news/2019/02/20/ikea-batu-kawan-to-open-on-march-14

Tan, G. W. H., Ooi, K. B., Sim, J. J., & Phusavat, K. (2012). Determinants of mobile learning adoption: An empirical analysis. The Journal of Computer InformationSystems,

Teherani A, Martimianakis T, Stenfors-Hayes T, Wadhwa A, Varpio L (2015). Choosing a qualitative research approach. J Grad Med Educ. 2015; 7 4: 669–670.

Tye, T. (2019). IKEA Batu Kawan. https://www.penang-traveltips.com/ikea-batu-kawan.htm van Aalderen-Smeets, S. I., Walma van der Molen, J. H., & Asma, L. J. F. (2012). Primary teachers' attitudes towards science and technology: Towards a new theoretical framework. Science Education, 96, 158–182.

Xu, Z., Zhang, K., Min, H., Wang, Z., Zhao, X., & Liu, P. (2018). What drives people to accept automated vehicles? findings from a field experiment. *Transportation Research Part C: Emerging Technologies*, *95*,320–334.

Yuen, K. F., Koh, L. Y., Anwar, M. H. D. B., & Wang, X. (2022). Acceptance of autonomous delivery robots in urban cities. *Cities*, *131*, 104056

The Effect of Logistics Services on Customer Satisfaction in Courier Services

Fatin Nur'ain Binti Jamil, Khor Zhan Peng, Norfarihan Binti Rahimi, Nik Nor Arifah Izzati Binti Nik Rosdi & Zuraimi Abdul Aziz*

Faculty of Entrepreneurship and Business,
Universiti Malaysia Kelantan,
Malaysia

Email: zuraimi@umk.edu.my

Abstract:
Service quality play crucial role in the operational activities of a company since service quality heavily affects the satisfaction of a customer. The main purpose of this study is to identifies the effect of logistic services on customer satisfaction in courier service. The service quality was measured using the following four dimensions of timeliness, accuracy of order, information quality, and personnel quality. The sampling technique in the study was based on convenience sampling of 386 respondents among online sellers in Kelantan. The data were collected using questionnaires distributed to the suitable population. The result of the study confirmed the effect of logistic services on customer satisfaction in courier services. Hence, the study confirmed the relationship between the four dimension above.

***Keywords**: Customer Satisfaction, Logistic Services, Service Quality*

1 Introduction

1.1 Background of the Study

Meeting customer expectations and providing high-quality service are two related concepts. One may argue that a key factor in determining a company's service excellence is how satisfied its customers are. According to Gorla, Somers, & Wong (2010), customer satisfaction precedes the quality of service. This indicates that the services offered will result in their clients' pleasure. It is well recognized that these components are crucial for every company to develop strong partnerships and stay competitive in the market. Customer satisfaction is a metric that measures a company's customers' level of satisfaction with its goods, services, and capabilities. Information regarding customer satisfaction, such as surveys and ratings, can assist a business in deciding how best to adjust or improve its goods and services. Customer satisfaction must be a company's priority. This rule applies applicable to all types of organizations, including commercial enterprises, retail and wholesale businesses, governmental agencies, service providers, non-profits, and every division within one. When a consumer is satisfied, it means that the company is providing them with a service that matches their expectations.

The word customer satisfaction in business refers to the degree to which a product or service offered by a certain company has met the expectations of the customer.

Customers react to the quality of the product and the service they receive by expressing satisfaction or discontent. Owners of businesses are aware that whether they can keep repeating clients or not, the success of their business depends on customer satisfaction. One estimate claims that the expense of acquiring new clients is five to seven times more than the expense of keeping the ones you already have. Some experts argue that one fundamental criterion, customer satisfaction, is more crucial than price.

Logistics services refer to all elements of your supply chain, from the factory to the end customer. They include transportation from the manufacturer to the warehouse, warehousing and order fulfillment, and delivery to the end customer. The capacity to distribute items in compliance with client expectations is used to measure a set of performance factors known as the LSQ (Yang et al., 2010). LSQ stands for Logistic Service Quality. The definition of logistics service quality is defined as an instrument for measuring the perceived value of consumers created by service providers. On the other hand, service quality is recognized as a standard of expectation while obtaining a service. The comparison is made using the disparity between the level of service expected before and after the service is rendered. If there is little difference between what is expected and what is experienced, the service quality is said to be good. Additionally, if the service quality is poor, there will be a significant gap between what is expected and what is perceived (Parasuraman, Zeithmal, & Berry,1985).

The development of logistics that now matches the range of consumers is then adjusted, followed by an attempt to locate a prospective improvement. The modified version consists of the quality of information, the process of order, the quantity of order release, timeliness, the accuracy of order, quality of order, condition of goods, handling error, and communication of staff (Mentzer, Flint, & Hult, 2001). Based on this one company, DLA, which offers internal customers logistics services, they only theorized a direct relationship between customer satisfaction and quality of personal interaction, how orders discrepancies are handled, punctuality, and ordering methods. For the LSQ of online purchasing, Feng et al. (2007) developed six dimensions: timeliness quality, personal contact quality, order quality, order discrepancy handling, order condition, and convenience.

For this paper, only 4 are chosen which are timeliness, the accuracy of order, information quality, and communication of staff which is personnel quality/availability. The reason why only 4 were selected from the 9 dimensions recommended is that these 4 dimensions have met customer satisfaction in dealing with courier services. The first dimension is timeliness. Timeliness can be described as the amount of time it takes for an order to get from the placer to the recipient. The techniques used by the courier to move the product from one location to another until it is in the customer's hands will affect the delivery's arrival time. The most important factor that demonstrates the effectiveness of the delivery system is cycle time, which includes transportation time and backorder time when products are not convenient (Hult et al., 2000; Mentzer et al., 2001; Mentzer et al., 1999).
The second dimension that we use is the accuracy of order. The term order accuracy refers to the accuracy with which the things will be delivered to the consumer. This demonstrates that customers want their orders to be delivered exactly as specified in their order. The courier must ensure that the goods will reach the destination undamaged, in the right quantity, and without conveying the wrong order. The third dimension is information quality. Information quality relates to the amount of relevant

information that customers can obtain from the courier's staff and even from the website the courier uses as a resource for their orders. Fast and secure delivery of packages is prioritized by customers. Thus, if a problem arises, the courier must provide crucial data. Lastly, communication of staff (personnel quality/availability).

1.2 Research Objective

This research aims to achieve the following objectives:

- To determine the relationship between timeliness and customer satisfaction using courier services.
- To determine the relationship between accuracy of order and customer satisfaction using courier services.
- To determine the relationship between information quality and customer service and customer satisfaction using courier services.
- To determine the relationship between personnel quality/ availability and customer service and customer satisfaction using courier services.

2 Literature Review

2.1 Customer Satisfaction

Customer satisfaction would enhance the customers repurchase behaviour and boost confidence in acquiring more products (Cardozo,1965). Customer satisfaction is a psychological state of contentment for the perceived worth of a product or the purchase of services by a product (Howard & Sheth, 1969). Customer satisfaction is based on the magnitude of the discrepancy between the forecast value and the expected demand. The outcome that mattered was how consumers chose to purchase the good or service (Hemple, 1977). It speaks of the evaluation of the purchase item or the consumption experience (Churchill & Surpreant, 1982).

The difference between the service received by the client and the service experienced by the purchase behaviour was measured by consumer satisfaction (Tes & Wilton, 1988). Pre- and post-purchase value expectations' correctness determines the degree of consumer happiness (Ciavolino & Dahlgaard, 2007). As perceptions and beliefs become more consistent, customers' feelings of satisfaction can increase. Instead, if perceptions and value resulted in an inconsistent state, clients would feel less satisfied. Customer satisfaction can be summed up as a combined psychological response to the consistency between pre-purchase anticipation and post-purchase evaluation of consumer transaction behaviour.

The size of the transaction and the kind of the acknowledgement are two angles from which to look at the level of client satisfaction. Next, based on the amount of the transaction, customer loyalty could be split into individual and cumulative transactions. In the area of character recognition, it was feasible to distinguish between useful and cognitive features in terms of customer satisfaction.

Customer satisfaction also is crucial for logistics services looking to gain a competitive edge because they understand that if they don't meet consumers' expectations, other businesses will fill the void with activities that are more focused on meeting those expectations. Therefore, logistics businesses are required to ensure every part of customer service, whether it be the acceptance of orders, their execution, or the resolution of issues. A client of a logistics firm must be certain that the business he has chosen is aware of his needs. In light of this, the article presents the findings of a study the effect of logistics services on customer satisfaction in courier services.

2.2 Timeliness

The term timeliness relates to the anticipated time frame for information accessibility and availability. While Michnik and Lo (2009) describe timeliness as showing up early or at the appropriate moment, we define timeliness as the degree to which the information is sufficiently current for the task at hand. In logistics and people crossing services, punctuality refers to the arrival and departure in accordance with a set timetable. Timeliness is the length of time it takes for an order to get from where it was placed to where it was delivered. Depending on how the product is transported by courier from one location to another and finally into the hands of the customer, the delivery period will vary.

Timeliness is very important for logistics services. Xu and Cao (2008) pointed out that the accuracy of the order variable measures the effectiveness of logistics providers in obtaining consumer orders. It includes accuracy of billing, accurate record keeping and the need to meet commitments on time (Parasuraman, 2004). Additionally, courier providers must meet all the needs of their customers' orders. The expected quantity and quality of the package when it arrives needs to be accurate, as any mishandling can cause customers to be dissatisfied with the service and switch to another courier.

2.3 Accuracy of Order

Accuracy of order is the percentage of orders that are shipped correctly and without any errors, such as wrong quantity, improper packaging, damaged goods, and more, to the customers. As manual inspection is necessary to improve the customer experience and the calibre of services, it can be challenging.

Accuracy of order measures the proportion of all e-commerce orders that are successfully processed and sent to the intended recipient without any mistakes, such as selecting the wrong item or using the wrong unit amount. Because it has a significant impact on customer satisfaction, order accuracy is a crucial measure to monitor. Delivering the incorrect order can be expensive and time-consuming because you will need to spend additional time and labour to make it right, which has a negative impact on the unboxing experience (Shannon Callarman, 2020).

2.4 Information Quality

This refers to how useful an information that the consumer can get from the personnel of the courier and even from the couriers' website to be used as reference regarding their orders. Customers prioritize in getting their packages fast and safely, thus, courier needs to give relevant information if any problems arise. The overall customers' satisfaction can be affected by the information provided, in terms of trustworthiness and quality of information which would help customers in making better decisions (Mentzer, Flint, & Hult, 2001). The ability of courier provider to include relevant product information is essential to attract customers' attention to their specific service and promotions which meet their needs. Parasumaran suggested that firms should consider including multiple languages in the information provided, which is relevant to the area of study for this paper, Malaysia, where there are consist three main races: Malays, Chinese and Indians. (Alemu, 2016) stated that the courier providers must provide precise and correct information about the services offered. Sufficient information will help the customers to make their choice and decision accordingly. The quality of information denotes the level of helpful information. In addition, the quality of information on the provider's website boosts customers' enjoyment and leads them to use the services repeatedly (Widagdo & Roz, 2021.

2.5 Personnel Quality/Availability

Communication between the customer and contact person is significant during the service delivery to increase the perception of clients' expectations (Parasuraman et al., 1985). According to Lehtinen, U and Lehtinen, J.R (1991), the service quality was evaluated by customers using three dimensions: physical quality, corporate quality, and interactive quality. The interactive feature which is seen as an interaction among customers, contact personnel, and other customers is the essential aspect of service quality. Bitner et al., (1994) claims that precise understanding of clients by frontline personnel, who are a part of the contact staff, facilitate to adopt customers' expectations and needs. The essential features of service personnel, such as experience, ability to empathize with the customers' situation, desire of him/her to solve the problems during the delivery process and their approach to the interaction between customers jointly affect the perception of clients about quality of service they took (Bitner et al., 1994; Mentzer et al., 2001).

According to Mentzer et al. (2001), the quality of contact personnel is the excellent interaction between the customer and shippers' personnel. The customer expects to have good communication with the shipper's personnel while delivering the products or goods (Alemu, 2016). The way the shippers' personnel handle customers' complaints, questions and requests are essential. Displaying a reasonable manner in handling the customers will lead to a positive experience with the respected courier service provider (Lu, Tu, & Jen, 2011).

2.6 Hypotheses Statement

A new framework in Figure 2.1 is formulated based on the effect of logistics services on customer satisfaction in courier services. There are four (4) hypotheses are shown below:

H1: There is a positive relationship between timeliness and customer satisfaction.
H2: There is a positive relationship between the accuracy of orders and customer satisfaction.
H3: There is a positive relationship between information quality and customer satisfaction.
H4: There is a positive relationship between personnel quality/availability and customer satisfaction.

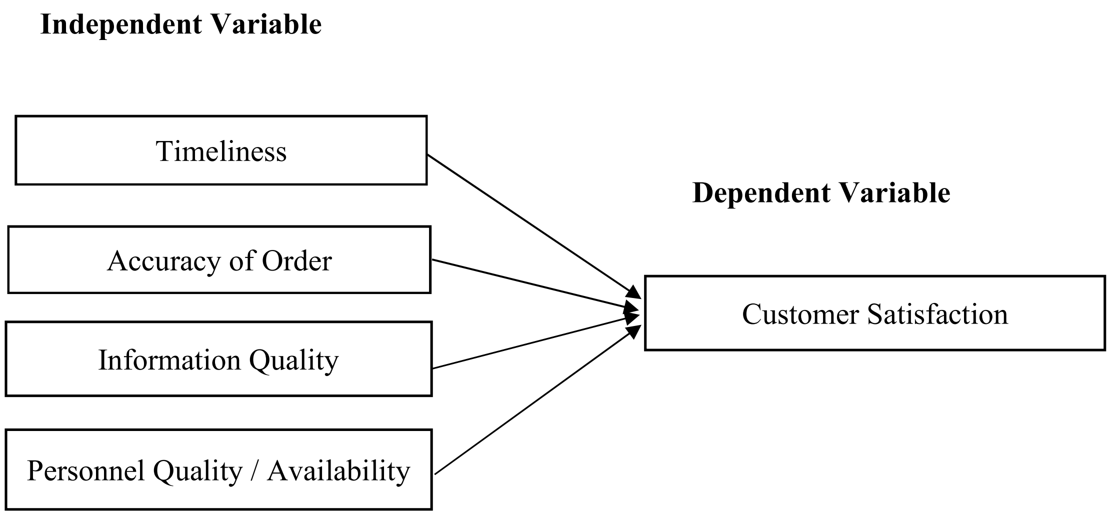


Figure 2.1: The effect of logistics services on customer satisfaction in courier services.

3 Methodology

This research is quantitative research. According to Hair et al., quantitative research is a research with a great emphasis on the use of formal questions and the use of response options specified in a questionnaire or survey that will be given to respondents Furthermore, Hair et al. also suggest that usually, problems in quantitative research are well defined. According to Sugiyono, a quantitative study looks at the relationship of variables to the object under study, whether they are causal so that in the research, there are independent and also dependent variables. In this study, the authors want to identify the effect of logistics service that influence customer satisfaction in courier services using quantitative methods because this study is intended to test the hypotheses that have been set.

With the quantitative research method, the process of gathering data and analysing the data makes use of numbers and statistics to produce tested generalizations and ascertain the impact of an independent variable: customer satisfaction, on a dependent variable: timelines, accuracy of order, information quality, and personnel quality/availability. The type of quantitative research used is a quantitative survey and it involves asking respondents to fill out questionnaires. A population is the complete set group of individuals, whether that group comprises a nation or a group of people with a common characteristic (Osikhotsali, 2022). He also writes that in statistics, a population is the pool of individuals from which a statistical sample is drawn for a study. Thus, any selection of individuals grouped by a common feature can be said to be a population. A sample may also refer to a statistically significant portion of a population, not an entire population.

The population in this study is online seller in Kelantan. Sample size is a count of the individual samples or observations in any statistical setting, such as a scientific experiment or a public opinion survey. Though a relatively straightforward concept, choice of sample size is a critical determination for a project. Too small a sample yields

unreliable results, while an overly large sample demands a good deal of time and resources (Zamboni J, 2018).
The sampling method utilized is basic random sampling, which is most likely the most used sampling methodology. The study's sample was picked by the researchers from residents of the state of Kelantan. To help the researchers complete their study and collect data, this is being done. Because they are readily available, the samples are picked, and this also comprises selecting any information set of respondents that is pertinent to the goals.

A Likert scale is used in the questionnaire's construction to allow respondents to rate each statement. In educational and social science research, the Likert scale is one of the most fundamental and often employed psychometric tools. In addition, there are several arguments and disagreements surrounding the study and inclusion of certain points on the scale. Statistical Package for the Social Sciences is a programme used to analyse the data (SPSS). With data from virtually any type of file, SPSS can produce tabular reports, charts and graphs of distributions and trends, descriptive statistics, and carry out sophisticated statistical analysis.

4 Result and Discussion

4.1 Preliminary Analysis

Prior to undertaking comprehensive research investigations, preliminary data are the data collected from small-scale research initiatives to assess viability. Before being offered to 386 respondents through online survey, the pilot test had a cap of 30 respondents.

4.1.1 Reliability Test

Table 1: Results of Reliability Cronbach's Alpha

Variables	Cronbach's Alpha	N of Items
Timeliness	0.963	6
Accuracy of Order	0.957	6
Information Quality	0.960	6
Personnel Quality/Availability	0.957	6
Customer Satisfaction	0.953	6

Table 4.1 demonstrates that the questionnaire's Cronbach's Alpha scores fell between the range of 0.953 and 0.963 in this study. Utilizing Cronbach's Alpha, four independent variables have been evaluated for reliability. The first independence variable, timeliness which is excellent value found to be acceptable (6 items: α=0.963). Furthermore, accuracy of order and personnel quality/availability both are found to be excellent variable (6 items: α=9.57). Next, information quality found to be excellent reliability (6 items: α=0.960). As well as last the dependent variable, customer satisfaction found to be excellent reliability (6 items: α=0.953). Because the respondent clearly comprehended the questions supplied, the outcome demonstrates that the dependability is adequate. As a result, it has been decided that additional examination of the questionnaire is appropriate.

4.1.2 Normality Test

Table 2: Results of Normality Test

Variables	Skewness	Kurtosis	Result
Timeliness	-0.850	1.803	Normal distributed
Accuracy of Order	-0.294	-0.199	Normal distributed
Information Quality	-0.604	0.087	Normal distributed
Personnel Quality/Availability	0.230	-0.935	Normal distributed
Customer Satisfaction	-0.489	0.248	Normal distributed

According to Bryne (2010), data is deemed to be normally distributed if its skewness value is between -2 and +2 and its kurtosis value is between -7 and +7. Based on table 4.2 above, it can be seen that the data was normally distributed because each variable's skewness value ranges from -2 to +2 and its kurtosis value ranges from -7 to +7. The study will employ a Pearson's correlation coefficient to analyse the relationships between timeliness, correctness of the order, information quality, and staff quality/availability and customer satisfaction because the data was normally distributed.

4.2 Demographic Profile of Respondents

Table 3: Gender of respondents

Category		Frequency (N)	Percentage (%)
Valid	Male	176	45.6
	Female	210	54.4
	Total	386	100

Table 4: Age of respondents

Category		Frequency (N)	Percentage (%)
Valid	15-20 years old	8	2.1
	21-30 years old	286	74.1
	31-40 years old	56	14.5
	41-50 years old	25	6.5
	51-60 years old	11	2.8
	Total	386	100

Table 5: Race of respondents

Category		Frequency (N)	Percentage (%)
Valid	Malay	203	52.6
	Chinese	96	24.9
	Indian	65	16.8
	Others	22	5.7
	Total	386	100

Table 6: Marital status of respondents

Category		Frequency (N)	Percentage (%)
Valid	Single	287	74.4
	Married	88	22.8
	Other	11	2.8
	Total	386	100

Table 7: Occupation of respondent

Category		Frequency (N)	Percentage (%)
Valid	Government sector	37	9.6
	Private sector	51	13.2
	Self-employed	60	15.5
	Student	225	58.3
	Not working	13	3.4
	Total	386	100

Table 7: Courier service of respondent

Category		Frequency (N)	Percentage (%)
Valid	GD Express (GDEX)	42	11.0
	J&T Express	204	52.8
	Skynet express	29	7.5
	Pos Laju	70	18.1
	Other	41	10.6
	Total	386	100

4.3 Hypotheses Testing

The findings of the analysis of the correlation coefficient showed that independent variables such as sense of timeliness, accuracy of order, information quality, and personnel quality had a correlation relationship with customer satisfaction among online sellers in Kelantan. The results of the hypothesis are summarized and illustrates in each table as the correlation between independent and dependent variables.

4.3.1 Hypothesis 1

Correlation between timeliness and customer satisfaction.
H1: There is a positive relationship between timeliness and customer satisfaction.
This table show the correlation between timeliness and customer satisfaction.

Table 8: The Pearson's Correlation between timeliness and customer satisfaction

Correlations			
		Timeliness	**Customer Satisfaction**
Timeliness	Pearson Correlation	1	.978**
	Sig. (2-tailed)		.000
	N	386	386
Customer satisfaction	Pearson Correlation	.978**	1
	Sig. (2-tailed)	.000	

	N	386	386

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

4.3.2 Correlation Between the Accuracy of Orders and Customer Satisfaction.
Correlation between accuracy of order and customer satisfaction. This table show the correlation between accuracy of order and customer satisfaction.

H2: There is a positive relationship between the accuracy of orders and customer satisfaction.

Table 9: The Pearson's Correlation between accuracy of order and customer satisfaction

Correlations

		Accuracy of Order	**Customer satisfaction**
Accuracy of Order	Pearson Correlation	1	.982**
	Sig. (2-tailed)		.000
	N	386	386
Customer satisfaction	Pearson Correlation	.982**	1
	Sig. (2-tailed)	.000	
	N	386	386

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

4.3.3 Correlation between Information Quality and Customer Satisfaction.
Correlation between information quality and customer satisfaction. This table show the correlation between information quality and customer satisfaction.

H3: There is positive relationship between information quality and customer satisfaction.

Table 10: The Pearson's Correlation between information quality and customer satisfaction

Correlations			
		Information Quality	**Customer Satisfaction**
Information Quality	Pearson Correlation	1	.995**
	Sig. (2-tailed)		.000
	N	386	386
Customer satisfaction	Pearson Correlation	.995**	1
	Sig. (2-tailed)	.000	386
	N	386	995
Correlation is significant at the 0.01 level (2-tailed)			

4.3.4 Correlation between Personnel Quality / Availability and customer satisfaction.
Correlation between personnel quality/availability and customer satisfaction. This table show the correlation between personnel quality/availability and customer satisfaction.

H4: There is a positive relationship between personnel quality/availability and customer satisfaction

Table 11: The Pearson's Correlation between personnel quality/availability and customer satisfaction

Correlations			
		Personnel Quality / Availability	**Customer Satisfaction**
Personnel Quality / Availability	Pearson Correlation	1	.991
	Sig. (2-tailed)		.000
	N	386	.386
Customer satisfaction	Pearson Correlation	.991**	1

	Sig. (2-tailed)	.000	
	N	.386	386

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

5 Conclusion and Recommendation

5.1 Implication of the study

This study used relationships between delivery service, reverse logistics service and customer service with the impact that influence customer satisfaction among logistic service users in Kelantan to investigate the relationship between each variable chosen in this study. This study demonstrates that the dependent variable customer satisfaction has a significant or positive relationship with delivery service, reverse logistics service and customer service.

The findings of this study have some practical implications that could assist in handling good service quality in logistics connected to customer happiness when using courier services. Researchers examine how the quality of logistical services affects consumer satisfaction. According to the research, customer service, reverse logistics services, and delivery services all significantly increase e-commerce users' satisfaction. This demonstrates that, in the study's discussion of logistics, client happiness and service quality have a significant link. Therefore, in order to increase consumer happiness, logistics services and other e-commerce or online retail platforms should improve the quality of their logistics services.

There is intense competition among e-commerce platforms as a result of the rapid growth of internet commerce. The results of this study demonstrate that providing good service is one way to make sure that repeat customers can be trusted. Online trading platforms must therefore make sure that customers are happy with their purchases, which should include both high-quality goods and logistics services. This will promote the purchase of more new clients.

The results of this study demonstrate that any e-commerce platform should persuade users that their packages would arrive faster and with better tracking. The e-commerce platform must also develop a plan to draw in and keep customers over the long run. If they take part in a loyalty programme, customers are more likely to make purchases at a specific store. Because of this, e-commerce platforms need modify their customer loyalty programmes to compete in this fast-paced period, which includes offering higher service quality, particularly in terms of logistics services.

5.2 Limitation of the Study

The biggest limitation in doing this research is poor internet connection. In order to complete this research, the researcher read extensively on the Google platform and was necessary to locate more references from journals or studies related to the subject.

Failure to transmit and receive accurate information is the second effect. When the researcher tries to meet with the supervisor for a conversation but is unable to reach them, it can be apparent.

Besides, the researcher then has to gather information from 100 respondents who did not provide information for the pilot test in order to finish this study. The researcher required a few weeks to gather the data because of the time constraints and the requirement that everything be done online. Even when the researcher posts the poll on every social media site, some respondents choose to ignore it or refuse to participate. Although some restrictions were encountered throughout the research's execution, the general findings remained unaffected. Future researchers will, however, have a harder time coming up with greater studies in the future.

For further study, the proactive contact is also valid from the perspective of the client, who, when notified in advance, is able to better prepare for the reception of the package. The majority of courier services do not wish to give out their direct phone numbers. It is brought on by the fact that customers are starting to call the couriers directly rather than submitting orders to the customer care department via the internet or phone. In this situation, the courier would not frequently decide whether or not the parcel would be successfully delivered, therefore in an effort to meet the customer's request, they would try to alter the route.

Lastly, by increasing the sample size, namely to more than 400 surveys, the validity and consistency of the result can be enhanced. Additionally, the survey's duration should be increased to give researchers enough time to distribute and collect data from a significant number of respondents. To increase the number of respondents from the entire population for further study, the questionnaire can be distributed via Google Forms.

5.3 Recommendations / Suggestion for Future Research

Certain empirical variables that determine the experienced runner's and re-participation intention toward running the event have been developed on the basis of the preceding chapter. As a result, various recommendations for improving future research have been made.

The logistics industry today is the most important industry in a country, but there are still many people who do not know the logistics industry more deeply. It would be preferable if the researcher could provide additional information on the logistics sector.

In addition, there are a lot of research on the logistics sector conducted outside of Malaysia. For the general public to know that Malaysia is also increasing its logistics industry, it would be preferable if the researchers could do a study on the growth of the logistics sector in Malaysia.

Lastly, there are more study resources available online that are accessible for free, especially for students, making it simple to cite sources without paying for them.

5.4 Conclusion

The researcher must describe the study's purpose in connection to the subject under examination at the conclusion of this chapter. This study investigates the relationship between timeliness, accuracy of order, information quality, personnel quality/availability towards customer satisfaction. A research framework has been developed based on the examined literature. The researcher aimed to investigate the relationships between the independent factors and the dependent variables.

This study included 386 participants who completed an online survey. The data was collected and analysed using descriptive statistics, reliability analysis, and correlation analysis using the SPSS software version. The reliability analysis yielded a total variable score of 0.900. As consequence, the presented result is trustworthy and may be accepted in this research. The study's findings, which studied the link between the factors of timeliness, accuracy of order, information quality, and personnel quality/availability among respondents who had used courier services with satisfaction, were approved.

6 Acknowledgements

First and foremost, we spread our gratitude to the Almighty God for giving us the strength, health, and opportunity to complete this project successfully and in the allotted time. Then, this project's success relies on our seriousness, as well as the assistance and advice from many people. Hence, we take this opportunity to express our appreciation and many thanks to everyone who assisted us in completing this final year project.

Besides that, we are extremely grateful to our supervisor, has always assisted us in improving, providing advisors, and providing extensive supervision for us to complete this research project. Moreover, we would like to thank him for giving us continuous support to us from the beginning and we also get a lot of new knowledge while preparing this project.

In addition, we would also like to indicate our thanks to the library of University Malaysia Kelantan to give a lot of help through the reference and materials that help us make a reference while doing this project. Furthermore, we want to show thankfulness and appreciation to our colleagues for giving commitment and cooperation while doing this project from the beginning and to those our friends that give more help and support while doing this research.

Last but not least, there are special thanks to our beloved family for giving us a lot of support, consideration and encouragement while doing this project. Other than that, they also always be in every situation, especially during tough times. We also appreciate for every love and prayers they give to us.

7 References

Ayanou, T. (2022, October 4). Digitised courier services – A silver bullet for e-commerce delivering conundrum https://www.myjoyonline.com/theophilus-teiayanou-digitised-courier-services-a-silver-bullet-for-e-commerce-delivering-conundrum/

Alemu, H. (2016, August). The Implication of Logistics Service Quality on Customer Satisfaction: The Case of Jumia Online Market. Addis Ababa University http://etd.aau.edu.et/bitstream/handle/123456789/6589/Hana%20Alemu.pdf?sequence=1&isAllowed=y

Gök, O., Ersoy, P., & Börühan, G. (2019). The effect of user manual quality on customer satisfaction: the mediating effect of perceived product quality. *Journal of Product & Brand Management*

Gorla, N., Somers, T. M., & Wong, B. (2010). Organizational impact of system quality, information quality, and service quality. The Journal of Strategic Information Systems, 19(3), 207-228.

Hsu, S.-H., Tsai, M.-H., & Wang, Y.-C. (2013). Developing a decomposed customer satisfaction index: An example of the boutique motel industry. *Total Quality Management & Business Excellence*, *24*(9-10), 1124-1140.

Mentzer, J., Flint, D., & Hult, G. T. M. (2001). Logistics Service Quality as a Segment-Customized Process. *Journal of Marketing*, *65*, 82-104.

Rajendran, S., Wahab, S., Ling, Y., & Yun, L. (2018). The Impact of Logistics Services On the E-Shoppers' Satisfaction. *7*, 461-469.

Safa, N. S., & Von Solms, R. (2016). Customers repurchase intention formation in e-commerce. *South African Journal of Information Management*, *18*(1), 1-9.

Siali, F., Wen, A., & Ahmad Hajazi, M. U. (2018). Booming of Online Shopping in Malaysia: Do Customers Satisfy with Parcel Delivery Service? *International Journal of Academic Research in Business and Social Sciences*, *8*.

Thai, V. (2013). Logistics service quality: Conceptual model and empirical evidence. *International Journal of Logistics*, *16*.

Law Insider. (2022). Delivery services definition. Retrieved October 03, 2022, from https://www.lawinsider.com/dictionary/delivery-service

Leopards Courier Services (Pvt.) Ltd. (2022). What is Order Accuracy and why is it essential? Retrieved October 04, 2022, from https://www.linkedin.com/pulse/what-order-accuracy-why-essential-leopardscourierservice?trk=pulse-article_more-articles_related-content-card

Lu, T., Tu, R., & Jen, W. (2011, October 20). The role of service value and switching barriers in an integrated model of behavioral intentions. Total Quality Management & Business Excellence.

Lehtinen, U. and Lehtinen, J, R. (1991) Two Approaches to Service Quality Dimensions. Service Industries Journal, 11, 287-303.

Muzhaffar, A, M., Noruul, S, Y., Kamal,N, T, F,A., Melan, M. (2017) Logistics service quality of courier providers among student in UUM.

Ramli, M, A. (2020, July 27). Jangan terjerat sindiket tipu menyamar pos laju!. Retrieved November 05, 2022, from https://www.google.com/amp/s/www.sinarharian.com.my/ampArticle/94173

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. Journal of Retailing, 64(1), 12–40.

Pos Malaysia Berhad. (2021, February 5). Online Security, Fraud And Scams, Retrieved October 07, 2022, from https://www.pos.com.my/news-info/online-security-fraud-and-scams.html

Suresh, S., & Vasantha, S. (2021). Influence of logistics service quality among customer satisfaction using IOT based techniques. *Materials Today: Proceedings*. Retrieved November 07, 2022, from: https://www.sciencedirect.com/science/article/pii/S2214785320394402

Sutrisno, A., Andajani, E., & Widjaja, F. N. (2019). The effects of service quality on customer satisfaction and loyalty in a logistics company. *KnE Social Sciences*, 85-92. Retrieved September 05, 2022, from: http://kne-publishing.com/index.php/KnE-Social/article/view/5360

Suraya Hani Mohamad Ashi, (2021). Population by Age Group, Sex and Ethnic Group, Kelantan. Retrieved October 04, 2022, from: https://www.data.gov.my/data/en_US/dataset/population-by-age-group-sex-and-ethnic-group-kelantan

Shannon Callarman, (2020). How to Increase Order Accuracy Within Fulfillment Centers. Retrieved October 05, 2022, from: https://www.shipbob.com/blog/order-accuracy/

Thai, V. (2013). Logistics service quality: Conceptual model and empirical evidence. *International Journal of Logistics*, *16*.

Yang, Y.H., Huy, Y.V., Leung, L.C. and Chen, G. (2010), “An analytic network process approach to the selection of logistics service providers for air cargo”, The Journal of the Operational Research Society, 61(9), 1365-1376.

Zamboni, J. (2018, April 23). What Is the Meaning of Sample Size?. Sciencing, Retrieved October 08, 2022, from https://sciencing.com/meaning-sample-size-5988804.html

Factor Influencing the Students' Acceptance of E-learning at Universiti Malaysia Kelantan (UMK) City Campus

Amin Husaini Ibrahim, Mohd. Nashruddin Hasnan, Nurdina Qistina Juri, Nurshahirah Mohd Sharmiza, & Rosmaizura Mohd Zain*

Faculty of Entrepreneurship and Business,
Universiti Malaysia Kelantan,
Malaysia

Email: rosmaizura.mz@umk.edu.my

Abstract:
E-learning can be defined as a teaching model that promotes access to knowledge through a digital platform or environment. Nowadays, e-learning platforms are becoming widely known and widely used by schools and institutions in Malaysia as specialized software for sharing academic content (Learning Content Management or LCMS). This type of tool not only makes it possible to create and share content but can also control other aspects of teaching such as tuition fees, grades, as well as resources for exchange between students. However, there are a few students who do not accept e-learning because of the lack of interaction between students and educators. For them, e-learning is one-way learning. This causes the interaction between students and educators to be reduced so that it will be difficult for students to get further explanations about material that is difficult to understand. In this study, several factors have been analysed to find out about student acceptance of e-learning around Universiti Malaysia Kelantan, City Campus. The main objective and purpose of this research is to gain knowledge of the extent to which students accept e-learning in public universities in Malaysia through factors that are influenced, namely course effectiveness, lecturer characteristics, system quality, perceived usefulness and the utility available of facilities. This study uses quantitative research method and collecting data from 361 respondents from all faculties at Universiti Malaysia Kelantan, City Campus. The results of this study show that course effectiveness, lecturer characteristics, system quality, perceived usefulness and the utility of available facilities have a positive relationship with student acceptance of e-learning. The findings of this study will make students more interested in continuing learning activities using online e-learning platforms.

Keywords*: Course Effectiveness, Lecturer Characteristics, System Quality, Perceived Usefulness and the Utility Available of Facilities.*

1 Introduction

E-learning is described as "learning that is enabled electronically" (Tamm, 2020). E-learning can be carried out by using the help of technology such as computers and the internet where teachers can carry out learning activities online either in class or out of class. It can be conducted using various applications which the school or university has prepared where teachers and students will have access to receive or upload data or materials that will be used during the learning process (The Economic Times, 2019).

E-learning ensures that all students are actively engaged in the learning process by utilizing texts, videos, audio, group sharing, and interactive visuals. It might raise. awareness of the need for higher education institutions to preserve their competitive edge, raise the bar for instruction and learning standards, and give students access to education and training in this more globally connected economy (Islam et al. 2015).

In Malaysia, there are two typical methods for developing online courses, according to Lateh and Raman (2004: 3). First off, universities don't encourage professors to create their online courses. When teachers work with the web development team, which also includes instructional designers and graphic artists, they experience the second type of e-learning development that (Lateh & Raman, 2004) identified. Together, such a team may be able to create web-based resources that are more broadly relevant to the academic goals of the departments, faculties, and university.

1.1 Research Objectives

The objectives for this research are:

1. To examine the relationship between course effectiveness and students' acceptance of e-learning at University Malaysia Kelantan.

2. To examine the relationship between lecturer characteristics and students' acceptance of e-learning at University Malaysia Kelantan.

3. To measure the relationship between system quality and students' acceptance of e-learning at University Malaysia Kelantan.

4. To determine the relationship between perceived usefulness and students' acceptance of e-learning at University Malaysia Kelantan.

5. To determine the relationship between the utility of available facilities and students' acceptance of e-learning at University Malaysia Kelantan.

1.2 Significance of Study

1.2.1 Researchers

In this study, it has given the researcher the opportunity to study in a more orderly and in-depth manner about course effectiveness, lecturer characteristics, system quality, perceived usefulness and the utility of available facilities as factors influencing the students' acceptance of e-learning. The researcher will take advantage of the researcher's abilities to produce useful research. In fact, it also helps the researcher to think rationally and maturely in producing a study. Next, this study will allow researchers to discover important aspects of how students accept learning using e-learning methods that many researchers have not yet done. The topic of this research paper will provide benefits and advantages to future researchers.

1.2.2 Universiti Malaysia Kelantan Students

This study can show a flexible picture of the acceptance of students at University Malaysia Kelantan towards the online learning method that is e-learning. Considering the increasingly advanced and modern digital world, various learning methods can be carried out by students at the university to continue their studies without face-to-face interaction in the classroom. Therefore, this knowledge, information and initiative will provide a clear picture to students at University Malaysia Kelantan whether e-learning methods are effective or ineffective in their daily learning.

2 Literature Review

2.1 Independent Variables

2.1.1 Course Effectiveness

The effectiveness of a course is determined by how the students feel about the techniques, quality, and management of the course (Navarro et al. 2005). Many thought that student satisfaction is highly influenced by the effectiveness of the course. Elliott (2002) also concludes that the most important part of students' satisfaction with their university experience is accounted for by the success of their courses.

2.1.2 Lecturer Characteristics

A lecturer is somebody who remains before a class and gives an organized talk intended to show you something. There are numerous lecturers in schools and colleges. A lecturer is responsible for teaching post-secondary students at undergraduate and graduate levels in universities and academic places. They often include considerable work experience in the subject they teach, which gives them information and remains the option to show a clear course. Educational institutes will get lecturers considering the merit of their profession, meaning they should not be taught to PhD level to educate.

2.1.3 System Quality

With today's advanced technological advancements, various institutions are investing various resources in e-learning systems to produce more integrated learning. This method facilitates functional e-learning for students to interact with educators, the ability to monitor student progress, and robust and secure information sharing according to today's modern standards. In addition, one of the advances in training is e-learning, which plays a big role in upgrading teaching methods and expanding the level of understanding (Alla et al. 2013).

2.1.4 Perceived Usefulness

Perceived usefulness is made sense of as 'how much an individual trusts that utilizing a specific method would improve their work execution' (Davis, 1989). Usefulness is a form of the method used as the main basis in the Technology Acceptance Model (TAM) and in the modified TAM model (Alsabawy, 2016). Perceived usefulness stated that its value is seen as the most significant contributing variable carrying out the goal for the intention to behave.

2.1.5 The utility of Available Facilities

The utility of available facilities is categorized as an interactive form created for students and every organizational structure and technical system available is used to support the use of the system especially in e-learning (Venkatesh et al. 2003). This is because, as part of the national strategy, developing and devising ways to integrate e-learning into the curriculum should be a top focus. Lecturers and students alike should have access to e-learning training, be aware of the various learning methodologies, and know when to use them.

2.2 Dependent Variable

2.2.1 Students Acceptance of E-Learning

According to Dillon and Morris (1996), students' acceptance is the certain ability of a user group to use information technology for the purposes that it is meant to support. In both our daily lives and how we learn, technology is a major factor. E-learning technologies have changed how instructors teach and how students study in recent years (Vululleh, 2018). The behavioral and social aspects of e-learning adoption are equally important. These elements have been related to users' use of technology, according to numerous studies. (Nikou & Economides, 2017; Oruç & Tatar, 2017).

High acceptance rate students reported that the web-based course was convenient and adaptable. However, several students had issues with the online learning environment (Lim et al. 2008). However, several students had issues with the online learning environment. They thought the online course was a different learning experience and needed more support and time to get used to the class environment (Hong et al. 2003). On the plus side, students were totally on board that e-learning benefited their academic achievements, according to Hong et al. (2003) and Poon et al. (2004). However, there are many factors that could affect students' acceptance of e-learning, among them, course effectiveness, lecturer characteristics, system quality, perceived usefulness, and the utility of available facilities.

2.3 Research Hypothesis

A hypothesis is referred to as an estimation of what the researcher is expecting to perceive in the researcher empirical data (Sekaran & Bougie, 2013). The literature review and theoretical background revealed that independent variables do influence the dependent variable. However, to what extent these factors influencing the students' acceptance of e-learning at University Malaysia Kelantan (UMK) City Campus remains unclear. Based on the literature discussed in this chapter, the hypotheses had been created and to be tested.

H_1: There is no relationship between course effectiveness and students' acceptance of e-learning at Universiti Malaysia Kelantan.
H_2: There is a relationship between lecturer characteristics and students' acceptance of e-learning at Universiti Malaysia Kelantan.
H_3: There is a relationship between system quality and students' acceptance of e-learning at Universiti Malaysia Kelantan.
H_4: There is a relationship between perceived usefulness and students' acceptance of e-learning at Universiti Malaysia Kelantan.
H_5: There is a relationship between the utility of available facilities and students' acceptance of e-learning at Universiti Malaysia Kelantan.

2.4 Conceptual Framework

In this conceptual framework, we already mention that our research is the student acceptance of e-learning at Universiti Malaysia Kelantan with the independent variable course effectiveness, lecturer characteristics, system quality, perceived usefulness, and the utility of available facilities. The research framework is presented in figure 1.

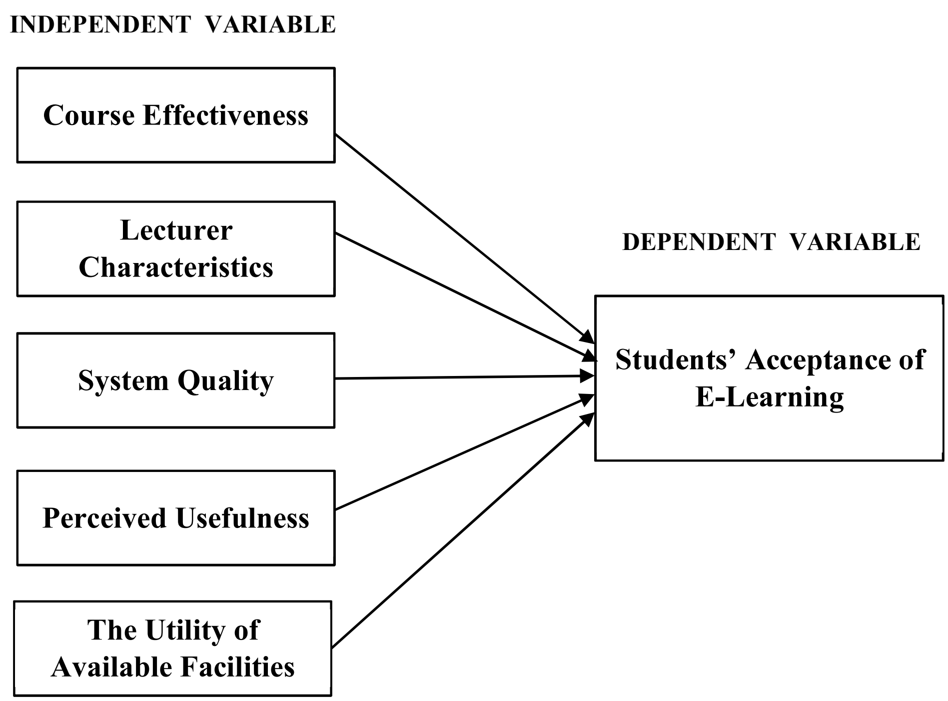


Figure 1: Conceptual Framework

3 Submission of Papers

3.1 Research Design

The objective and goal of research design are to guarantee that the data obtained enables the researcher to successfully solve the research challenge. A research design also called a research strategy, is a strategy for resolving a series of queries (McCombes, 2019). The research design is an interpretative approach that may be deemed the best appropriate for this investigation

3.2 Study Population

The target correspondent in this research is among students at Universiti Malaysia Kelantan between the age averages of 19 to 25 and above. The total number of students at Universiti Malaysia Kelantan (UMK) City Campus is 6354 students consisting of 3631 students from Faculty of Entrepreneurship and Business and 2723 students from Faculty of Hospitality, Tourism and Wellness.

3.3 Sample Size

In research, the sample size is something that needs to be paid attention to when forming a study. Salant and Dilman (1994) the sample is defined as a set of respondents selected from a larger population as a way to conduct research. However, this research has focused on factors influencing the students' acceptance of e-learning at Universiti Malaysia Kelantan (UMK) City Campus. Based on Krejcie and Morgan (1970), the population of more than 6354 samples required is 361.

N	*S*	*N*	*S*	*N*	*S*
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note.—*N* is population size. *S* is sample size.

Source: Krejcie & Morgan, 1970

Figure 2: The formula for the sample size
(Source: Krejcie and Morgan, 1970)

3.4 Data Collection

In this study, researchers will be using primary data and secondary data to gather information needed for this study. In addition to published or unpublished work that is based on research that used primary sources, any other type of source that was not a primary source and was used to create a written work is considered secondary data (Glen, 2022). Primary data is information or data that is collected by the researchers at first-hand, while secondary data is information from secondary sources that were not directly compiled by the researchers (Rabianski, 2003).

3.5 Sampling

Sampling is a way to select individual members or subsets of the population that are intended to be used for statistical inference from among them and will estimate the characteristics of the entire population. Sampling is the practice of choosing a few people to be used as a sample through the way that individuals are chosen to be representative of the large population from which they are selected (Bhat, 2018). Sampling strategy refers to a sample from a larger population selected using the technique of probability theory that the probability sample needs to be combined in a random sampling.

3.6 Research Instrument

In this study, the researchers will analyse the data collected using a quantitative method. Researchers analyse concepts about people's attitudes and behaviours in quantitative research using numerical and statistical data. The questionnaire is going to be distributed to students in Universiti Malaysia Kelantan, City Campus students through online.

The questionnaire consists of three sections, which are Section A, B, and C. Section A consists of questions about demographic segmentation, which are gender, age, race, courses, year of study, marital status and devices for e-learning. In section B, the questions will be based on the independent variables which are course effectiveness, lecturer characteristics, system quality, perceived usefulness, and the utility of available facilities. In section C, the questions will be based on the dependent variable which is students' acceptance of e-learning. In the questionnaire, the Likert Scale will be used which is 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, and 5=Strongly Agree to determine the level of understanding or satisfaction of students.

3.7 Data Analysis Technique

This study will make use of IBM SPSS (Statistical Package for Social Science) Statistics version 24. The system that can do statistical data analysis is SPSS (Sekaran & Bourgie, 2013). For data understanding, analysis, forecasting and planning, researchers can utilise IBM SPSS Statistics. The researchers will import all of the data from the target respondents' Google forms into SPSS and conduct the statistical analysis. Descriptive Analysis, Reliability Analysis, Pearson Correlation Analysis and Multiple Linear Regression Analysis will all be included in the statistical analysis for the study.

4 Data Analysis and Findings

4.1 Demographic Profile

The demographic profile of the respondents included the gender, age, race, year of study, course, education level, residence, types of internet access, monthly expenses for internet and devices for e-learning. From the sample collected, what the researcher were found is that most of the respondents are male with a percentage of 66.6% while the percentage of female respondents is only 33.4%. It was found that out of a total of 332 respondents, 221 of them were male while 111 were female.

In terms of age, the highest number of respondents are from the age group of 23 to 24 years with 48.8% or 162 respondents. The second highest group is 21 to 22 years old with 25.6% or 85 respondents. Meanwhile, the youngest respondents who are 19 to 20 years old are the third highest group with 16.9% or 56 respondents. The lowest number of groups are those aged 25 and above with 8.7% or 29 respondents.
Next, the race of respondents is divided into three categories which is Malay, Chinese and Indian. In this study, we found that the highest race of respondents is Malay with 61.7% and the frequency is 205. The second is Chinese with 24.7% and the frequency of respondents is 82 while Indian is found with 13.7% and 45 respondents.

Besides that, the years of study of the respondents in the Universiti Malaysia Kelantan, City Campus. The highest year of study is from the year 3 group with 33.7% or 112 respondents. The second highest is year 4 with 31.6% and 105 respondents. For the respondents in year 2 the percentage is 18.4% and the respondents is 61. Lastly, the lowest respondent's year of study is in year 1 with 16.3% and 54 respondents. Through this study, we found that students from year three and four more use E- learning methods at Universiti Malaysia Kelantan, City Campus.

Moreover, for the the respondent's situation is divided into 10 study courses. The researcher found the highest percentage of respondents of 27.1% and frequency a total of 90 respondents were found is belong to the Sal course. The second highest course of study is the sar course with 15.7% and the frequency is 52. Then, 13.3% with 44 respondents is sak courses. Meanwhile, sah courses have a percentage of 11.1% and a frequency of 37. Next, the percentage of the sab course is 8.7% and the frequency is 29. The respondents from the sap course is 7.2% with a frequency of 24. The saa course is 5.1% with a total of 17 respondents. 4.8% with 16 frequency owned by sas courses. Sae course is 4.5% and the frequency of respondents is 15 people. Lastly, for the respondent's course which saw is 2.4% and the frequency of respondents with the number of 8 respondents.

Furthermore, for the level of education of respondents at the Universiti Malaysia Kelantan, City Campus. The highest level of education is a degree which is 95.2% and 316 frequencies of the respondents. Next, the level education of master's & Ph. D is 4.8% equivalent to 16 respondents. This is clearly shows that the Universiti Malaysia Kelantan, City Campus has a high number of students to continue their studies in the degree level compared to Master's & PhD.

Also, we can analyse the residence into four group which is rented house, residential college, own house and others. The researcher found that rented house is the highest when the percentage is 63.0% with 209 frequency of respondents. Next, residential college is 33.4% and also with 111 respondents. Besides that, researcher can see that 3.0% and 10 frequency of respondents is living in their own home. Lastly, for the others percentage of residence is 0.6% and 2 respondents. So, we can say that many of the students who live in rented houses prefer to use e-learning methods.

The result of the analysis respondent about the types of internet access. For the percentage 41.9% and 139 frequency of respondents is by mobile data. Meanwhile, the wifi is 58.1% and 193 total of respondents. This can be concluded that more students like to use internet types such as wifi to continue online learning activities.

Then, for the monthly expenses for internet, the highest monthly expenses for internet is RM50 to RM100 with 43.7% and 145 frequency of respondents followed by below RM50 with 43.1% or 143 respondents. Meanwhile, RM101 to RM150 have a percentage 11.7% and 39 respondents. Lastly, the total respondents that have monthly expenses for internet RM151 and above were 1.5% and 5 frequency of respondents. This can be further proven that many of the students spent their monthly expenses for internet financing of RM50 to RM100. This is to ensure that they can always follow online learning.

Lastly, for the distribution of respondents according to devices for e-learning. It illustrates that the highest percentage of respondents is around 72.6% and the frequency of respondents is 241 were devices of laptop. Next, for the respondent devices for e-learning which is tab/ipad have the percentage 16.9% and the respondents is 56. Lastly, the lowest percentage 10.5% and the frequency of respondents is 35 belongs to smartphone. As a conclusion, students prefer to use laptops as a tool to continue learning through e-learning. This is because we find that pictures and words will be clearer when observed.

4.2 Descriptive Analysis

In Descriptive Analysis, the researcher come out with analysis by using the mean for every section and to find out the factors influencing the students' acceptance of E-Learning at Universiti Malaysia Kelantan, City Campus.

Table 1: Mean of independent variable in students' acceptance of E-Learning at Universiti Malaysia Kelantan, City Campus

Variables	Mean	Standard Deviation	N
Course Effectiveness	4.1536	.50486	332
Lecturer Characteristics	4.2229	.52808	332
System Quality	4.1825	.51426	332
Perceived Usefulness	4.2596	.50033	332
The Utility of Available Facilities	4.1349	.58241	332
Students' Acceptance of E-Learning	4.2651	.49474	332

Table 1 shows the mean of course effectiveness, lecturer characteristics, system quality, perceived usefulness and the utility of available facilities. According to the table, perceived usefulness was recorded the highest mean that demonstrates 4.2596 where the utility of available facilities is the lowest mean which is 4.1349.

4.3 Reliability Analysis

		Cronbach's Alpha	N items	Results
Independent Variables	Course Effectiveness (IV_1)	.747	5	Good
	Lecturer Characteristics (IV_2)	.763	5	Good
	System Quality (IV3)	.745	5	Good

	Perceived Usefulness (IV4)	.734	5	Good
	The Utility of Available Facilities (IV5)	.779	5	Good
Dependent Variables	Students' Acceptance of E-Learning (DV)	.832	8	Very Good

Table 2: Actual Reliability Statistics

The table 2 shows, Cronbach's Alpha for the dependent variable which is students' acceptance of e-learning is 0.832. It is shown that the following results are "very good". In addition, the independent variables namely course effectiveness, lecturer characteristics, system quality, perceived usefulness and the utility of available facilities also got "good" results because all independent variables exceeded 0.70. Overall, if Cronbach's Alpha is greater than 0.70, each question will be accepted in this analysis. Because of this, Cronbach's Alpha can take a value between 0 and 1 while values closer to 1 mean a more reliable scale for the variable

4.4 Pearson Correlation Analysis

The Pearson correlation test is one of the important tests that use to measure the linear relationship between two numerical variables. The objective of this test is to determine whether the correlation coefficient is significant and to identify which hypothesis should accept and reject. If the relationship is significant, the researchers must decide the level of strength of association is acceptable.

Table 3: Correlation Value

Correlations								
			IV1	IV2	IV3	IV4	IV5	DV
Pearson's rho	IV1	Correlation Coefficient	1	.761**	.768**	.740**	.682**	.753**
		Sig. (2-tailed)		.000	.000	.000	.000	.000
		N	332	332	332	332	332	332
	IV2	Correlation Coefficient	.761**	1	.768**	.737**	.724**	.758**
		Sig. (2-tailed)	.000		.000	.000	.000	.000
		N	332	332	332	332	332	332
	IV3	Correlation Coefficient	.768**	.768**	1	.715**	.747**	.773**
		Sig. (2-tailed)	.000	.000		.000	.000	.000

	N	332	332	332	332	332	332
IV4	Correlation Coefficient	.740**	.737**	.715**	1	.714**	.788**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	332	332	332	332	332	332
IV5	Correlation Coefficient	.682**	.724**	.747**	.714**	1	.748**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	332	332	332	332	332	332
DV	Correlation Coefficient	.753**	.758**	.773**	.788**	.748**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	332	332	332	332	332	332

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

Table 3 shows the summary of correlation analysis between the independent variables and dependent variable. Course effectiveness and students' acceptance of e-learning shows the correlation value, r= 0.753. Secondly, lecturer characteristics and students' acceptance of e-learning shows the correlation value, r= 0.758. Next, system quality and students' acceptance of e-learning shows the correlation value, r= 0.773. Besides that, perceived usefulness and students' acceptance of e-learning shows the correlation value, r= 0.788. Lastly, the utility of available facilities and students' acceptance of e-learning shows the correlation value, r= 0.748. At the same time, all the independent variables are significantly correlated to the students' acceptance of e-learning which is ($p<0.01$). Based on the finding, we can see that perceived usefulness is the more important to the students' acceptance of e-learning because it has highest value among other variables. However, all values in the correlation matrix between items are positive. This can be proved that the variables measured under the same characteristics. If it has a negative value, it can be interpreted that some variables did not get the correct reserve score.

4.5 Multiple Regression Analysis

Multiple regressions are used to assess the students' acceptance of e-learning on course effectiveness, lecturer characteristics, system quality, perceived usefulness and the utility of available facilities at Universiti Malaysia Kelantan, City Campus. Throughout the regression analysis, important assumptions for a valid regression will be validated to verify that the final models are accurate.

Table 4: Regression Coefficients and Significance of the Independent Variables

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.395	.128		3.098	.002
	Course Effectiveness	.137	.049	.140	2.773	.006
	Lecturer Characteristics	.126	.048	.134	2.611	.009
	System Quality	.200	.050	.208	3.976	.000
	Perceived Usefulness	.306	.047	.310	6.489	.000
	The Utility of Available Facilities	.152	.040	.179	3.825	.000

a. Dependent Variable: Students Acceptance of E-learning

The results from table 4 show the beta path coefficient between course effectiveness and students' acceptance of e-learning (H_1) has a positive and significant relationship at a p- value of 0.006 (B = 0.137; t= 2.773). Besides that, the non-significant beta path coefficients are lecturer characteristics and students' acceptance of e-learning (H_2) is positive and significant at p-value 0.009 (B= 0.126 ; t= 2.611). Next, the analysis shows a significant relationship between system quality and student acceptance of e-learning (H_3) at a p-value of 0.000 (B= 0.200 ; t= 3.976). Furthermore, in terms of perceived usefulness with students' acceptance of e-learning (H_4) also has a significant relationship at a p-value of 0.000 (B= 0.306 ; t= 6.489). Finally, the beta path coefficient between the utility of available facilities and students' acceptance of e-learning (H_5) also has a positive and significant relationship at a p-value of 0.000 (B= 0.152; t= 3.825). All the five variables in the study explained factors influencing the students' acceptance of e-learning at Universiti Malaysia Kelantan, City Campus.

5 Discussion and Recommendation

Based on this study, there are five independent variables which are course effectiveness, lecturer characteristics, system quality, perceived usefulness and the utility of available facilities and a dependent variable which is students' acceptance of e-learning at Universiti Malaysia Kelantan, City Campus has been tested. Firstly, the independent variable which is course effectiveness for factors influencing e-learning acceptance has a strong relationship with students' acceptance of e-learning. Universiti Malaysia Kelantan students responded that e-learning is a way of learning that provides many benefits to students because lecturers always provide notes and a variety of clear information even online learning. This result shows that the effectiveness of the course followed by the students through e-learning can also create mature thinking among UMK students.

Besides that, the independent variable that is lecturer characteristics has a positive relationship with students' acceptance of e-learning. This can be stated that UMK students can accept the lecturer's delivery method when handling learning in e-learning.

They understand when lecturers use clearer slides and videos in various visual forms that can attract students' attention when learning online. Previous studies also found that lecture characteristics play an important role during learning sessions through e-learning.

Furthermore, the third factor is system quality that has a strong relationship with students' acceptance of e-learning. The more system quality increases at Universiti Malaysia Kelantan, City Campus, more students' acceptance of e-learning increasingly. In this study, UMK students found that the use of the e-learning system at UMK to monitor student attendance in e-learning is more efficient than conventional learning. This is said to be so because they no longer need to mark attendance on books or vice versa. In fact, it is easier for instructors to monitor attendance when students only need to scan the attendance bar code and it is automatically accepted by the superiors.

Next, factors influencing e-learning acceptance which is perceived usefulness has a strong relationship with students' acceptance of e-learning. It also significantly influences students' acceptance of e-learning at p-value < 0.05. perceived usefulness through e-learning provides many benefits to UMK students especially those who study distance learning or those who study part-time when they can save costs to pay tuition fees such as accommodation costs and so on. This is because they only study online. However, for UMK students who study through e-learning full-time, they can actually also save costs in terms of transportation costs to get to class from their place of residence such as a rented house.

Lastly, the independent variable which is the utility of available facilities for factors influencing e-learning acceptance has a strong relationship with students' acceptance of e-learning. The majority of UMK students stated that fast wifi facilities and ICT equipment such as computers provide facilities for students to continue learning in e-learning. However, Umk's superiors need to further improve the stability of the internet in the area around the campus so that the students' learning goes more smoothly and systematically. The facility of tools at UMK is very important for students to use during the learning process in e-learning. There are a few recommendations for future researchers which can help them improving their surveys for their research. The first recommendation is to expand the study area. This study only focused on students from Universiti Malaysia Kelantan, City Campus. By expanding the study area, researchers are likely to get different responses from students from other universities in Malaysia. Students from different universities may have a different experience of e-learning than students from Universiti Malaysia Kelantan.

The second recommendation for future researchers is the time required to distribute the questionnaire and collect data from the respondents is limited. The number of the respondents should be increased and distributed to students from other universities. Researchers need to distribute the questionnaire faster since there is a time limit set before analyzing the data. If the number of respondents is sufficient, the results from the data analyzed may be more accurate than this study. There are still lots of issues that can be explored and analysed that are connected to the e-learning. Even if this thesis still has a lot of room for improvement, it can serve as the basis for future research. Other researchers may do research on the learning, motivation, or behavioural stages, this study simply focused on the factors influencing the students' acceptance of e-learning.

6 Conclusion

Based on the questionnaire that has been carried out, the researcher has successfully distributed the questionnaire to 332 respondents who are students of Universiti Malaysia Kelantan to obtain factors influencing the students' acceptance of e-learning at Universiti Malaysia Kelantan, City Campus. The results of the researchers obtained from this study, factors influencing e-learning acceptance namely course effectiveness, lecture characteristics, system quality, perceived usefulness and the utility of available facilities significantly influence students' acceptance of e-learning at the Universiti Malaysia Kelantan, City Campus.

According to such results, perceived usefulness is the highest factor influencing e-learning acceptance because student satisfaction depends on how they use e-learning. Students will feel satisfied and enjoy using e-learning when they no longer feel embarrassed to ask questions to the instructor in online learning compared to conventional learning. The students feel more comfortable and confident when expressing suggestions or opinions to the instructor. In addition, lecturer characteristics is the second highest factor that affects the acceptance of e-learning because the lecturer's character plays an important role for students through e-learning, for example lecturers can provide explanations more clearly and understand the problems faced by students such as problems with the internet. Next, the system quality available on the e-learning platform can reduce the pressure on students. This is because students can review and find reference materials at any time and send assignments to the instructor quickly. A high system quality will indeed increase the acceptance of e-learning around the world. However, course effectiveness has a significant relationship with student acceptance of e-learning. This is because the effectiveness of the course through e-learning is able to generate creative and innovative thinking. Not to mention the utility of available facilities has a significant relationship with students' acceptance of e-learning even though it is the lowest factor. Facilities available at the university such as fast wifi and complete ICT facilities will definitely make students more interested in using the e-learning platform.

In conclusion, in chapter four, the researcher has presented the results that have been obtained based on the Statistical Package for the Social Sciences (SPSS) which are discussed more specifically and systematically and the conclusions have been implemented based on the results of the study. Next through chapter five, the researcher has explained every result of the research findings as well as the weaknesses in the limitations of the study when conducting the research has also been stated by the researcher in a more thorough and organized manner. In fact, recommendations for future studies are also explained in more detail for the use of future researchers. Therefore, the researcher hopes that all the information provided throughout this research can help further expand the use of e-learning among students because it is very potential and effective if given special attention.

7 Acknowledgements

First and foremost, we would like to thank our supervisor. She is a constant source of information, patience, and support for us in this final year research paper.

Besides that, we would want to express our appreciation to our friends, who have always provided us with invaluable assistance in completing our research paper. Friends that can spare their time to fill in a Google form to be our good respondent for us.

Last but not least, we feel grateful because had a group that full with spirit co-operation and support each other to complete this research paper. We also feel thankful to our family with their mental support and their understanding make us complete this research paper in good environment.

8 References

Alsabawy, A. Y., Cater-Steel, A., & Soar, J. (2016). Determinants of perceived usefulness of e-learning systems. *Computers in Human Behavior*, *64*, 843-858.

Al-Fraihat, D., Joy, M., & Sinclair, J. (2020). Evaluating E-learning systems success: An empirical study. *Computers in human behavior*, *102*, 67-86.

Al Mulhem, A. (2020). Investigating the effects of quality factors and organizational factors on university students' satisfaction of e-learning system quality. *Cogent Education*, *7*(1), 1787004.

Al Rawashdeh, A. Z., Mohammed, E. Y., Al Arab, A. R., Alara, M., & Al-Rawashdeh, B. (2021). Advantages and disadvantages of using e-learning in university education: Analyzing students' perspectives. *Electronic Journal of e-Learning*, *19*(3), 107-117.

Allam, S. N. S., Hassan, M. S., Mohideen, R. S., Ramlan, A. F., & Kamal, R. M. (2020). Online distance learning readiness during Covid-19 outbreak among undergraduate students. *International Journal of Academic Research in Business and Social Sciences*, *10*(5), 642-657.

Arkorful, V., & Abaidoo, N. (2015). The role of e-learning, advantages and disadvantages of its adoption in higher education. *International journal of instructional technology and distance learning*, *12*(1), 29-42.

Al-Rahmi, W. M., Alias, N., Othman, M. S., Alzahrani, A. I., Alfarraj, O., Saged, A. A., & Rahman, N. S. A. (2018). Use of e-learning by university students in Malaysian higher educational institutions: A case in Universiti Teknologi Malaysia. *Ieee Access*, *6*, 14268-14276.

Aristovnik, A., Keržic, D., Tomaževic, N., & Umek, L. (2016). Determining Factors of Students' Perceived Usefulness of E-Learning in Higher Education. *International Association for Development of the Information Society*.

Abubakar, A. (2020). Identifying the e-Learning Facilities for Teaching and Learning Office Technology and Management Courses in Nigerian Tertiary Institutions. In *Role of ICT in Higher Education* (pp. 1-19). Apple Academic Press.

Bouchrika, I. (2022). Types of Research Design: Perspective and Methodological Approaches. Retrieved from https://research.com/research/types-of-research-design

Bouhnik, D., & Marcus, T. (2006). Interaction in distance-learning courses. *Journal of the american society for information science and technology*, *57*(3), 299-305.

Bernama. (2020) Utilizing e-learning during the COVID-19 pandemic. Retrieved from https://www.bernama.com/bm/tintaminda/news.php?id=1843907

BHandari, P. (2020, July 16). Levels of Measurement | Nominal, Ordinal, Interval and Ratio. Retrieved from https://www.scribbr.com/statistics/levels-of-measurement/

Chipkin, I. (2008). Set-up for failure: Racial redress in the Department of Public Service and Administration.

Chuan, C. L., & Penyelidikan, J. (2006). Sample size estimation using Krejcie and Morgan and Cohen statistical power analysis: A comparison. *Jurnal Penyelidikan IPBL*, *7*(1), 78-86.

Cherry, K. (2019). Understanding the Dependent Variable May Help Science. Retrieved from https://www.verywellmind.com/what-is-a-dependent-variable-2795099

Chuttur, M. (2009). Overview of the technology acceptance model: Origins, developments and future directions.

Crawford-Ferre, H. G., & Wiest, L. R. (2012). Effective online instruction in higher education. *Quarterly Review of Distance Education*, *13*(1), 11.

Dreheeb, A. E., Basir, N., & Fabil, N. (2016). Impact of system quality on Users' satisfaction in continuation of the use of E-learning system. *International Journal of e-Education, e-Business, e-Management and e-Learning*, *6*(1), 13.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 319-340.

Efiloğlu Kurt, Ö. (2019). Examining an e-learning system through the lens of the information systems success model: Empirical evidence from Italy. *Education and Information Technologies*, *24*(2), 1173-1184.

Eze, S. C., Chinedu-Eze, V. C., Okike, C. K., & Bello, A. O. (2020). Factors influencing the use of e-learning facilities by students in a private Higher Education Institution (HEI) in a developing economy. *Humanities and social sciences communications*, *7*(1), 1-15.

Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American journal of theoretical and applied statistics*, *5*(1), 1-4.

Friedman, G. (2014). Student stress, burnout and engagement. Dissertation, 1-119

Gul, S. B. A. (2015). *E-Learning Revolutionise Education: An Exploratory Study*.

Glen, S. (2022). Primary Data & Secondary Data: Definition & Example. Statistics How To. Retrieved from https://www.statisticshowto.com/experimental-design/primary-data-secondary/

Hadullo, K., Oboko, R., & Omwenga, E. (2017). A model for evaluating e-learning systems quality in higher education in developing countries. *International Journal of Education and Development using ict*, *13*(2).

Hadullo, K., Oboko, R., & Omwenga, E. (2018). Factors affecting asynchronous e-learning quality in developing countries university settings. *International journal of Education and Development using ICT*, *14*(1).

Hanssen, T. E. S., & Solvoll, G. (2015). The importance of university facilities for student satisfaction at a Norwegian University. *Facilities*.

Ishak, A. A., & Talaat, A. Z. M. A. (2020). (Online Learning: An overview of Readiness and Motivation among Diploma in Logistics and Supply Chain Management Student, Seberang Perai Polytechnic, Penang.

Izardi. (2018) *E-learning methods (FundofInst.)*. Retrieved from https://cikguizardi.blogspot.com/2018/08/kaedah-e-pembelajaran.html

Johnson, D. (2022) what is Data Analysis? Research, type and example. Retrieved from https://www.guru99.com/what-is-data-analysis.html?nowprocket=1

Karimi, L., Leggat, S. G., Donohue, L., Farrell, G., & Couper, G. E. (2014). Emotional rescue: The role of emotional intelligence and emotional labour on well-being and job-stress among community nurses. *Journal of advanced nursing*, *70*(1), 176-186.

Keengwe, J., & Kidd, T. T. (2010). Towards best practices in online learning and teaching in higher education. *MERLOT Journal of Online Learning and Teaching*, *6*(2), 533-541.

Luan, W. S., & Teo, T. (2009). Investigating the technology acceptance among student teachers in Malaysia: An application of the technology acceptance model (TAM). *Asia-Pacific Education Researcher*, *18*(2), 261-272.

Lwoga, E. (2014). Critical success factors for adoption of web-based learning management systems in Tanzania. *International Journal of Education and Development using ICT*, *10*(1).

Masrom, M. (2018). Technology acceptance model and E-learning. 12th International Conference on Education, May, 21-24.

Moradi, K., & Sabeti, G. (2014). A comparison of EFL teachers and EFL students' understandings of 'highly effective teaching'. *Procedia-Social and Behavioral Sciences*, *98*, 1204-1213.

Martínez-Caro, E. (2011). Factors affecting effectiveness in e-learning: An analysis in production management courses. *Computer Applications in Engineering Education*, *19*(3), 572-581.

Moore, M., Lockee, B., & Burton, J. (2002). Measuring success: Evaluation strategies for distance education. *Educause Quarterly*, *25*(1), 20-26.

Marlina, E., Tjahjadi, B., & Ningsih, S. (2021). Factors affecting student performance in e-learning: A case study of higher educational institutions in Indonesia. *The Journal of Asian Finance, Economics and Business*, *8*(4), 993-1001.

Mohammaditabar, M., Bagheri, M. S., Yamini, M., & Rassaei, E. (2019). Iranian EFL teachers' perspectives of qualities of a good language teacher: Does educational context make a difference? Cogent Education, 6(1), 1651442.

Malaysian Communications and Multimedia Commission. (2020) internet users survey. Retrieved from https://www.mcmc.gov.my/ms/resources/statistics/internet-users-survey

Norhairnadiana (2016). E-learning programme in Malaysia. Retrieved from http://ekspresi20.blogspot.com/2016/05/program-e-learning-di-malaysia.html

Nasir, N. I. S., & Hand, V. (2008). From the court to the classroom: Opportunities for engagement, learning, and identity in basketball and classroom mathematics. *The Journal of the Learning Sciences*, *17*(2), 143-179.

Navarro, N. (2021). Online learning causes academic burnout in students. Retrieved from https://csusmchronicle.com/21658/opinion/online-learning-causes-academic-burnout-in-students/

Onokpaunu, M. O. (2016). Analysis of web-based instructional technologies for use by business education lecturers in tertiary institutions in Delta State. *Unpublished Thesis, Department of Vocational Education, Faculty of Education, Nnamdi Azikiwe University, Awka*.

Oluwalola, F. K., & Omotayo, A. A. (2019). Availability and utilization of e-learning facilities for management and business courses in universities in Kwara State, Nigeria. *Nigerian Journal of Business Education (NIGJBED)*, *6*(2), 346-357.

Ozkan, S., & Koseler, R. (2009). Multi-dimensional students' evaluation of e-learning systems in the higher education context: An empirical investigation. *Computers & Education*, *53*(4), 1285-1296.

Omar, N., Isa, N. S. M., Rahman, L. A., & Fatzel, F. H. M. (2020). Factors Influencing Students'acceptance of E-Learning: A Case Study of Uitm Tapah Accounting Students. *International Journal of Education and Pedagogy*, *2*(4), 1-15.

Orhon, G. (2012). The effect of teachers' emotional and perceptual characteristics on creative learning. Procedia-Social and Behavioral Sciences, 46, 3074-3077.

Po-An Hsieh, J. J., & Wang, W. (2007). Explaining employees' extended use of complex information systems. *European journal of information systems*, *16*(3), 216-227.

Pham, L., Limbu, Y. B., Bui, T. K., Nguyen, H. T., & Pham, H. T. (2019). Does e-learning service quality influence e-learning student satisfaction and loyalty? Evidence from Vietnam. *International Journal of Educational Technology in Higher Education*, *16*(1), 1-26.

Rabianski, J. S. (2003). Primary and secondary data: Concepts, concerns, errors, and issues. *The Appraisal Journal*, *71*(1), 43.

Rao, K., & Tanners, A. (2011). Curb cuts in cyberspace: Universal instructional design for online courses. *Journal of Postsecondary Education and Disability*, *24*(3), 211-229.

Students Voice Matters (2022). Retrieved from https://project-id.org/svm-insights-2022

Senadjki, A., Awal, I. M., Nee, A. Y. H., & Ogbeibu, S. (2022). The belt and road initiative (BRI): A mechanism to achieve the ninth sustainable development goal (SDG). *Journal of Cleaner Production*, *372*, 133590.

Soffer, T., & Nachmias, R. (2018). Effectiveness of learning in online academic courses compared with face-to-face courses in higher education. *Journal of Computer Assisted Learning*, *34*(5), 534-543

Shahzad, A., Hassan, R., Aremu, A. Y., Hussain, A., & Lodhi, R. N. (2021). Effects of COVID-19 in E-learning on higher education institution students: the group comparison between male and female. *Quality & quantity*, *55*(3), 805-826.

Singh, G. & Priola, V. (2001). Long distance learning and social networks: An investigation into the social learning environment on online students. Proceedings of the Sixth Annual ELSIN Conference. 158-164.

Sun, A., & Chen, X. (2016). Online education and its effective practice: A research review. *Journal of Information Technology Education*, *15*.

Tarhini, A., Teo, T., & Tarhini, T. (2016). A cross-cultural validity of the E-learning Acceptance Measure (ElAM) in Lebanon and England: A confirmatory factor analysis. *Education and Information Technologies*, *21*(5), 1269-1282.

The economic times. (2022, November 19). What is e-learning? Retrieved from https://economictimes.indiatimes.com/definition/e-learningeconomictimes.indiatimes.com/definition/e-learning

Taherdoost, H. (2016). Sampling methods in research methodology; how to choose a sampling technique for research. *How to choose a sampling technique for research (April 10, 2016)*.

Taat, M. S., & Francis, A. (2020). Factors Influencing the Students' Acceptance of E-Learning at Teacher Education Institute: An Exploratory Study in Malaysia. *International Journal of Higher Education*, *9*(1), 133-141.

University Malaysia Kelantan. (2022). Retrieved from https://www.umk.edu.my/en/

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS quarterly*, 425-478.

Vululleh, P. (2018). Determinants of students'e-learning acceptance in developing countries: An approach based on Structural Equation Modeling (SEM). *International Journal of Education and Development using ICT*, *14*(1).

Zaili, N., Moi, L. Y., Yusof, N. A., Hanfi, M. N., & Suhaimi, M. H. (2019). The factors of satisfaction on e-learning usage among Universiti Malaysia Kelantan students. *Journal of Information System and Technology Management*, *4*(11), 73-83.

Zalat, M. M., Hamed, M. S., & Bolbol, S. A. (2021). The experiences, challenges, and acceptance of e-learning as a tool for teaching during the COVID-19 pandemic among university medical staff. *PloS one*, *16*(3), e0248758.

A Study on Green Logistic Awareness among SMEs In Kota Bharu, Kelantan

Vinothini A/P Suresh, Nurul Shahira Othman, Nurul Aida Norisam, Nurun Najihah Binti Mazni & Muhammad Nizamuddin Abdul Rahman*

Faculty of Entrepreneurship and Business,
Universiti Malaysia Kelantan,
Malaysia

Email: nizamuddin@umk.edu.my

Abstract:
This study aims to examine the awareness of green logistics among Small and Medium Enterprises in Kota Bharu. There is great concern among traders about Malaysia's deteriorating environmental cleanliness. The objective of this study is to identify and analyze the level of awareness of traders in the use of green logistics. This study uses quantitative research, as many as 300 questionnaires have been distributed to participants. Data collection was done by contacting the participants through an online survey through social media and SPSS software was used to analyse thedata collected from the respondents. The results of the study show a positive relationship between knowledge, advertising, government, and the environment that contribute to the awareness of the concept of green logistics among Small and Medium Enterprises in Kota Bharu. Implications and recommendations are also given to future researchers who will conduct studies like this soon..

***Keywords**: Awareness, green logistics, knowledge, advertising, government, environment*

1 Introduction

The term "green logistics" is defined as a set of supply chain management practices and strategies that reduce the ecological and energy footprint of goods distribution, which focuses on material handling, waste management, packaging, and transport. This ecological system carries various meanings. It is a logistics subsystem because it is oriented to the logistics process mainly to the process of collection, storage, and transportation. Solutions can be created with ecological activities that do not burden the environment and social waste (Stolka and Kubicka, 2018). There is an increasing awareness of the environmental commitment of corporations because these commitments enhance competitive advantage. Customers in developed economies initially valued environmentally sustainable products more. Nowadays, most of the information is available on the internet. Consequently, consumers in developing economies are increasingly becoming aware of the environmental performance of corporations (Qayyum, Jamil, and Sehar, 2022). A business or organizational commitment is considered green marketing. Green marketing that is considered in a commitment or business means the development of goods and services that are safe and environmentally friendly. More efficient use of energy and pollution prevention can be done by using recyclable and biodegradable packaging. entrepreneurs have been in the business world for a long time or young entrepreneurs, they need to focus on business or green entrepreneurship which is much better. Many firms are interested in green marketing. This green marketing is safer, and most business companies use this importance as their marketing strategy and compete more healthily among other business companies. (Eugine Tafadzwa Maziriri, 2020). As a result, it has been determined that the state's primary function is to protect the environment. A collection of sustainable rules and procedures aimed at minimizing the environmental damage brought on by the operations of this industry are referred to as eco- logistics or green logistics. This idea of logistics has an impact on how systems, equipment, and structures are set up for the movement, distribution, and storage of commodities. The definition itself demonstrates that the present generation' economic advancement and civilization should not be made at the expense of the environment's devastation and the depletion of non-renewable resources for the benefit of future generations, who have a right to their own advancement.

1.1 Research Objectives

This research was done to evaluate the awareness of green logistics among SMEs in Kota Bahru, Kelantan. The research objectives for this study are i) to evaluate the relationship between knowledge and awareness of green logistics among SMEs in Kota Bharu, Kelantan; ii) to determine the relationship between advertising and the awareness of green logistics among SMEs in Kota Bharu, Kelantan; iii) to study the relationship between government regulation and the awareness of green logistics among SMEs in Kota Bharu, Kelantan; and iv) to investigate the relationship between the environment and the awareness of green logistics among SMEs in Kota Bharu, Kelantan.

2 Literature Review

2.1 Previous Studies

From the previous studies, the researcher found out that there was few research that had been conducted based on this study's purposes. There had been a lot of investigation and analysis consummated with a different scope of the study and the target population.

2.1.1 Green Logistic

Green logistics refers to supply chain management practices and strategies that reduce freight distribution's environmental and energy footprint. It focuses on material handling, waste management, packaging, and transport (Rodrigue, 2020). Simply put, green logistics refers to any business practice that aims to make operations more sustainable. It is also known as eco-logistics, and it builds on the foundation established by traditional logistics. The emphasis in traditional logistics is on operations, with no regard for the environment. The goal of green logistics is to improve both business operations and organizational sustainability. Green Supply Chain Management is the implementation of green properties into existing Supply Chain Management, which fully integrates environmental considerations into a traditional way of Supply Chain

Management. Another point of view in Green Supply Chain Management is that the industry has been gradually shifting towards eco-friendly supply chains by incorporating green technologies into their manufacturing, product design, and distribution processes (Choong, 2015). Awareness of green logistics is derived from awareness and green logistics. The term of awareness is the state or capacity to observe, feel, or be cognizant of events, objects, or sensory patterns. In this term, awareness of green logistics is the knowledge, perception or concern about supply chain management practices and strategies that reduce the environmental and energy footprint of freight distribution.

2.1.2 Knowledge

Knowledge is a valuable strategic asset. It is a collection of skills, experiences, capabilities, and insight that an organization creates and relies on collectively. It has an impact on all activities within and outside of the organization. Knowledge is also a systematic approach to capturing and utilizing an organization's collective expertise to create value. Effective knowledge enables the creation, transfer, and application of knowledge at various levels in a coherent and productive manner. The knowledge base can be defined as the organization's understanding of what customers want to be combined with the employee's skills. Using this knowledge correctly can help organizations run more efficiently, reduce organizational risks, and maximize opportunities. This is referred to as the knowledge advantage. Knowledge consists of consideration of aspects in selection, organization, and comparison of the idea’s value (Rajendran, 2019). Knowledge can also be defined as the stage of an idea's evaluation from several levels by an organization's judgment; in short, knowledge can be used as a tool to make a positive or negative judgment about any idea. Organizational perception is an example of knowledge, and it is an important tool for assisting organizations in determining or deciding on implementation activities (Rajendran, 2019).

2.1.3 Advertising

Advertising, according to the Advertising Association of the United Kingdom, is a method of communicating with users of a product or service. Advertisements are paid-for messages that are intended to inform or influence those who receive them. Although advertising is always present, some people are unaware of it. In today's world, advertising uses every available medium to spread its message. Television, print (newspapers, magazines, journals, etc.), radio, press, internet, posters, clothes, events, colors, sounds, visuals, and even people are examples of such media (endorsements). There is also green advertising, which many businesses have used. Green advertising is an advertisement that promotes a company's products or services, ideas, or capabilities in reducing environmental damage and pollution (Santoso, 2016).

2.1.4 Government Regulation

Regulation is broadly defined as the imposition of rules by the government, backed up using penalties, with the goal of changing the economic behavior of individuals and firms in the private sector. There are various regulatory instruments or targets available. Prices, output, rate of return (in the form of profits, margins, or commissions), information disclosure, standards, and ownership ceilings are just a few examples. Regulations may also be enacted to protect suppliers from the unstable output and low-price conditions, as well as to promote employment and a more equitable distribution of income. Malaysia's government has recognized climate change and international green efforts. In April 2009, the Malaysian government established a new ministry, the Ministry of Energy, Green Technology, and Water (KeTTHA). KeTTHA's primary goal is to promote high-impact research and development (R&D) of green technologies in Malaysia (Choong M. C., 2009).

2.1.5 Environment

development, and survival. The naturally occurring physical environment on which humanity is completely dependent in all its activities. Environmental functions refer to the various uses to which these surroundings are put for economic purposes. Because of the increased environmental activities of humans and industrial companies, Malaysia's environmental problem has become more severe. Individuals around the world are improving their quality of life because of the rapid development of economics, globalization, and technological progress. Despite the profound consequences of such changes, the environmental damage is devastating, necessitating industrial action to save the planet. Factories generate massive amounts of waste, recyclable materials pollute land and water, and greenhouse gas emissions have a significant impact on climate change. As a result, freight transportation is one of the largest contributors to carbon dioxide (Chen, 2020).

2.2 Hypothesis Statement

There are four (4) hypotheses developed for the study:

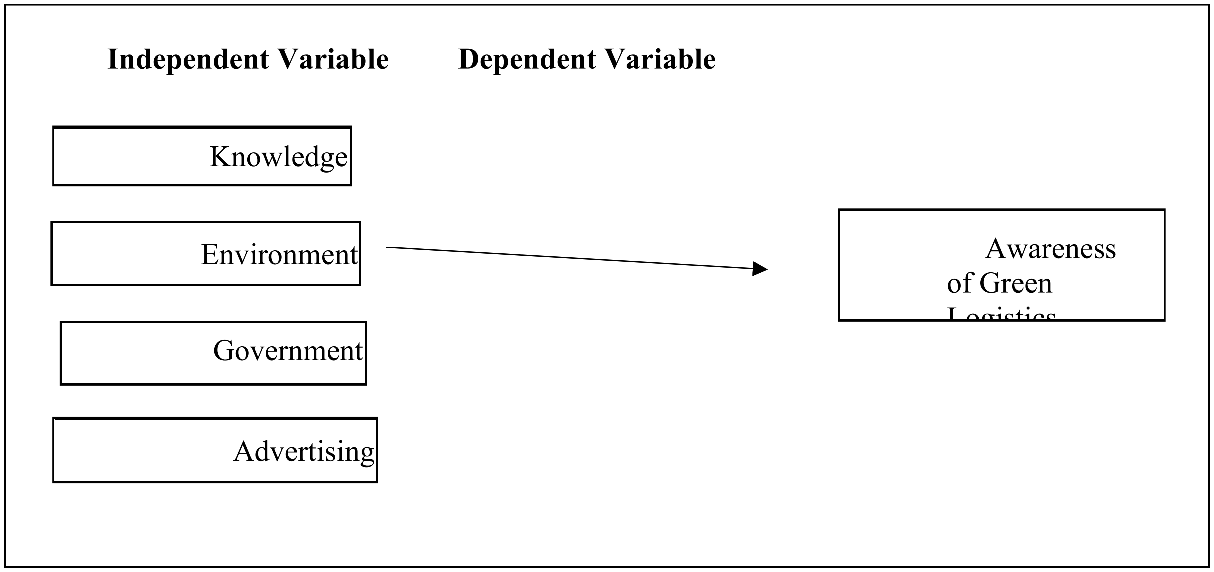
H1-There is a relationship between knowledge and the awareness of green logistics among SMEs

H2-There is a relationship between advertising and the awareness of green logistics among SMEs

H3-There is a relationship between government regulation and the awareness of green logistics among SMEs

H4 -There is a relationship between environment and the awareness of green logistics among SMEs

2.3 Conceptual Framework



3 Research Methodology

3.1 Research Design

The researchers have used descriptive and correlation methods that are under non-experimental research. A correlation study tries to examine connections or associations between variables without introducing an intervention, while descriptive research would give an account of the features of people, groups, or situations that may form the first stage of a more complicated design. Because quantitative research is a strategy for testing objective theories by examining the relationship between variables, the researchers would employ it. The instrument that would use in these researchers was a questionnaire.

3.2 Data Collection Method

For this research, the primary data was obtained and collected using questionnaire. The questionnaire was distributed online to the respective respondents.

3.3 Study Population

A population is related to any specific class of people or group of people or non-human beings such as objects, educational institutions, time units, and geographical regions. The population of small and medium enterprises (SMEs) is around 46,618 in Kelantan. It can be collected in the Economic Census 2016: Profile of Small and Medium Enterprises (reference year 2015), Department of Statistics, Malaysia.

3.4 Sample Size

A sample size is a subset of the population. By studying the samples, the researcher was able to show a general conclusion to the population of interest. A sample is a subset of a larger population of people, objects, or items selected for measurement (De Winter, Gosling, & Potter, 2016). To get the correct sample size, we utilize the table from Krejci and Morgan. 384 respondents were chosen as respondents based on a known population's sample size.

3.5 Sampling Techniques

In this study, a non-probability sampling technique was used. This sampling technique employs randomization to ensure that every member of the population has an equal chance of being included in the selected sample. It is also known as random sampling. One of the non- probability techniques used to conduct the survey is simple random sampling. Every element has an equal chance of being chosen as the part sample in this technique. It is used when no prior information about the target population is available. This method enables the researcher to choose respondents based on their convenience and accessibility without any complications.

4 Data Analysis and Findings

4.1 Pilot Test

A pilot test was done to determine the feasibility and the validity of the instrument used. 30 test respondents were given the survey, and the results being analyzed using the Cronbach's Alpha method. The dependent variables i.e., the awareness of green logistics resulted in Cronbach's Alpha Coefficient of 0.904 which is good in terms of strength of association, and thus deemed reliable. For the independent variables consist of environment, government regulation, knowledge, and advertising, the result of Cronbach's Alpha Coefficient was 0.870, 0.870, 0.885, and 0.885 respectively which is good in terms of strength of association. Thus, the internal consistency of this section's questions is good and reliable.

4.2 Frequency Analysis

The contextual profile of 384 respondents has been collected in this research. The percentage of gender respondents was female with 57.3% (N=220), and 42.7% (N=164) respondents were male. From the 384 respondents 41.1% (N=158) are Indian with Malays and Chinese representing8.1% (N=31). The respondents aged 20 to 30 represent 50.3% (N=193) in the age distribution and it was also the highest percentage compared to respondents aged 50 and above. Respondents aged 50 and above represent only 5.5% (N=1). Lastly, for SMEs sector, the highest percentage in food and beverage with 42% (N=161) and the lowest was in mining and quarrying with 10.4% (N=40).

4.3 Descriptive Analysis

There were four variables consisting of one dependent variable (Green logistics awareness) and four independent variables (Knowledge, Advertising, Government

Regulation and Environment). Each variable consists of five items. The five items on 'green logistics awareness' resulted in means 4.23, 4.17, 3.96, 4.17 and 4.43 for each respective item. This demonstrates that the SMEs mostly agreed to the items on the awareness of green logistics. For the 'environment' variable, each respective item resulted in means of 4.41, 4.48, 4.49, 4.54, and 4.46. The items for the 'government regulations' variable end up with the means of 4.44, 4.49, 4.52, 4.45, and 4.47. For the 'knowledge' variable, the means are 4.45, 4.5, 4.46, 4.5, and 4.5. And finally, for the variable 'advertising', the means are 4.39, 4.45, 4.42, 4.42, and 4.48 respectively. The overall means for items of the variables indicated that the respondents mostly agreed with the said items.

4.4 Normality Test

Using the Kolmogorov-Smirnova and the Shapiro-Wilk data normality test, the analysis showed that the normality table test has a significance value of 0.000 for all dependent and independent variables.

4.5 Pearson Correlation Coefficient Analysis

Table 1.0: Pearson's Correlation Coefficient Analysis

Hypothesis	Hypothesis Statement	Result	Pearson Correlation	Significant Value	N
H1	There is a relationship between knowledge and the awareness of green logistics among SMEs.	Accepted	0.707	0.000	384
H2	There is a relationship between advertising and the awareness of green logistics among SMEs.	Accepted	0.774	0.000	384
H3	There is a relationship between government regulation and the awareness of green logistics among SMEs.	Accepted	0.810	0.000	384
H4	There is a relationship between environment and the awareness of green logistics among SMEs.	Accepted	0.813	0.000	384

Table 1.0 shows results indicating that there is a relationship between knowledge and awareness of green logistics among SMEs, with a significant *p*-value of 0.000. The correlation coefficients v a l u e i s 0.707 indicates that there is a strong positive relationship between the two variables. association is tenuous. It proves that driving too fast contributes to accidents on the road. Thus, hypotheses H1 is accepted. Hypothesis H2 also can be accepted due to significant *p*-value of 0.000. The correlation coefficients value of 0.774 indicates that there is a strong positive relation between advertising and the awareness of green logistics. With a significant *p*-value of 0.000, hypothesis H3 can be accepted. The relationship between the government regulation and the awareness of green logistics is strong and positive with a correlation coefficient value of 0.810. Lastly, the correlation coefficients value of 0.813 indicates a strong positive relationship between environment and the awareness of green logistics. With a *p*-value

of 0.000, hypothesis H4 thus can be accepted.

5 Recommendation

The findings for this study indicated that there is a relationship between knowledge, environment, government regulations, and advertising with the awareness on green logistics among the SMEs in Kota Bharu. The respondents from the various SMEs in Kota Bharu show an agreement that the is a relationship between the independent variables and the dependent variable. Thus, since the awareness of green logistics is closely related to knowledge, environment, government regulations and advertising, increased efforts on these four variables can be a catalyst in building more awareness in regards of the green logistics. Future research may be conducted in other area throughout Malaysia to see if they are any similarity of responses from other SMEs on the relationship between the variables under study. Other possible variables may also be applied or added to variables under this study to further enhanced the understanding on the awareness of green logistics among the SMEs. However, on a different note, awareness alone does not translate into the acceptance of green logistics among the SMEs. Thus, future research may also be conducted to explore the acceptance of green logistics among SMEs and the factors that may lead to that acceptance.

6 Conclusion

The research was conducted by soliciting responses through using questionnaire on the respective respondents from the sample SMEs in Kota Bharu, Kelantan. The study provided an outlook of results based on data collected from the respondents, enabling researchers to interpret and classify the findings as to whether the outcome meets the objectives of this study. The findings of this study indicates that the respondents from the SMEs did acknowledge that environment, government regulations, knowledge, and advertising does have significant, strong, and positive relationship on the awareness of green logistics among the SMEs in Kota Bharu. Thus, based on the findings, it can be concluded that the independent variables knowledge, environment, government regulations and advertising does have a significant, strong, and positive impact on the awareness of green logistics among SMEs in Kota Bharu, Kelantan.

7 References

Abdul Qayyum, Raja Ahmed Jamil, & Amnah Sehar. (2022). Impact of green marketing, greenwashing, and green confusion on green brand equity. *Emerald Insight*.

Abbasi, Maisam, and Fredrik Nilsson. "Themes and challenges in making supply chains environmentally sustainable." *Supply Chain Management: An International Journal* (2012)

Andrea, E. B. (2020). Sampling Methods. Journal of Human Lactation.

Choi, Y. Z. (2011). Does Proactive Green Logistics Management Improve Business Performance? A Case of Chinese Logistics Enterprises. African Journal of Business Management.

Cocca, S., & Ganz, W. (2015). Requirements for developing green services. *The Service IndustriesJournal*, *35*(4), 179–196.

El-Berishy, N., Rügge, I., & Scholz-Reiter, B. (2013). The interrelation between sustainability and green logistics. *IFAC Proceedings Volumes (IFAC-PapersOnline)*, *6* (Part 1), 527–531

Georgakoudis, E. D., Tipi, N. S., & Bamford, C. G. (2018). Packaging redesign – benefits for the environment and the community. *International Journal of Sustainable Engineering*, *11*(5), 307–320.

Imam Santoso, & Rengganis Fitriyani (2016). Green Packaging, Green Product, GreenAdvertising, Persepsi, Dan Minat Beli Konsumen. *Emerald Insight*, *9*, 147–158.

Ismail, F. A. (2019). Awareness on Green Logstics Among Transportation Companies in JohorTowards Business Performance. International Journal of Recent Technology and Engineering.

Jiménez-Guerrero, J. F., Gázquez-Abad, J. C., & Ceballos-Santamaría, G. (2015). Innovation in eco- packaging in private labels. *Innovation*, *17*(1), 81–90.

Lydekaityte, J., & Tambo, T. (2020). Smart packaging: definitions, models and packaging as an intermediator between digital and physical product management. *The International Reviewof Retail, Distribution and Consumer Research*, *30*(4), 377–410.

Magnier, L., & Crié, D. (2015). Communicating packaging eco-friendliness. *International Journal ofRetail & Distribution Management*, *43*(4/5), 350–366.

Maziriri, E. T. (2020). Green packaging and green advertising as precursors of competitive advantage and business performance among manufacturing small and medium enterprises in South Africa. *Cogent Business & Management*, *7*(1), 1719586.

Mohsin, A. K. M., Tushar, H., Abid Hossain, S. F., Shams Chisty, K. K., Masum Iqbal, M., Kamruzzaman, Md., & Rahman, S. (2022). Green logistics and environment, economic growth in the context of the Belt and Road Initiative. *Heliyon*, *8*(6), e09641.

Nelson Barber. (2010). “Green” wine packaging: targeting environmental consumers. *International Journal of Wine Business Research*, *22* (4).

Ofori Antwi, B., Agyapong, D., & Owusu, D. (2022). Green supply chain practices and sustainable performance of mining firms: Evidence from a developing country. *Cleaner Logistics and Supply Chain*, *4*, 100046.

Pan, C., Lei, Y., Wu, J., & Wang, Y. (2021). The influence of green packaging on consumers’ greenpurchase intention in the context of online-to-offline commerce. *Journal of Systems and Information Technology*, *23*(2), 133–153.

Robaina, M., & Neves, A. (2021). Complete decomposition analysis of CO2 emissions intensity inthe transport sector in Europe. *Research in Transportation Economics*, *90*, 101074.

Seroka-Stolka, , Oksana, & Ociepa-Kubicka, A. (2019). Green logistics and circular economy.*Transportation Research Procedia*, *39*, 471–479.

Singh, M. K. P., Rajendran, S. D., & Wahab, S. N. (2019). Malaysian consumers’ preference forgreen packaging. *International Journal of Society Systems Science*, *11*(4), 312.

Singhal, A., & Malik, G. (2021). The attitude and purchasing of female consumers towards greenmarketing related to cosmetic industry. *Journal of Science and Technology Policy Management*, *12*(3), 514–531.

Syed Muhammad, K. (2016). Measurement Concepts: Variable, Reliability, Validity, and Norm. Basic Guidelines for Research: An Introductory Approach for All Disciplines.

Ulf Aagerup, Anna-Sofia Frank, & Evelina Hultqvist. (2019). The persuasive effects of emotional green packaging claims. *British Food Journal*, *121*(12).

Vijaya, G. K. (2014). Sustainability in Food Retail Industry Through Reverse Logistics. International Journal of Supply Chain Management

Wang, Y., Liu, D., Sui, X., & Li, F. (2022). Does logistics efficiency matter? Evidence from green economic efficiency side. *Research in International Business and Finance*, *61*, 101650.

Zhang, G., & Zhao, Z. (2012). Green Packaging Management of Logistics Enterprises. *PhysicsProcedia*, *24*, 900–905.

Quality of Logistics Service and Customer Satisfaction in J&T Kota Bharu

Radin Azhar Radin Yahya, Nuradriana Norazlan, Shivabharethi A/P Seathu,Siti Nor Aslina Abdul Rahman & Hanieh Alipour Bazkiaei*

Faculty of Entrepreneurship and Business,
Universiti Malaysia Kelantan,
Malaysia

Email: hanieh.ab@umk.edu.my

Abstract:
The purpose of this study is to explore the quality of logistic service and customer satisfaction in J&T Kota Bharu. A field study of a multidimensional event or process is followed by a succession of methodical data gathering and analysis steps in this qualitative method. Historically, logistics have always served as a support function for production and consumption. Among the most significant factors for customer satisfaction in the courier services industry is the quality of service. In order to keep customers happy and recommend your business to others, customer satisfaction should be the top priority of every business. It is unfortunate that little data is available about the specific concerns of courier service providers in a particular country. In this study, qualitative data was collected through interviews with the people who often uses J&T. From the interview, the researchers find out that most of the customers were satisfied with J&T. To summarize, the purpose of this research was to identify the factors influencing customer satisfaction in J&T Kota Bharu in terms of quality logistics and customer satisfaction. The general conclusion of this analysis was evaluated using a qualitative method, which is an in-person interview. The researchers collected the data from 5 respondents to complete this report.

Keywords*: Quality service of logistics, customer satisfaction, logistics capabilities, privacy concern, perceived security.*

1 Introduction

Historically, logistics have always served as a support function for production and consumption. Among the most significant factors for customer satisfaction in the courier services industry is the quality of service. In order to keep customers happy and recommend your business to others, customer satisfaction should be the top priority of every business. It is unfortunate that little data is available about the specific concerns of courier service providers in a particular country.

To thrive in the business competition, logistics companies should maintain their service quality maintenance. Among the companies providing logistics services, J&T Express is one of them, which could be document shipping or delivering goods that can compete with other senior companies. Many Malaysians select J&T Express Malaysia from a long list of other courier companies to handle their courier needs (Estiana Asri, 2021). Hence, this is why we choose J&T for our research and to analyse the quality of logistics service and customer satisfaction in J&T in Kota Bharu. J&T has grown rapidly since its founding in 2015, they already expanding into Malaysia, Vietnam, the Philippines, Thailand, Cambodia, Singapore, China, Mexico, Brazil, Saudi Arabia, the UAE and Egypt by 2022 (Retailasia, 2022). In addition to shipping documents and packages, J&T Express provides a number of other services. Whenever a customer ships with J&T Express, they will not have to go to the J&T office. They use IT to provide the pick-up service (Nor Athierah, 2018). With its advanced IT management systems, J&T Express is currently one of Malaysia's top courier services. Through the availability of 2 the fastest, most convenient and efficient claim processes, the company has enhanced its express delivery services and customer service qualities.

Haron, Bakar, Haron and Hui (2017) highlighted the fact that 38% of online buyers were unhappy with their purchases because of delivery issues brought on by courier providers. Client satisfaction strongly influences customer loyalty. Most consumers prefer to frequent service providers who have ensured positive experience with minimal or no risk in their shopping encounter. The majority of customers choose to use service providers who can (Kaura, Prasad and Sharma, 2015). Businesses may have the opportunity to not only address the issues that have arisen, but also turn them into positive experiences by adopting appropriate and effective tactics or being attentive to consumer complaints. Effective complaint management thereby positively affects previously unsatisfied customers, specifically through improved repurchase behaviour and greater service utilisation. (Zena & Hadisumarto, 2012). Kaura, Prasad and Sharma (2015) offered additional aspects of service quality, such as information technology, tangibility, and employee conduct.

According to Department of Statistics Malaysia Official Portal, in the third quarter of 2021, Malaysian establishments earned RM279.0 billion through e-commerce, a 17.1% increase over the previous quarter. A positive growth trend was maintained with 4.3% quarter-on-quarter. RM801.2 billion was generated from e-commerce in JanuarySeptember, a 23.1 percent increase over the previous year. This is the data of performance ecommerce in Malaysia. In addition, it was estimated that 86.2 percent of establishments in 2019 used computers, as well as 85.2 percent used the internet. Interestingly, the percentage of people using the computer in 2020 was 80.0%, and the percentage of those using the internet was 89.6%. This is the data of usage of information and communication 3 technology. Which this data, we can see that from 2019 to 2021, there are enhancement of people in Malaysia using online purchase and using many courier services in Malaysia.

Furthermore, with so many logistics companies that offered courier service, people need to choose the best courier service to deliver and take care their product. In addition, with the rise of number of people using ecommerce, there will surely more people using courier service and it can be problem for them to choose with one of the courier services that offer the best customer satisfaction. Hence, we decided to find out about the quality of logistics and customer satisfaction when using one of the courier services specifically in Kota Bharu, Kelantan to make sure people in Kota Bharu can have more information about the courier so they can make better choice while using digital ecommerce. To summarize, the purpose of this research is to identify the factors influencing customer satisfaction in J&T Kota Bharu in terms of quality logistics and customer satisfaction. The general conclusion of this analysis will be evaluate using a qualitative method, which is an in-person interview. The researchers will collect data from 5 respondents, as stated in section 3.5, and the results will be extracted and explained in the following chapter.

1.1 Problem Statement

According to Department of Statistics Malaysia Official Portal, in the third quarter of 2021, Malaysian establishments earned RM279.0 billion through e-commerce, a 17.1% increase over the previous quarter. A positive growth trend was maintained with 4.3% quarter-on-quarter. RM801.2 billion was generated from e-commerce in January-September, a 23.1 percent increase over the previous year. This is the data of performance ecommerce in Malaysia. In addition, it was estimated that 86.2 percent of establishments in 2019 used computers, as well as 85.2 percent used the internet. Interestingly, the percentage of people using the computer in 2020 was 80.0%, and the percentage of those using the internet was 89.6%. This is the data of usage of information and communication technology. Which this data, we can see that from 2019 to 2021, there are enhancement of people in Malaysia using online purchase and using many courier services in Malaysia.

1.2 Research Question

The research questions as followed:

i. What are the factors that can lead customer satisfied with J&T Kota Bharu?
ii. What is the quality of logistics that can improve customer satisfaction?

1.3 Research Objective

The objective of this research is to find factors that can improve customer satisfaction in J&T Kota Bharu.

There were 2 objective that were conducted in this study:

i. To identify whether the quality of logistics service of J&T in Kota Bharu is excellent or vice versa
ii. To determine whether the customer of J&T in Kota Bharu is satisfied which the courier or vice versa.

1.4 Scope of the Study

This study focuses on the quality of logistics service and customer satisfaction in J&T in Kota Bharu. The reason that the researcher wants to focus on this issue because they are many courier services in Malaysia and what of it was J&T express which has growth rapidly in Malaysia, so we want to find out whether J&T give satisfaction to customer or otherwise. The data collection was conducted to customer who already use the J&T service specifically in Kota Bharu, Kelantan. This study finds out about what are the most important things that customer values in courier services. The study would be done through interviews of people who already use the J&T services. By this strategy, the researcher will be able to know the awareness of the quality of logistics service and also get to know about what are the things that people value that can make them satisfied with the services.

1.5 Significant of the Study

This study was designed to find the quality of logistics service and customer satisfaction in J&T in Kota Bharu. Which this finding, it gave the chance to the company to improve their quality of logistics in J&T in Kota Bharu. This research also can become as reference for other logistics company in Malaysia to improve their quality of services. For the customer, for those who like to shopping online or always use the courier service would know more about J&T service in Kota Bharu and they already knew about courier services.

In this section, we present a brief synopsis of the research proposition and the research process. The content has research background, problem statement, research questions, research objective, the scope of the study, the significant of the study and lastly the definition of terms that used in this study.Our focus is on a literature review. This review will assist the researcher in understanding the quality of logistics services and customer satisfaction in J&T Kota Bharu, Kelantan. By understanding the study's area critical issues, the researcher gained deeper insight into the topic. Furthermore, it clarifies the research framework and examines the organization and relationship of each study.

We focus on research methodology, research design, and data collection techniques It also includes the study's population, sample size, and sampling techniques. This chapter also discusses research instrument development, variable measurement, and data analysis procedures. We will discuss and briefly describe the researcher's data collection results. The questionnaire data was analyzed by the researcher. To collect data, we need to interview a few people who have used J&T express in the past.

Finally, we will conclude this report. The key findings of this study were presented, and the study's findings were discussed and interpreted. The study's implications and limitations were also examined in the context of how the quality of logistics service was and what made the customer satisfied when using J&T in Kota Bharu, Kelantan. We will conclude the chapter with recommendations for further research.

2 Literature Review

Researchers have also looked at the calibre of logistics services and customer satisfaction in J&T in this chapter. The capacity to deliver products in accordance with customer needs serves as a benchmark for the logistics services quality (Yang et al., 2010). Customer satisfaction and firm success have been linked in a number of empirical researches, including those by Mentzer et al. (1999, 2001), Panayides and So (2005), and Saure et al (2008). Customer satisfaction and service quality are two ideas that are sometimes used interchangeably. Customer satisfaction is an important factor to consider when assessing the quality of service. Even more challenging than defining service quality is figuring out how satisfied customers are. Service quality, according to Caceres & Paparoidamis (2007) and Gorla, Somers & Wong (2010), comes before customer satisfaction. Therefore, it stands to reason that customer happiness is a direct result of service excellence. There is no denying, however, that both of these components – service quality and customer satisfaction – are widely acknowledged as the key determining criteria in upholding long-lasting and fruitful commercial partnerships (Jayawardhena, 2010; Hoang, Igel, & Laosirihongthong, 2010; Rahman, 2008).

2.1 Quality of Logistics Service

In order to better understand how firms, integrate a quality and performance management system with their upstream suppliers and downstream customers, Huo et al. (2016) expanded from the supply chain quality management concept to the concept of supply chain quality integration. 9 In the logistics and supply chain management sectors, service performance has been identified as a critical factor in generating value and establishing a competitive advantage (Stank et al., 2003; Mentzer et al., 1999, 2001). In particular, Rafele (2004) proposed a framework for measuring logistic service performance, emphasizing three logistics quality dimensions which are tangible components, fulfilment methods, and informative actions. Stank et al. (2003) classified logistics service performance into operational and relational dimensions. Numerous studies have examined business to business interactions and the outsourcing of logistics services in connection to measurement methodologies, with a focus on logistics service quality and its impact on customer satisfaction. The total cost of relationships in logistics outsourcing decisions was studied by Maltz and Elleram in 1997. In their analyses of the connections between the theories of total quality management and supply chain quality management and the outsourcing of logistics services, Rahman (2006), Gotzamani et al. (2010), and Kuei et al. (2011) highlighted the connection between outsourcing, logistics service quality, and operational or financial performance. While several authors used the Kano model to evaluate logistics service quality (Sohn et al., 2017; Gustavsson et al., 2016; Mikulic and Prebezac, 2011), Kilibarda et al. (2016) applied the SERVQUAL technique to logistics and freight forwarding, demonstrating the consistent convergence of total quality management and supply chain management measurement systems.

Customer satisfaction and service quality are related ideas that have been extensively discussed in the last 20 years in the literature on quality management and supply chain management and supply chain management. Logistics service quality is likely to be relevant to assess logistics service quality dimensions, firms' responses to customer demands, and resulting customer value and customer satisfaction in the modern business environment, despite the fact that existing research appears to have underplayed 10 the role of total quality management in customer-related outcomes. So, taking into account the interaction between the consumer, producer, and logistics service provider, we investigate the theoretical factors that link logistics service performance, quality, and customer happiness.

The most important element of marketing to increase customer happiness is service quality in logistics. It is interesting to examine the broad range of logistics firms. The study's objective is to evaluate a logistics company's level of customer service in order to raise satisfaction and retention rates.

2.2 Customer Satisfaction

Bryne and Markham (1993) found that just 10% of businesses obtained customer satisfaction using logistical services in early 1990s research. Since enhancing the quality of the logistics service had a favourable effect on customer satisfaction, these authors warned logistics managers of the significance of logistics service quality. Using the concept of nonconformity of expectations, Sharma et al. (1995) described how customer satisfaction is produced when the performance of the logistical service meets or exceeds the client's prior expectations. According to these writers, the following characteristics have the most influence on customer satisfaction: product availability, after-sales service and support, effective logistics service communication, documentation, and delivery time.

Customer experience is a multifaceted concept with strong roots in marketing. Customer experience is described as a "customer's cognitive, emotional, behavioral, sensory, and social responses to a firm's offers during the customer's complete buying journey" by Lemon and Verhoef (2016, p.71). Although the significance of the customer journey has been emphasized for decades, the rapidly changing retail environment has increased scholarly interest in the topic (Grewal and Roggeveen, 2020). A set of touch points connected to the provision of a service from the consumer's perspective make up the customer journey (Zomerdijk and Voss, 2010). Pre-buy, purchase, and post-purchase are frequently conceptualized as the three main stages of the customer experience in the literature (Lemon and Verhoef, 2016; Shavitt and Barnes, 2020). Customer experience has not historically been treated as a separate construct in academic literature; rather, academics have looked at related but more narrowly focused variables.

The idea of service quality, which emerged from the creation of service marketing (Parasuraman et al., 1988), provides an early attempt to map the customer journey and throws insight on the context in which experiences from (Lemon and Verhoef, 2016). Businesses must monitor client responses to their offers in order to manage the customer experience. Measuring customer happiness, which is regarded primarily as the outcome of comparing delivered performance with customer expectations, has become the norm in marketing (Oliver, 1980). As a result, customer satisfaction may be seen as a result of the customer experience, offering a crucial foundation for the complete comprehension and measurement of the construct. Customer loyalty and consumer satisfaction are positively correlated, which suggests that the more satisfied a customer is with a service provider, the more committed they are to that service. However, the relationship between customer happiness and customer loyalty is hampered by two important limitations. When customer satisfaction reaches a certain level, customer loyalty will grow 12 exponentially. Customer loyalty will, however, dramatically decline when customer satisfaction starts to fall below a certain threshold. The customer satisfaction indicators of transportation and distribution management were discovered through an analysis of customer satisfaction variables in the transportation of an online retailer. In order to generate customer satisfaction indicators for transportation and distribution, the documentary analysis is used (Qin & Muangpan, 2021). Using content analysis, the ideas covered in the literature review were e-commerce, satisfaction enhancement, service quality measurement, and transportation and distribution concepts.

Customers who are not pleased with the informational offerings on a website will not make any purchases from that site (Cyr, 2008). According to research (Sabiote et al., 2012; Szymanski & Hise, 2000; Tzeng et al., 2020), websites that provide high-quality content positively and considerably boost consumer satisfaction. According to Park and Kim's findings from 2003, the quality of products information has a greater impact on consumer satisfaction than the quality of service information. Websites that provide high-quality information encourage customer loyalty. According to Wang et al. (2009), only information quality has a direct and significant impact on customer loyalty, whereas the perceived value of company-supported online communities has a direct and significant impact on customer trust.

3 Research Methodology

3.1 Sample Size

In this study, qualitative data was collected through interviews with the people who often uses J&T. The observation of connections and the development of theories to provide explanations are the foundations of an inductive qualitative method. According to Rowley (2012), interview can be conducted in groups or individually and are intended for qualitative research to gather the opinions, attitudes, experiences, processes, behaviours, or predictions to gain a better understanding of facts. We chose qualitative method because the objective of this research is to explore the factors influencing customer satisfaction in J&T Kota Bharu. We think that qualitative method is more appropriate.

This study was done to find out how satisfied locals with J&T Kota Bharu's logistical services and customer satisfaction. Interviews will conduct by the researcher as a qualitative method. Primary information will gather through online research resources. The information gathered will help the researchers determine the connection between the caliber of the logistic service and local inhabitants' customer satisfaction.

3.2 Research Design

This study was done to find out how satisfied locals with J&T Kota Bharu's logistical services and customer satisfaction. Interviews were conducted by the researcher as a qualitative method. Primary information was gathered through online research resources. The information gathered to help the researchers determine the connection between the calibre of the logistic service and local inhabitants' customer satisfaction.

3.3 Data Collection Method

Primary and secondary data are utilized for data acquisition. Primary data is information that has been obtained for the first time, usually for study reasons, through personal experiences or documentary evidence. It is sometimes referred to as raw data or first-hand knowledge. Therefore, secondary data is information that has already been gathered and documented by some researchers for reasons other than the current research issue. Data obtained from a variety of sources, including government publications, censuses, internal organizational records, books, journal articles, websites, and reports, among others, is available.

People who commonly use J&T as their courier service provided primary data for our study using a purposive sampling technique. We select these responders because we thought they could offer us reliable and trustworthy information.

3.4 Study Population

Ideally, all respondents who have relevant information about the case were interview for this research. The researchers collected the data from the responders and used it to know it is J&T are the excellent courier in Kota Bharu or not. This is frequently not possible for a variety of reasons, and a method of selection must be devised. The target population for this research is residents in Kota Bharu. There are 319, 600 residents in Kota Bharu, Kelantan. Due to people’s busy schedule and lack of time, we only took 5 respondents to interview. The researchers took the data from the interview. All the data was collected from the responders who use J&T as their courier service.

3.5 Purposive Sampling

Purposive sampling is a group of non-probability sampling techniques in which units are chosen based on characteristics of the respondents. In qualitative method, purposive sampling is common. It is especially useful when researchers need to find information-rich cases or make the most of limited resources, but it is vulnerable to research biases such as exploring the data. For the sampling size, the researchers took 5 respondents to know the quality of logistics service and customer satisfaction in J&T Kota Bharu.

3.6 Interview Protocol

Furthermore, this study used face-to-face conversations with the people who frequently use J&T as their courier service.

Quality of Logistic Service and Customer Satisfaction in J&T Kota Bharu
The interview begins with the following:

- An introduction to the interviewer
- A consent form and confidentiality agreement that includes a description of the project
- Reminding participants that this is an exploration and that there are no right or incorrect answers

Section 1- Start with background questions.

- What is your name?
- How old are you?
- What is your occupation?

Section 2- Questions about Logistic Service and Customer Satisfaction in J&T Kota Bharu

1. Why do you choose J&T as your courier service?
2. How satisfied are you with J&T service?
3. Does J&T deliver goods in good condition?
4. Which type of shipping do you use most often?
5. Do you agree with the pricing that J&T offered?
6. Do you satisfy with treatment from J&T staff?
7. Do you think the J&T's package tracking system can be easy to be access?
8. Would you recommend to other people to use J&T as their courier service?
9. Does J&T provide boxes and wrapping bubbles to ensure the goods are safe?
10. Do you have any bad service experience in J&T?

3.7 Procedure for Data Analysis

The entire interview was recorded for this study. The interview was later will be simplify to a manageable size, with only the essential structure remaining, and the results are presented in this study's empirical section. Thematic analysis is a method for analyzing qualitative evidence. a collection of publications, such as transcripts of interviews, is referenced in the phrase follow (Cauficld 2019). Researchers thoroughly scrutinize data to find recurring patterns, themes, and areas of interest. The analysis of non-numerical data, such as text, audio, and video, can be done using this method. Identification, coding, generating, reviewing, defining and naming, and writing are the six processes that make up this process

4 Data Analysis and Findings

The purpose of this chapter is to explain the qualitative data collection methods, describe the analytic techniques used, as well as present the findings from this phase of the research study. A complete discussion of the findings with links to our research objective and research question will be included in Chapter 1. Details information about the research participants is contained in Chapter 3.

4.2 Discussion Based on Research Questions

4.2.1 What are the factors that can lead to customer satisfied with J&T Kota Bharu?

According to the interview protocol, there were six questions regarding to the research question which is about what are the things that makes customer satisfied with J&T Kota Bharu. Based on the data collected from the interview, we can find out the quality of logistics services that provide by J&T. Below are the data collected from the interview.

The first question that we ask the interviewee regarding our research question is “why do you choose J&T as your courier service?”. We received various answers from our interviewee.

> Interviewee 1: “Price is reasonable, near at home and can track the parcel through online”
> Interviewee 2: “J&T service is better than another courier service”
> Interviewee 3: “They deliver goods in good condition always”
> Interviewee 4: “Fast delivery, near at the university”
> Interviewee 5: “Fast delivery”

We can see that people choose J&T courier service because the price is reasonable and can track the parcel easily. Moreover, one of our interviewees even compare J&T service with other courier services and said J&T is better. According to the data collected, J&T deliver goods in good condition and has the fast delivery service.

The second question is, “What is your comment about J&T courier service?”. Our interviewee replied:

> Interviewee 1: “They do excellent services such as deliver our goods on time”
> Interviewee 2: “Their prices are affordable and fast delivery.”
> Interviewee 3: “They provide quality service, and their drivers are experienced person and I enjoy the process.”
> Interviewee 4: “I’m very satisfied with their courier service as they always deliver goods in good condition”
>
> Interviewee 5: “Their services are good as they always deliver the item safely”

According to the data collected from our interviewee, we can conclude that J&T has fast and delivery on time and the customers believe the drivers are experienced. This comments from the interviewee indicates that’s J&T is providing excellent service.

Next, we ask the interviewee to explain about what they think about the pricing that J&T offered. Because it's one of the key elements to make customers satisfied with J&T courier service. Below is the reply from interviewee.

> Interviewee 1: "I think that their prices are affordable, and everyone can afford to pay."
> Interviewee 2: "It's cheap compared to other courier services."
> Interviewee 3: "I think that it has good quality with cheap price."
> Interviewee 4: "I think that they offer with reasonable price."
> Interviewee 5: "In my opinion, the price is moderate, but I expect for more discounts for many orders."

The pricing of J&T courier service is affordable, cheap, reasonable, and moderate according to the data collected from the interviewee.
Apart from that, we also asked our interviewees that "How was your experience with the way you treated by J&T staff?". Because we think that the way customers treated by J&T staff is an important aspect of customer satisfaction.

> Interviewee 1: "They treated me in appropriate way like how they should."
> Interviewee 2: "They treated me in a good way because they were very kind and friendly."
> Interviewee 3: "It was a good experience they are very friendly as I see them frequently."
> Interviewee 4: "They treated me with a very polite way and their communication skill is very good."
> Interviewee 5: "I had a great experience with the way they treated me. For example, the staff help me to carry my heavy parcel."

According to the data collected, we can conclude that the staff treat the customer in a good way. For example, they are friendly, kind, polite and their communication skill is good. Moreover, the staff even help to carry heavy parcels of the customers.
In addition, we also asked "What is your recommendation to other people about J&T's courier service?", because customers will only recommend if they are satisfied. Here are the replies from the interviewee:

> Interviewee 1: "I would recommend others to choose J&T as their courier service because they have so many branches everywhere."
> Interviewee 2: "For those who would like to send fragile good for example glass and medicine, I would recommend J&T because they know the correct way to handle the goods."
> Interviewee 3: "My recommendation to others is, there is not any cases on J&T about their service and they are trustworthy."
> Interviewee 4: "I will recommend J&T because they will contact us when they are nearby so it will be easy for us to receive the parcel."
> Interviewee 5: "I would recommend J&T because they deliver goods and good condition".

It is clear that all of our interviewee recommends J&T courier service to others. This is because, J&T has so many branches in Malaysia, they handle goods in a proper way

and trustworthy. They even contact the customers before the delivery so that it is easy to deliver the parcel. Lastly, they also deliver goods in good condition.
Last but not least we also ask our interviewees about their good or bad experience in J&T. Here are the replies from the interviewee:

> Interviewee 1: "So far there is no bad experience. The good thing is they deliver my parcel on time."
> Interviewee 2: "The good experience is they deliver my fragile good in good condition. And there is no bad experience."
> Interviewee 3: "There is no bad experience. For the good one I would say that once they deliver my expensive parcel which is gold ring safely in good condition."
> Interviewee 4: "The good experience that I had is once I send a fish to my friend and it arrived safely and no bad experience."
> Interviewee 5: "I experience all good experiences and not the bad one. Because J&T services are excellent."

According to the data collected, we can analyze that there is no bad experience experienced by the customer. The good experiences are, parcel delivered on time, fragile parcels arrived safely and overall, the services are excellent. So, based on this data the researchers can conclude that all the interviewees that has been interviewed were satisfied with the J&T service.

4.2.2 What is the quality of logistics that can improve customer satisfaction?
According to the interview protocol, there were four questions regarding to the research question which is about the quality of logistics that can improve customer satisfaction. Based on the data collected from the interview, we can find out the quality of logistics services provide by J&T. Below is the data collected from the interview.

The question that we asked is, "Do you think that J&T deliver goods in good condition? If yes, why?". Below are the replies from the interviewee.

> Interviewee 1: "I think yes because, so far there is no complaints from my customers about the packaging"
>
> Interviewee 2: "Yes, I think they do. Because the goods received in good condition without any damage."
>
> Interviewee 3: "Yes, because I receive my medicines and insulin injection in correct temperature."
>
> Interviewee 4: "It is good. Because I used to send flowers on festive seasons through J&T service."
>
> Interviewee 5: "I think yes because many people use J&T courier service, and they are trustworthy."

Based on the data collected, it is proven that all types of goods such as documents, packages, letters, fragile and more are delivered in good condition. Secondly, we ask the interviewees about the type of shipping that they use more often. The replies from the interviewees are below.

> Interviewee 1: “The Standard Delivery”
> Interviewee 2: “The Standard Delivery”
> Interviewee 3: “The Standard One”
> Interviewee 4: “The Standard Delivery”
> Interviewee 5: “The most type of shipping that I often use is Standard delivery”

Based on the data collected, all of the interviewee uses the Standard Delivery. Thus, majority of the customer uses Standard Delivery in J&T courier service. The next question that we ask our interviewees is, “Do you think J&T’s package tracking system can be easy to be access? If yes, what type of device do you use to log in to the system?”. It seems that J&T tracking system is easy to access.

> Interviewee 1: “Yes, it is. It is easy to use and its accurate. I will use my handphone”
> Interviewee 2: “Yes, it is. It is easy to track. Usually, I will use my computer”
> Interviewee 3: “It is easy for me to use in my phone.”
> Interviewee 4: “Yes, it is. The system is just good to access by any device.”
> Interviewee 5: “Yes, it is. The tracking system can be easy to be access with my tablet.”

According to the data collected, we believe that J&T tracking system can be easy to be access with all the devices. Last but not least, we ask that “What do you think that J&T do to ensure that the goods delivered are safe?”. As J&T always deliver goods in good condition, we need to know how. Below are the opinions from our interviewees.

> Interviewee 1: “They do provide boxes and wrapping bubbles, so that our goods are safe throughout the process.”
> Interviewee 2: “For some of the fragile items such as food products and medicines they provide dry ice to make sure the goods are in good condition by the time it deliver.”
> Interviewee 3: “I think that the J&T staffs are well trained to handle different type of goods such as documents, packages, letters including fragile items.”
> Interviewee 4: “They provide boxes and wrapping bubbles. They also have fragile sticker to stick it on the parcel so it will be safer.”
> Interviewee 5: “They use an effective way to distribute goods in good condition. For example, they transport limited goods at a time so that the parcels are safe”

It seems that J&T courier service sort out ways to deliver goods in good condition. Thus, J&T can improve customers satisfaction.
In a nutshell, for the research question which is ‘What is the quality of logistics that can improve customers satisfaction?’, we can identify the answer from the data collected through the interview. Based on the data, it is clear that the customers believe that the logistic quality of J&T is satisfying.

5 Discussion and Conclusion

This research is concluding in following part. There are four sections in this part. A general synopsis of the study is provided in the first section, which is followed by a discussion of the findings and their conclusions. The study's conclusions are then followed by link with previous studies, limitation of study and recommendations for additional investigation.

The following conclusion is limited to the quality of logistics service and customer satisfaction in J&T Kota Bharu. Furthermore, if these conclusions are applied to other situations, they may result in incorrect assumptions. Nonetheless, these conclusions are applicable to the used

5.1 Link with Previous Studies

J&T Express has to maintain and increase service quality such as on-time delivery of the parcel, delivery to a correct and respective address, good condition of the parcel, and friendly attitude of delivery drivers. The customers feel satisfied and pleased when the perceived service quality reaches or exceeds their expectations.

Moreover, with those examples of service quality improvement, J&T Express will gain more customer loyalty and have a higher potential to obtain more new customers that try on their service due to the reason that those satisfied customers will continue using the service and may recommend it to their families and friends. Besides, J&T Express can strengthen its reputation and enjoy more competitive advantages in the market. All this research findings are supporting to our research.

The increasing development of the business world necessitates goods management in order for J&T to operate their service. This is because a number of companies, including J&T are expanding in the shipping industry. Punctuality is another factor that has a significant impact on a success of a shipping company in the business of shipping goods (Gonroos, 1994; Phillip Kotler, 2000; Lovelock, Wirtz, 2013). Customers expect their shipments to arrive on time and according to the estimated schedule from the start. This is especially important for customers who have a number of business interest related to the items they send it.

Lastly, the process of sending goods or products is frequently handled by courier services, and it also happens quickly. This is due to the fact that people who want or require delivery services for goods or products for practical purposes, particularly logistics courier services that have adapted to the business world with application technology, compete with similar competitors and require good prices and services to create customer satisfaction. A price is a value established as a standard for goods (Kotler and Amstrong, 2008) define price as the amount of money exchanged for a delivery service. service quality Customers are encouraged to form strong bonds with the logistics company as a result of this incentive. According to the Tjiptono & Chandra, 2011) a presentation of products or services based on the size applicable at the location where the delivery is at least the same as desired and expected by customers is referred to as service quality.

5.2 Limitation of Study

Any study procedure, including this one, is subject to limitations. Throughout the study process, it is crucial that we work to reduce the range of scope of constraints. The technique of data collecting, the dearth of precise information from respondents, and the time-consuming procedure were some of the study's drawbacks.

In order to disseminate the questionnaire, we look for persons in Kota Bharu who we can interview. This method has the disadvantage that the respondents might not comprehend the study because there are some find it is complicated. Respondents preferred to quickly grasp the substance of the questionnaire because it was time-consuming. As a result, it was difficult to convey more about this research to respondents while completing the survey.

Finally, finding the right respondents and gathering the data for this study take time. Due to their hectic schedules, it's possible that some respondents forgot about the interview even after we contacted them. As a result, we must get in touch with the responders to provide an update. As a result, gathering the data takes time, and in order to gather enough information to satisfy the sample size requirement, we might need to approach random respondents.

5.4 Recommendation for Future Research

The study provides initial empirical findings from the research which is quality of logistics service and customer satisfaction in J&T Kota Bharu. customer satisfaction is determined by the quality of services provided by J&T. Furthermore, the current findings may be used to review and identify what quality logistics services are available in J&T Kota Bharu in order to achieve high customer satisfaction. As we can see in previous chapter, J&T has provided numerous facilities, benefits and other benefits in order to satisfy customer.

Other than that, the quality of service in J&T can have an impact on customer satisfaction. As a result, the researchers are advised to conduct a similar study in another state of Malaysia and, if possible, increase the sample size to generate more information from the large population. Customers of J&T can refer to this study to learn more about J&T while also exploring more about J&T.

5.5 Conclusion of the Study

In a nutshell, we conducted the data analysis from the interview in person and we succeed to find out what are the reason that the customer satisfied with the quality service of J&T. Besides, the service that J&T has provided to the people are very excellent and most of the people who use the J&T service were satisfied

The concept discussed in this study is to improve the quality of logistics service and customer satisfaction in J&T Kota Bharu. This study also serves as a foundation for future research and attracts more people to help adjust the research in the future. It will be interesting to see how the concept is validated throughout the case study. Future research is required to validate the findings of this study.

6 Acknowledgements

Alhamdulillah, first and foremost, we would like to express our gratitude to God for allowing us to finally complete our final year project. This task was completed with the help of all group members, despite a minor issue that arose throughout the course of the project. Fortunately, all of the issues were resolved, and we were able to adjust effectively and prudently.

Apart from that, we would want to express our gratitude to our supervisor, because without her guidance, our final year project would not have been completed properly. She always encourages us and shows us how to complete our research so that we can get a solid result from the study we have done.

We would also like to expand our deepest gratitude to all those who have directly and indirectly guided us in writing on this research. This research cannot be completed without the effort and cooperation of our group members, Radin Azhar Bin Radin Yahaya, Nuradriana Binti Norazlan, Siti Nor Aslina Binti Abdul Rahman, and Shivabharethi A/P Seathu. It has been a great delight for us to finish this report, which has led to a helpful but supportive cooperation where we always lend a hand to one another while we work on the report.

Furthermore, we are really fortunate to have such a responsible set of individuals who consistently demonstrate responsibility in order to complete this project. Many people, particularly our students and team members, have provided helpful feedback and suggestions on this proposal, which has inspired us to better our project. We appreciate everyone's assistance in completing our work, both directly and indirectly.

Lastly, we were appreciative for our supervisor's involvement as well as the fact that we had completed our report effectively with the help of our group members. Thank you.

7 References

Angeline Sutrisno, Erna Andajani, Fitri Novika Widjaja (2021). The Effects of Service Quality on Customer Satisfaction and Loyalty in a Logistics Company, https://knepublishing.com/index.php/Kne-Social/article/view/5360/10585.

Bashir, M., Afzal, M T., & Azeem, M. (2008). Reliability and Validity of Qualitative and Operational Research Paradigm. *Pakistan Journal of Statistics and Operation Research 4,(1), 35-45.*

Caulfield, J. (2022, November 25). How to Do Thematic Analysis | Step-by-Step Guide & Examples. Scribbr. Retrieved January 8, 2023, from https://www.scribbr.com/methodology/thematic-analysis/.

Downe-Wamboldt, Barbara. (1992). Content analysis: Method, Applications, and Issues. Health Care for Women International. 13. 313-21. https://www.tandfonline.com/doi/abs/10.1080/07399339209516006.

Estiana Asri Fadhila, Muhammad wadud, Roswaty (2021). The Effect of Service Recovery on Customer Satisfaction in J&T Express Goods Delivery Services in Palembang, https://journal.jis-institute.org/index.php/ijmhrr/article/download/183/136.

Grönroos, C. (1994). From Marketing Mix to Relationship Marketing. Management Decision.

Lovelock, Wirtz, M. (2013). Pemasaran Jasa. Jpurnal of Chemical Information and Modelling.

Hsieh H-F, Shannon SE (2005). Three Approaches to Qualitative Content Analysis. *Qualitative Health Research*. 15(9):1277-1288.

Kotler, Philip. (2000). Marketing Management, Millennium Edition. Marketing Management.

Krippendorff. (1984). Content Analysis: An Introduction to Its Methodology.

Liem Gai Sin, Joon Weng Leong, Shu Jie Lee, Wei Keat Lee, Zhi Qing Lee (2022). Factors Affecting Customer Satisfaction at J&T Express in Malaysia, https://ejournal.aibpmjournals.com/index.php/IJTHAP/article/viewFile/1878/1717.

Nor Athierah bt Zainon, Angel Oon, Stefanus Rumangkit. (2020). Operation Managemnet in J&T Express, https://jurnal.darmajaya.ac.id/index.php/icitb/article/download/1401/878.

Rowley, J. (2012). Conducting Research Interviews. *Management Research Review,* 35(3/4), 260-271.

Sin, L. G., Leong, J. W., Lee, S. J., Lee, W. K., & Lee, Z. Q. (2022). Factors Affecting Customer Satisfaction at J&T Express in Malaysia. International Journal of Tourism and Hospitality in Asia Pasific (IJTHAP), 5(3), 38-49.

Tjiptono, F., & Chandra, G. (2011). Service, Quality & Satisfaction. In Edition 4. https://doi.org/10.3389/fgene.2015.00293.

Driers for the Acceptability of a Solar-Wind Hybrid System in Logistics Transportation

Sarah Ann Loudesamy, Kiong Xiang Rong, Muhammad Azizi Zainal, Nurul Nazurah Zakaria & Hanieh Alipour Bazkiaei*

Faculty of Entrepreneurship and Business,
Universiti Malaysia Kelantan,
Malaysia

Email: hanied.ab@umk.edu.my

Abstract:
The purpose of this research is to investigate the drivers for the acceptability of solar-wind hybrid systems in logistics transportation. This research adopted a prolonged theory of planned behaviour (TPB) by encompassing five variables, which are economic concern (EC), health concern (HC), environmental concern (ENC), social concern (SC), and surrounding concern (SUC). A quantitative research approach was implemented to examine the drivers that influence solar-wind hybrid systems. The adopted questionnaire from the previous studies was used as a survey instrument. Aside from that, primary data were gathered from a sample size of 361 students of University Malaysia Kelantan. The data in this research were analysed using Statistical Package of Social Science (SPSS) software. Findings confirmed that the economic, health, environmental, social, and surrounding concerns were positively significant for the acceptability of a solar-wind hybrid system in logistics transportation. This research identifies critical or dominant limitations in order to nurture future generations. Therefore, this study investigated the relationship between the economic, health, environmental, social, and surrounding concerns and the acceptability of solar-wind hybrid systems in logistics transportation.

Keywords: *Acceptability of Solar-Wind Hybrid System, Economic Concern, Environmental Concern, Health Concern, Social Concern, Surrounding Concern, Theory Planned Behavior*

1 Introduction

Solar and wind energy systems are renewable energy sources that exist everywhere. Currently, the price of fossil fuel is getting more expensive because it is the main source of energy in the world. The growing demand for energy causes its supply to become increasingly limited (Bhandari et al., 2014). The Malaysian government has planned the use of renewable energy to reduce greenhouse gas emissions by 2050 in the Eleventh Malaysia Plan (Teoh et al., 2020). In addition, the Malaysian government has introduced the Fit Tariff (FiT) programme as an initiative to develop the use of renewable energy since 2011 (Alam et al., 2016). Hence, this research was initiated to examine the acceptability of solar-wind hybrid systems in logistics transportation. Moreover, the increased use of non-renewable energy sources causes public health and environmental problems (Taşçioğlu & Keser, 2019). Therefore, using renewable energy sources can help improve public health and reduce global warming.

Although these solar-wind hybrid systems studies were conducted in different countries like Nepal (Thapa et al., 2020), Pakistan, Malaysia, India, Iraq, Bangladesh, Nigeria, Kenya, and Zimbabwe, the preference for these hybrid systems is still sporadic (Babaremu et al., 2022). The benefits, risks, costs, and opportunities of the hybrid solar-wind generation of power have been discussed in the previous study (Chen et al., 2010). Yet, the drivers for the acceptability of solar-wind hybrid systems have not been described or analysed.

However, the purposes of this research comprise three features, which are:

i. To investigate the relationship between economic and environmental concern with acceptability of solar-wind hybrid system in logistics transportation.
ii. To investigate the relationship between social and health concern with acceptability of solar-wind hybrid system in logistics transportation.
iii. To investigate the relationship between surrounding concern and acceptability of solar-wind hybrid system in logistics transportation.

This pivotal topic under the solar-wind hybrid system needs to be explored thoroughly. This study is conducted to accumulate the perspectives of University Malaysia Kelantan students and simultaneously analyse the relationship between these drivers for the acceptability of a solar-wind hybrid system in logistic transportation. This study was designed using a quantitative research approach. An online survey technique is used to gather the information by providing a questionnaire. The scope of this research is restricted to 361 student volunteers from the University of Malaysia Kelantan, aged 19 to 28. The students were contacted through their university mail. This research period will persist once 361 student volunteers have responded.

2 Literature Review

2.1 Theory Planned Behaviour

The Theory of Planned Behavior (TPB) is a model of socio-psychological concept that claims the actual behaviour of a person in performing a particular deed is precisely guided (Yazdanpanah et al., 2015). This theory uses diverse constructs that foretell the individual's restraint over behaviours, and encompasses attitude, subjective norm, and perceived behaviour control (Wall et al., 2021). Hence, this theory is appropriate to apply in this research for the purpose of investigating the acceptability of a solar-wind hybrid system.

2.2 Acceptability of Solar-Wind Hybrid System in Logistic Transportation

The acceptability of solar-wind energy deployment in infrastructure or transportation still evokes questions among citizens around the world (Yazdanpanah et al., 2015). They also stated that acceptability is precisely associated with TPB, where it emphasises an individual's behaviour, including attitudes, preferences, perceptions, moral norms, and intention. Generally, logistics transportation heavily relies on fossil fuels (Herold & Lee, 2017). Yet, it affects the environment tremendously due to emissions of greenhouse gases (Steen, 2017).

Guo and Kang (2016) suggested that a solar-wind hybrid system works well as a substitution for fossil fuels. Solar energy can be converted via solar panels, while wind energy can be converted via wind turbines in order to generate electricity (Abdali et al., 2018). The radiation from the solar cells and mechanical energy from the wind turbine are converted into electrical energy in the converter and subsequently stored in batteries (Abdali et al., 2018). All of these electrical energies are transmitted to energy management systems and eventually directed to the driving system (Guo & Kang, 2016).

It turns out to be a perfect solution for the disruption of solar energy at night and during the winter season, as there is no radiation from solar during that time (Lakatos et al., 2011). Unlike solar energy, wind energy is mostly abundant at coastal areas all day (Chandramouly & Raghuram, 2017). As stated by Lakatos and colleagues (2011), plentiful electrical energy can be generated via wind energy during the winter and early spring, while electrical energy is produced abundantly during the summer via solar energy. All of these issues indicate that a hybrid of solar and wind energy really complements each other in order to provide continuous and highly efficient electricity.

2.3 Economic Concern

According to Taşçioğlu and Keser (2019), nowadays energy prices are increasing due to political developments in the world. Therefore, the price of fossil fuels is also increasing and becoming more limited, making it necessary to find other alternatives with high efficiency to replace them. Moreover, with excessive consumption of fossil materials and the economic impact that occurs, renewable energy has become a cost-effective source of energy (Nazir et al., 2020). Furthermore, using renewable energy is the best way to save on production costs. Theoretically, reduce energy bills (Folk, 2019).

Although the cost of installation and maintenance of renewable energy is high, solar-wind energy plays an essential role in electricity generation, and wind energy is clean energy that contributes to normal energy production (Sani et al., 2019). Nevertheless, installing renewable energy is expensive, but it is cheap to use. This is because the use of solar-wind hybrid systems does not require fuel (Folk, 2019). Eliminating fuel costs can indirectly reduce the cost of electricity, making renewable energy prices more stable in the long term. Solar and wind power are cost-effective because they are low-cost energy sources nowadays.
H*$_1$*: *Economic concern positively influence acceptability of solar-wind hybrid system in logistics transportation.*

2.4 Health Concern

According to Khan et al. (2021), the use of domestic lignite in large quantities has a damaging effect on human health. solar and wind energy have an essential role in the reduction of greenhouse gas emissions and in protecting human health. In addition, the minimization of damaging gases such as carbon dioxide, sulphur dioxide, and nitrogen oxides can reduce deaths due to cardiovascular problems. The use of green energy or biofuels is encouraged as an alternative to fossil materials and can reduce carbon emissions (Khan, 2019). Besides, solar and wind power do not release excess air pollution that can harm human health. Accordingly, polluted air and water due to the lack of clean energy technology have a negative impact on human health (Buonocore et al., 2016). Furthermore, reducing fossil fuels has proven to save more lives. Based on a study conducted in 2013 in the United States, 200 000 premature deaths occur due to air pollution every year, and 52 000 of those deaths are caused by power generation, as stated by Heger (2015).

H₂: *Health concern positively influence acceptability of solar-wind hybrid system in logistics transportation.*

2.5 Environmental Concern

Environmental concern is one of the constructive elements that impacts the solar-wind hybrid system (Hamed & Alshare, 2022). This concern includes climate change and global warming, as they directly affect the environment (Shaheen & Lipman, 2007). According to Perera and Nadeau (2022), global warming and climate change occur due to the utilisation of fossil fuels. The combustion of hydrocarbons in fossil fuels like petroleum produces carbon dioxide (Blasing et al., 2005). In 1997, the sectors in the European Union (EU) contributed 28% of the carbon dioxide emissions in transport, the highest percentage in emitting greenhouse gases (Steen, 2017). He also stated that 83% of carbon dioxide emissions resulted in greenhouse gas effects.

Apart from the emission of carbon dioxide (CO_2), the fossil fuels utilised for internal combustion energy in transportation also release nitrous oxide (N_2O) and methane (CH_4) (Shaheen and Lipman, 2007). As these gases are continuously emitted into the atmosphere, their atmospheric concentrations increase proportionally too (Ehhalt et al., 2001). The atmosphere acts as a blanket shield, trapping all of those gases beneath it (Kweku et al., 2018). They also added that the trapped gases formed another layer of blanket underneath the atmosphere. These layers of gas gripped the other greenhouse gases and transmitted them back to the earth (Kweku et al., 2018). Hence, it warms or heats the earth (Ehhalt et al., 2001).

H_3: *Environmental concern positively influence acceptability of solar-wind hybrid system in logistics transportation.*

2.6 Social Concern

In 2018, there were 11 million employed in the renewable energy sector worldwide, and simultaneously, there were 32% of women working in the renewable energy sector, which was 22% higher than the global oil and gas industry (Job Creation, 2019). According to Gordon (2020), there are expected to be 100 million job opportunities in the renewable energy sector by 2050. Meanwhile, jobs related to renewable energy could increase to 42 million new jobs by 2050 (Gordon, 2020). There are a few sectors related to jobs in renewable energy, such as solar photovoltaic (PV), hydropower, geothermal, wind, solid biomass, biofuel, and biogas (Job Creation, 2019). Among the different sectors in renewable energy employment, the one with the most employment is solar photovoltaic (PV), which has 3.6 million jobs (Gordon, 2020).

H$_4$: *Social concern positively influence acceptability of solar-wind hybrid system in logistics transportation.*

2.7 Surrounding Concern

According to Jenkins et al., (2019), that wind-solar hybrid systems have numerous advantages, such as reliability and lower maintenance requirements. Additionally, as they are abundant locally and are cost-free, renewable energy sources help cut down on pollution emissions. A hybrid solar-wind power plant generates electricity using both wind and solar insolation (Podder et al., 2015). They stated that the radiation from the sun and the speed of the wind change every year, resulting in none of the devices being able to provide consistent power on their own. Their research indicates that a hybrid system with storage components or another medium would be able to provide power continuously and accurately.

H$_5$: *Surrounding concern positively influence acceptability of solar-wind hybrid system in logistics transportation.*

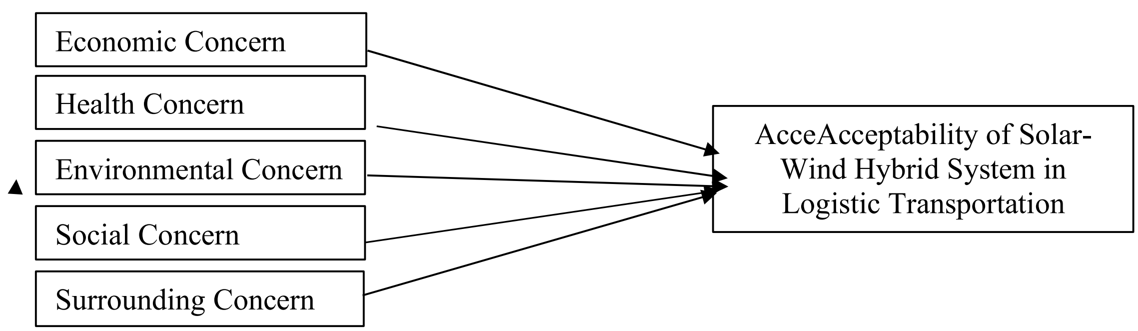


Figure 1: Research Model Framework

3 Methodology

3.1 Research Design

A quantitative method was utilised by the researchers in this study. It is a process of gathering and analysing measurable information or data (Apuke, 2017). In this study, a survey was used to collect data via online. The researcher targeted students from the University of Malaysia Kelantan as respondents.

3.2 Data Collection Methods

The primary data was collected based on the respondent's perspectives. The respondents will answer the questionnaire via Google Form, which is a closed-ended question. The questionnaire connected to the objective of this study was distributed to 361 students.

3.3 Study Population

According to Hu (2014), the population of a study is the subgroup of the chosen people from the sample that is drawn. In this research, the researchers are focusing on undergraduate students at the University Malaysia Kelantan in Pengkalan Chepa, Kelantan, which consists of 6000 students (Universiti Malaysia Kelantan, 2022).

3.4 Sample Size

The size of the sample is described as an approximation of the figure of replicates that will be a fragment of the study (Kaur, 2017). Therefore, in this research, the sample was around 361 respondents from the population of 6000 students. According to Krejcie and Morgan (1970), the proposed model of 361 was extracted by utilising this formulation:

$$s = X^2NP(1-P) \div d^2(N-1) + X^2P(1-P)$$

3.5 Research Instrument

The previous study's research question is used in this study. A simple random sampling was used as the sampling method to gather data for this analysis, which was based on questionnaires. Sections A, B, and C comprise of three sections of the questionnaire used in this study. The details, or demographics, of the respondents are covered in Section A. Next, Section B discusses the dependent variable, while Section C discusses all those five independent variables. The five-point Likert scale is used throughout Sections B and C of the questionnaire.

3.6 Measurement of Variables

The dependent variable for the acceptability of the solar-wind hybrid system, which was closely associated with the Theory Planned of Behavior (Yazdanpanah, et al., 2015), possessed three dimensions, which are intention, attitude, and moral norm, using the indicator developed by Ajzen (2002). Eshchanov et al. (2013) measured the first variable, economic concern, by using Kılınç et al. (2009) indicator, that has two dimensions, which are perception and preference in choosing energy. They also measured the second variable, health concern, which has a dimension, that is perception, using the same indicator.

The environmental concern, which acts as the third independent variable measured by Nahar et al. (2022) by using the indicator developed by Islam (2008), consists of two dimensions, which are perception and attitudes towards the application. Djurisic et al.

(2020) measured the fourth variable, social concern has a dimension, which is perception, using the indicator developed by Ullman and Bentler (2003). The surrounding concern, which acts as the fifth variable measured by Eshchanov et al. (2013) by using the indicator developed by Kılınç et al. (2009), consists of one dimension, which is perception.

3.7 Procedure for Data Analysis

According to Kelley (2022), data analysis is the process of providing valuable data and statistics, which are typically interpreted in graphs, tables, charts, and other visual representations to reduce the risks associated with construction decisions. Researchers can examine the link between the dependent and independent variables by using data analysis. Pilot test, descriptive analysis, Pearson correlation and multiple linear regression were employed in the data analysis for this study.

4 Result and Data Analysis

4.1 Hypotheses Testing (Pearson Correlation Analysis)

Hypotheses testing can be defined as enabling the drawing of inferences or conclusions about population parameters by utilising data from a research sample (Singh & Singh, 2015). In this research, the Pearson correlation coefficient has been implemented in order to measure the linear relationship among two variables. The outcome of the correlation coefficient analysis indicates that independent variables correlate with the dependent variable to identify the hypotheses, whether the hypotheses are accepted or rejected.

Table 2: Pearson Correlation between Dependent and Independent Variables

Correlations							
		SW	EC	HC	ENC	SC	SUC
SW	Pearson Correlation	1	.734**	.849**	.872**	.851**	.496**
	Sig. (1-tailed)		.000	.000	.000	.000	.000
	N	361	361	361	361	361	361
EC	Pearson Correlation	.734**	1	.749**	.795**	.802**	.275**
	Sig. (1-tailed)	.000		.000	.000	.000	.000
	N	361	361	361	361	361	361
HC	Pearson Correlation	.849**	.749**	1	.874**	.890**	.653**
	Sig. (1-tailed)	.000	.000		.000	.000	.000
	N	361	361	361	361	361	361
ENC	Pearson Correlation	.872**	.795**	.874**	1	.943**	.478**
	Sig. (1-tailed)	.000	.000	.000		.000	.000
	N	361	361	361	361	361	361
SC	Pearson Correlation	.851**	.802**	.890**	.943**	1	.485**
	Sig. (1-tailed)	.000	.000	.000	.000		.000
	N	361	361	361	361	361	361

SUC	Pearson Correlation	.496**	.275**	.653**	.478**	.485**	1
	Sig. (1-tailed)	.000	.000	.000	.000	.000	
	N	361	361	361	361	361	361

****. Correlation is significant at the 0.01 level (1-tailed)**

H_0 = Economic concern does not influence acceptability of solar-wind hybrid system in logistic transportation.
H_1 = Economic concern positively influence acceptability of solar-wind hybrid system in logistic transportation.

The first hypothesis is that an economic concern would positively influence the acceptability of a solar-wind hybrid system in logistic transportation. The r value of acceptability of solar-wind hybrid system in logistic transportation and economic concern is 0.734. This value indicates that economic concern is high positive correlated with acceptability of solar-wind hybrid system in logistic transportation ($r=0.734$, $p<0.01$). The significant value of this hypothesis is 0.000, which is less than 0.01. It resulted in the failure to reject the hypotheses. In brief, the hypotheses are accepted.

H_0 = Health concern does not influence acceptability of solar-wind hybrid system in logistic transportation.
H_1 = Health concern positively influence acceptability of solar-wind hybrid system in logistic transportation.

The second hypothesis is that the health concern would positively influence the acceptability of a solar-wind hybrid system in logistic transportation. The r value of acceptability of solar-wind hybrid system in logistic transportation and health concern is 0.849. This value indicates that health concern is high positive correlated with acceptability of solar-wind hybrid system in logistic transportation ($r=0.849$, $p<0.01$). The significant value of this hypothesis is 0.000, which is less than 0.01. It resulted in the failure to reject the hypotheses. In brief, the hypotheses are accepted.

H_0 = Environmental concern does not influence acceptability of solar-wind hybrid system in logistic transportation.
H_1 = Environmental concern positively influence acceptability of solar-wind hybrid system in logistic transportation.

The third hypothesis is that an environmental concern would positively influence the acceptability of a solar-wind hybrid system in logistic transportation. The r value of acceptability of solar-wind hybrid system in logistic transportation and environmental concern is 0.872. This value indicates that environmental concern is high positive correlated with acceptability of solar-wind hybrid system in logistic transportation ($r=0.872$, $p<0.01$). The significant value of this hypothesis is 0.000, which is less than 0.01. It resulted in the failure to reject the hypotheses. In brief, the hypotheses are accepted.
H_0 = Social concern does not influence acceptability of solar-wind hybrid system in logistic transportation.
H_1 = Social concern positively influence acceptability of solar-wind hybrid system in logistic transportation.

The fourth hypothesis is that the social concern would positively influence the acceptability of a solar-wind hybrid system in logistic transportation. The r value of acceptability of solar-wind hybrid system in logistic transportation and social concern is 0.851. This value indicates that social concern is high positive correlated with acceptability of solar-wind hybrid system in logistic transportation ($r=0.851$, $p<0.01$). The significant value of this hypothesis is 0.000, which is less than 0.01. It resulted in the failure to reject the hypotheses. In brief, the hypotheses are accepted.

H_0 = Surrounding concern not influence acceptability of solar-wind hybrid system in logistic transportation.
H_1 = Surrounding concern positively influence acceptability of solar-wind hybrid system in logistic transportation.

The fifth hypothesis is that the surrounding concern would positively influence the acceptability of a solar-wind hybrid system in logistic transportation. The r value of acceptability of solar-wind hybrid system in logistic transportation and surrounding concern is 0.496. This value indicates that surrounding concern is low positive correlated with acceptability of solar-wind hybrid system in logistic transportation ($r=0.496$, $p<0.01$). The significant value of this hypothesis is 0.000, which is less than 0.01. It resulted in the failure to reject the hypotheses. In brief, the hypotheses are accepted.

4.2 Multiple Linear Regression

Regression analysis is performed to determine the correlation between two or more variables and identify which independent variables have a high influence on the dependent variables (Uyanık & Güler, 2013).

Table 3: Model Summary of Multiple Regression Analysis

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.891[a]	.794	.791	.3273536

a. Predictors: (Constant), Surrounding Concern, Environmental Concern, Economic Concern, Health Concern, Social Concern

Based on the Table 3, the value of R^2 is 0.794. This value indicates the independent variables of economic, health, environmental, social, and surrounding concerns contributed 79.4% of factors to turnover intention.

Table 4: Anova of Multiple Regression Analysis

ANOVA[a]						
	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	146.374	5	29.275	273.187	.000[b]
Residual		38.042	355	.107		
Total		184.416	360			

a. Dependent Variable: Acceptability of Solar-Wind Hybrid System in Logistics Transportation
b. Predictors: (Constant), Surrounding Concern, Environmental Concern, Economic Concern, Health Concern, Social Concern

The result shows a significant impact on the acceptability of a solar-wind hybrid system in logistics transportation ($F (5, 355) = 273.187$, $p<0.000$) with an R^2 of 0.794, which is shown in Table 4.

The equation of regression:

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \varepsilon$$

Y = Acceptability of solar-wind hybrid systems	$\beta_0 = 0.894$
x_1 = Economic concern	$\beta_1 = 0.048$
x_2 = Health concern	$\beta_2 = 0.300$
x_3 = Environmental concern	$\beta_3 = 0.444$
x_4 = Social concern	$\beta_4 = 0.024$
x_5 = Surrounding concern	$\beta_5 = 0.003$

Hence, the equation becomes

$$Y = 0.894 + 0.048x_1 + 0.300x_2 + 0.444x_3 + 0.024x_4 + 0.003x_5$$

Table 5: Coefficients of Multiple Regression Analysis

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	.894	.099		9.053	.000
Economic Concern	.048	.038	.056	1.278	.202
Health Concern	.300	.059	.346	5.103	.000
Environmental Concern	.444	.067	.498	6.618	.000
Social Concern	.024	.073	.027	.328	.743
Surrounding Concern	.003	.024	.004	.111	.911

a. Dependent Variable: Acceptability of Solar-Wind Hybrid System in Logistics Transportation

This research was conducted to predict the acceptability of a solar-wind hybrid system in logistics transportation based on the economic, health, environmental, social, and surrounding concerns. A multiple regression analysis has been utilised in this research to test the hypothesis. The result shows how strong each independent variable's impact is on the dependent variable, which was described by an unstandardized beta.

According to Table 5, the most influential independent variable in determining the acceptability of a solar-wind hybrid system in logistics transportation was environmental concern, where it shows ($\beta=0.444$, $p<0.05$), as the p-value is 0.000, which is less than 0.05. Thus, environmental concern is a significant predictor of the acceptability of solar-wind hybrid systems in logistics transportation.

The second leading indicator is known as a health concern ($\beta=0.300$, $p<0.05$) and followed by an economic concern ($\beta=0.048$, $p<0.05$), with the acceptability of solar-wind hybrid systems in logistics transportation having p-values of 0.000 and 0.202, respectively. It shows that health concerns have a p-value that is less than 0.05, while economic concerns show a p-value that is greater than 0.05. Hence, health concerns are a significant predictor, while economic concerns are an insignificant predictor.

In addition, the outcome of multiple linear regression shows that social concern ($\beta=0.024$, $p<0.05$) and surrounding concern ($\beta=0.003$, $p<0.05$) had no impacts on the acceptability of solar-wind hybrid systems in logistics transportation, as the p-values are 0.743 and 0.911, respectively, which are greater than 0.05. Thereby, social and surrounding concerns are an insignificant predictor of the acceptability of solar-wind hybrid systems in logistics transportation.

5 Discussion and Conclusion

5.1 Key Findings

Relationship between economic and environmental concern with acceptability of solar-wind hybrid system in logistics transportation.

Based on Table 5, the multiple linear regression shows that the economic concern is an insignificant predictor while environmental concern is a significant predictor. The economic concern is an insignificant variable in the acceptability of solar-wind hybrid systems in logistics transportation. According to Halkos and Gkampoura (2020), non-renewable energy sources are much more valuable to economic growth compared to renewable energy sources. Besides, environmental concern is a significant variable in the acceptability of solar-wind hybrid systems in logistics transportation. Therefore, the researchers conclude that there is an association between economic and environmental concerns with the acceptability of solar-wind hybrid systems in logistics transportation as long as the research objective and question are fulfilled.

Relationship between social and health concern with acceptability of solar-wind hybrid system in logistics transportation.

According to Table 5, the multiple linear regression results show that the social concern has an insignificant value while the health concern has a significant value. A social concern is an insignificant variable in the acceptability of solar-wind hybrid systems in logistics transportation. Besides, the respondents lack knowledge about using clean energy sources, which will create more employment or jobs for citizens in order to reduce unemployment (Owusu & Asumadu-Sarkodie, 2016). Thereby, the researchers conclude that there is an association between health and social concerns with the acceptability of solar-wind hybrid systems in logistics transportation due to the satisfaction of the research objective and question.

Relationship between surrounding concern and acceptability of solar-wind hybrid system in logistics transportation.

As shown in Table 5, the multiple linear regression results show that the surrounding concerns have an insignificant predictor. The surrounding concern is an insignificant variable in the acceptability of solar-wind hybrid systems in logistics transportation. Moreover, respondents believed that surrounding concerns were unimportant for renewable energy due to their statement that clean energy would harm either plants, animals, or nearby humans (Eshchanov et al., 2013). Hence, the researchers conclude that there is an association between surrounding concerns and the acceptability of solar-wind hybrid systems in logistics transportation due to the completion of the research objective and question.

5.2 Discussion

Hypothesis 1
Economic concern positively influences acceptability of solar-wind hybrid system in logistics transportation.

As aforementioned, the foremost research hypothesis is that economic concern positively influences the acceptability of solar-wind hybrid systems in logistics transportation. According to the result shown in Table 2, there is a high positive correlation between the independent variable, which is economic concern, and the dependent variable, which is the acceptability of a solar-wind hybrid system in logistics transportation. As a result, the findings indicate a positive relationship between economic concern and the acceptability of solar-wind hybrid systems in logistics transportation.

This positively significant value might be due to the association of economic concerns with the solar-wind hybrid system in logistics transportation. Temiz Dinç and Akdoğan (2019) stated that economic concerns have a significant positive value in terms of renewable energy. They too mentioned that the use of renewable energy improves economic growth and that the government should account for its energy policies in order to promote renewable energy. Hence, the authorities or citizens would prefer to pay more for the acceptability of solar-wind hybrid systems in order to raise national income. Economic concern has a significant influence on the acceptability of solar-wind hybrid systems in logistics transportation. Thus, hypotheses for economic concern are accepted and supported.

Hypothesis 2
Health concern positively influences acceptability of solar-wind hybrid system in logistics transportation.

As aforenamed, the second research hypothesis is that health concerns positively influence the acceptability of solar-wind hybrid systems in logistics transportation. The result in Table 2 shows that there is a high positive correlation between the independent variable, which is health concern, and the dependent variable, which is the acceptability of a solar-wind hybrid system in logistics transportation. As a result, the findings indicate a positive relationship between health concerns and the acceptability of solar-wind hybrid systems in logistics transportation.

This positively significant value might be due to the attribution of health concerns with the solar-wind hybrid system in logistics transportation. Majeed et al. (2021) stated that health concerns have a significant positive value in terms of renewable energy consumption. They too stated that this kind of attribution will enhance human health and prevent chronic disease by utilising clean energy resources. Therefore, countries that use solar-wind hybrid systems will produce healthier citizens for current and future generations. Health concerns have a significant influence on the acceptability of solar-wind hybrid systems in logistics transportation. Thus, hypotheses for health concerns are accepted and supported.

Hypothesis 3
Environmental concern positively influences acceptability of solar-wind hybrid system in logistics transportation.

As aforesaid, the third research hypothesis is that environmental concern positively influences the acceptability of solar-wind hybrid systems in logistics transportation. The Pearson correlation test was prompted to assist in identifying the environmental concern associated with the acceptability of solar-wind hybrid systems in logistics transportation. Based on the findings in Table 2, there is a high positive correlation between the independent variable, which is environmental concern, and the dependent variable, which is the acceptability of a solar-wind hybrid system in logistics transportation. The result of this research indicates a positive association between environmental concern and the acceptability of a solar-wind hybrid system in logistics transportation.

This positively significant value might be due to the integration of environmental concerns with the solar-wind hybrid system in logistics transportation. According to Wall et al. (2021), environmental concern has a significant positive value in terms of renewable energy technology adoption. This type of integration will encourage anxiety about pollution, environmental issues, and the improvement of environmental conditions through the use of renewable energy (Wall et al., 2021). As a result, environmental concern encourages positive behaviour in incorporating renewable energy such as solar-wind hybrid system, into logistics transportation on a daily basis. Environmental concern has a significant influence on the acceptability of solar-wind hybrid systems in logistics transportation. In brief, hypotheses for environmental concern are accepted and supported.

Hypothesis 4
Social concern positively influences acceptability of solar-wind hybrid system in logistics transportation.

As previously mentioned, the fourth research hypothesis is that social concern positively influences the acceptability of solar-wind hybrid systems in logistics transportation. As shown in Table 2, there is a high positive correlation between the independent variable, which is social concern, and the dependent variable, which is the acceptability of a solar-wind hybrid system in logistics transportation. The result of this research indicates a positive association between social concern and the acceptability of a solar-wind hybrid system in logistics transportation.

This positively significant value might be due to the association of social concerns with the solar-wind hybrid system in logistics transportation. Wall et al. (2021) stated that social concern has a significant positive value in terms of renewable energy adoption. This kind of association will prevent defections in generating employment or job opportunities in order to develop and expand the citizens' knowledge (Wall et al., 2021). Therefore, adoption and acceptance of solar-wind hybrid systems will eventually lead to the production of high-quality and skilled labour in the renewable energy sector. Social concern has a significant influence on the acceptability of solar-wind hybrid systems in logistics transportation. In brief, hypotheses for social concern are accepted and supported.

Hypothesis 5
Surrounding concern positively influences acceptability of solar-wind hybrid system in logistics transportation.

As above-mentioned, the endmost research hypothesis is surrounding concern positively influences the acceptability of solar-wind hybrid systems in logistics transportation. In accordance with a result in Table 2, there is a low positive correlation for the independent variable, which is surrounding concern with the dependent variable of the acceptability of a solar-wind hybrid system in logistics transportation. The outcome shows a low connection between surrounding concerns and the acceptability of a solar-wind hybrid system in logistics transportation.

This positively significant value might be due to the awareness and knowledge regarding the solar-wind hybrid system in logistics transportation. These kinds of strengths and certainties in awareness and knowledge might result in being unworried about the benefits of the solar-wind hybrid system. Moreover, Szakály et al. (2021) stated that the surrounding concerns possess significant value in terms of renewable energy. According to them, 90% of populations have high levels of knowledge and understanding of clean energy resources. Therefore, the authorities should devote more resources to the acceptability of solar-wind hybrid systems in order to nurture renewable energy in the community. Surrounding concerns have a significant impact on the acceptability of solar-wind hybrid systems in logistics transportation. Overall, the hypothesis for surrounding concerns is accepted and supported.

5.3 Implications of the Study

This research explains the perspective of University Malaysia Kelantan students on solar-wind hybrid systems in logistics transportation. It can serve as a starting point for further research into renewable energy use as well as encourage future research. As well, future research should examine the impact of renewable energy on logistics management in Malaysia as a whole.

The use of solar-wind hybrid systems can be further expanded with future research. The researcher should expand the study further. Furthermore, the use of renewable energy supported by the local government can help the government save money and use renewable resources more efficiently. Therefore, the government should play a role in further developing the use of renewable energy in order to save on fuel costs.

5.4 Limitations of the Study

This research is currently yielding numerous benefits in various ways, yet the limitations are still a bone of contention. These impediments will encourage future research to advance in order to provide a better outcome. The most significant challenges encountered in this research were the broad independent variables, time constraints, and inexpert respondents.

First and foremost, the broad independent variable acts as a predominant restriction in this study. The subcategorization of each independent variable into smaller groups provides better insights as they are more exact. Besides, the suggested question was performed in English from the beginning to the end, which demonstrates a lack of interest in responding to the question. Unfortunately, this kind of complication will lead to abnormal data.

5.5 Recommendation

There are several recommendations for future researchers to help them improve their studies on their research topic. First, the researchers have limited time to distribute the questionnaire and collect data from respondents. Hence, there is a limitation on the total number of respondents that the survey requires.

The next recommendation is to target the right population to answer the questionnaire. A solar-wind hybrid system is not a common thing in Malaysia. Therefore, students at UMK may not be familiar with this study. The researchers recommend that future researchers target populations that have knowledge about solar-wind hybrid systems

6 Acknowledgements

First, we would like to express our sincere gratitude to our supervisor, Dr. Hanieh Alipour Bazkiaer, who patiently guided us, support us and giving advice through every chapter of our research project.

Next, we would like to thanks our final year project advisor, Dr Kasmaruddin Che Hussin who unselfishness shares his knowledge to us. Next, we would like to give our warmest thanks to our respondents who willingly spend their time to fill up our survey. Without them, we are unable to complete our research study.

Apart from that, we want to express our deepest appreciation to individuals that provide guidance, support and direct us to the right path in this research project. Lastly, we would also like to thanks to our members of this research project, we appreciate every of us sacrifice own time to have meeting to gather different information, guiding each and every one from time to time in completing this project.

7 References

Abdali, A. L. M., Yakimovich, B. A., & Kuvshinov, V. V. (2018). Hybrid Power Generation by Using Solar and Wind Energy. *Energy, 2*(3), 26-31.

Ajzen, I. (2002). Constructing a TpB Questionnaire: Conceptual and Methodological Considerations. *Psychology*.

Alam, S. S., Nor, N. F. M., Ahmad, M., & Hashim, N. H. N. (2016). A Survey on Renewable Energy Development in Malaysia: Current Status, Problems and Prospects. *Environmental and Climate Technologies*, *17*(1), 5–17.

Apuke, O. D. (2017). Quantitative Research Methods: A Synopsis Approach. *Kuwait Chapter of Arabian Journal of Business and Management Review, 6*(11), 40-47.

Babaremu, K., Olumba, N., Chris-Okoro, I., Chuckwuma, K., Jen, T., Oladijo, O., & Akinlabi, E. (2022). Overview of Solar-Wind Hybrid Products: Prominent Challenges and Possible Solutions. *Energies, 15*(16), 1-25.

Balcioglu, H., EL-Shimy, M., & Soyer, K. (2017). Renewable energy-background. In M. EL- Shimy (Ed.), *Economics of variable renewable sources for electric power production* (pp. 17-33). Lambert Academic Publishing.

Bhandari, B., Lee, K-T., Lee, G-Y., Cho, Y-M., & Ahn, S-H. (2015). Optimization of hybrid renewable energy power systems: A review. *International Journal of Precision Engineering and Manufacturing-Green Technology*, *2*(1), 99–112.

Bhandari, B., Poudel, S. R., Lee, K-T., & Ahn, S-H. (2014). Mathematical modeling of hybrid renewable energy system: A review on small hydro-solar-wind power generation. *International Journal of Precision Engineering and Manufacturing-Green Technology*, *1*(2), 157–173.

Blasing, T. J., Broniak, C. T., & Marland, G. (2005). The Annual Cycle of Fossil-Fuel Carbon Dioxide Emission in United States. *Tellus B: Chemical and Physical Meteorology, 57*(2), 107-115.

Buonocore, J. J., Luckow, P., Norris, G., Spengler, J. D., Biewald, B., Fisher, J., & Levy, J. (2016). Health and climate benefits of different energy-efficiency and renewable energy choices. *Nature Climate Change, 6*(1), 100-105.

Chen, H. H., Kang, H-Y., & Lee, A. H. I. (2010). Strategic Selection of Suitable Projects for Hybrid Solar-Wind Power Generation System. *Renewable and Sustainable Energy Reviews, 14*(1), 413-421.

Djurisic, V., Smolovic, J. C., Misnic, N., & Rogic, S. (2020). Analysis of public attitudes and perceptions towards renewable energy sources in Montenegro. *Energy Reports, 6*, 395- 403.

Ehhalt, D., Prather, M., Dentener, F., Derwent, R., Dlugokencky, E., Holland, E., Isaksen, I., Katima, J., Kirchhoff, V., Matson, P., Midgley, P., & Wang, M. (2001). Atmospheric chemistry and greenhouse gases. In J. T. Houghton, Y. Ding, D. J. Griggs, M. Noguer, P. J. V. D. Linden, X. Dai, K. Maskell & C. A. Johnson (Eds.), *Climate Change 2001: The scientific basis: Contribution of Working Group I to the third assessment report of the Intergovernmental Panel on Climate Change* (pp. 239-287). Cambridge University Press.

Eshchanov, B. R., Stultjes, M. G. P., Eshchanov, R. A., & Salaev, S. K. (2013). Prospects of Renewable Energy Penetration in Uzbekistan-Perception of the Khorezmian People. *Renewable and Sustainable Energy Reviews, 21*, 789-797.

Folk, E. (2019, March 12). The Many Economic Benefits of Renewable Energy. *Renewable Energy Magazine, at the Heart of Clean Energy Journalism.* https://www.renewableenergymagazine.com/emily-folk/the-many-economic-benefits- of-renewable-energy-20190312

Gordon, P. (2020, February 28). IRENA: Potential 100 million-strong energy workforce by 2050. *Smart Energy International*. https://www.smart-energy.com/renewable- energy/irena-potential-100-million-strong-energy-workforce-by-2050/

Guo, Z., & Kang, X. (2016). Modeling and Analysis of Vehicle with Wind-Solar Photovoltaic Hybrid Generating System. *Proceedings of the 2015 4th International Conference on Sustainable Energy and Environmental Engineering*, 566-570.

Hamed, T. A., & Alshare, A. (2022). Environmental Impact of Solar and Wind energy- A Review. *Journal of Sustainable Development of Energy, Water and Environment Systems, 10*(2), 1-23.

Heger, M. (2015). Renewable Energy is Good for Your Health. *IEEE Spectrum*. https://spectrum.ieee.org/renewable-energy-is-good-for-your-health

Herold, D. M., & Lee, K. (2017). Carbon Management in the logistics and transportation sector: an overview and new research directions. *Carbon Management, 8*(1), 79-97.

Hu, S. (2014). Study Population. In A. C. Michalos (Ed.), *Encyclopedia of Quality of Life and Well-Being Research*. Springer, Dordrecht.

Islam, N. (2008). Public Awareness about Environmental Issues: Perspective Bangladesh. *Asian Affairs, 30*(2), 30-56.

Jenkins, P., Elmnifi, M., Younis, A., & Emhamed, A. (2019). Hybrid power generation by using solar and wind energy: Case study. *World Journal of Mechanics, 9*(4), 81-93.

Job creation. (2019, June). *International Renewable Energy Agency.* Retrieved 3 November, 2022, from https://cms.irena.org/benefits/Job-Creation

Kaur, S. (2017). Sample Size Determination (For Descriptive Studies). *International Journal of Current Research, 9*(3), 48365-48367.

Kelley, K. (2022). *What is Data Analysis? Methods, Process and Types Explained*. Simplilearn.com. https://www.simplilearn.com/data-analysis-methods-process-types- article

Khan, S. A. R. (2019). The Role of Renewable Energy, Public Health Expenditure, Logistics and Environmental Performance in Economic Growth: An Evidence from Structural Equation Modelling. *Preprints*.

Khan, H. U. R., Awan, U., Zaman, K., Nassani, A. A., Haffar, M., & Abro, M. M. Q. (2021). Assessing Hybrid Solar-Wind Potential for Industrial Decarbonization Strategies: Global Shift to Green Development. *Energies*, *14*(22), 7620.

Kılınç, A., Stanisstreet, M., & Boyes, E. (2009). Incentives and Disincentives for using Renewable energy: Turkish students' ideas. *Renewable and Sustainable Energy Reviews, 13*(5), 1089-1095.

Krejcie, R. V., & Morgan, D. W. (1970). Determining Sample Size for Research Activities. *Educational and Psychological Measurement, 30*(3), 607-610.

Kweku, D. W., Bismark, O., Maxwell, A., Desmond, K. A., Danso, K. B., Oti-Mensah, E. A., Quachie, A. T., & Adormaa, B. B. (2018). Greenhouse Effect: Greenhouse Gases and Their Impact on Global Warming. *Journal of Scientific Research & Reports, 17*(6), 1- 9.

Lakatos, L., Hevessy, G., & Kovács, J. (2011). Advantages and Disadvantages of Solar Energy and Wind Power Utilization. *World Futures the Journal of General Evolution, 67*(6), 395-408.

Liu, Q. (2013). Electric car with solar and wind energy may change the environment and economy: A tool for utilizing the renewable energy resource. *Earth's Future, 2*(1), 7- 13.

Murugiah S. (2021, November 24). *Malaysia among nations that created employment in renewable energy in 2020, says IRENA. The Edge Markets*. https://www.theedgemarkets.com/article/malaysia-among-nations-created-employment-renewable-energy-2020-says-irena

Nahar, N., Hossain, Z., & Mahiuddin, S. (2022). Assessment of the environmental perceptions, attitudes, and awareness of city dwellers regarding sustainable urban environmental management: a case study of Dhaka, Bangladesh. *Environment, Development and Sustainability*.

Nazir, M. S., Bilal, M., Sohail, H. M., Liu, B., Chen, W., & Iqbal, H. M. (2020). Impacts of renewable energy atlas: Reaping the benefits of renewables and biodiversity threats. *International Journal of Hydrogen Energy*, *45*(41), 22113–22124.

Perera, F., & Nadeau, K. (2022). Climate Change, Fossil Fuel Pollution, and Children's Health. *New England Journal of Medicine, 386*(24), 2303-2314.

Podder, S., Khan, R. S., & Mohon, S. M. A. A. (2015). The technical and economic study of solar-wind hybrid energy system in coastal area of Chittagong, Bangladesh. *Journal of Renewable Energy, 2015*.

Sani, G. D., Ibrahim, A., Sahabi, S., & Lailaba, B. B. (2019). Renewable Energy: Environmental Impacts and Economic Benefits for Sustainable Development *International Journal of Engineering Research and Technology*, 0*8*(08).

Shaheen, S. A., & Lipman, T. E. (2007). Reducing Greenhouse Emissions and Fuel Consumption. *IATSS Research, 31*(1), 6-20.

Steen, M. (2017). *Greenhouse Gas Emission from Fossil-Fuel Fired Power Generation Systems.* Joint Research Centre European Commi https://op.europa.eu/en/publication-detail/-/publication/221658dd-9556-4591-86ea 51544346a8f7

Teoh, A. N., Go, Y. I., & Yap, T. C. (2020). Is Malaysia Ready for Sustainable Energy? Exploring the Attitudes toward Solar Energy and Energy Behaviors in Malaysia. *World*, *1*(2),90–103.

Thapa, K. B., Maharjan, A., Kaphle, K., Joshi, K., & Aryal, T. (2020). Paper Modeling of Wind-Solar Hybrid Power System for Off-Grid in Nepal and a Case Study. *Journal of the Institute of Engineering, 15*(3), 360-367.

Ullman, J. B., & Bentler, P. M. (2003). Structural Equation Modeling. In J. A. Schinka & W. F. Velicer (Eds.), *Handbook of Psychology: Research Methods in Psychology* (2nd ed., 607-634). John Wiley & Sons Incorporated.

Universiti Malaysia Kelantan (2022, August 11). *uniRank. Retrieved November 19, 2022, from* https://www.4icu.org/reviews/10514.htm

Uyanik, G. K., & Güler, N. (2013). A Study on Multiple Linear Regression Analysis. *Procedia – Social and Behavioral Sciences, 106*, 234-240.

Wall, W. P., Khalid, B., Urbański, M., & Kot, M. (2021). Factors Influencing Consumers Adoption of Renewable Energy. *Energies, 14*(17), 5420.

Yazdanpanah, M., Komendantova, N., & Ardestani, R. S. (2015). Governance of Energy Transition in Iran: Investigating Public Acceptance and Willingness to use Renewable Energy Sources through Socio-Psychological Model. *Renewable and Sustainable Energy Reviews, 45*, 565-573.

Awareness of Green Supply Chain Management among Food and Beverage Seller in Kelantan

Haiswaryia A/P Partiven, Mohammad Afiq Mohd Zahir, Nor Azura Harun, Nur Allya Yasmin Noor Hazly & Yuhanis Mohamed Noor*

Faculty of Entrepreneurship and Business,
Universiti Malaysia Kelantan,
Malaysia

Email: yuhanis.mn@umk.edu.my

Abstract:
The goal of the study was to evaluate green supply chain management practises and the awareness among food and beverage retailers in Kelantan. In this research, researchers looked into the connections between green manufacturing, green purchasing, green packaging and the awareness of green supply chain management among food and beverage retailers in Kelantan. This study also has chosen manufacturer, wholesaler, or other distributor as respondents to complement this study. In collecting respondent data, an online questionnaire form has been used because it is easy to connect, obtain and analyze data from all over Kelantan. Non-probability sampling has been applied in this study because the populations are unknown. In order to accomplish the objective of this study, a quantitative method will be used. Reliability, descriptive, correlation and multiple linear regression analysis have been used in this study. The result of the analysis confirmed that only two independent variables have a relationship with the dependent variable. It showed a positive and significant correlation exists between green manufacturing and green packaging with the awareness among food and beverage retailers in Kelantan. Besides, this study has identified some limitations of this research. As a result, recommendations have been made for additional investigation. Future researchers can therefore identify the strategies to enhance this problem for future study.

***Keywords**: green manufacturing, green purchasing, green packaging, awareness of green supply chain management, food and beverage retailers in Kelantan.*

1 Introduction

Supply Chain Management (SCM) presents a significant issue for both businesses and distribution networks. According to Lee (2015), these issues are brought on by global environmental rules, green consumerism, and climate change. Food waste disposal in landfills causes methane gas to be released into the atmosphere, which contributes to environmental pollution and global warming. GSCM offers advantages by utilising techniques like recycling, replication, and active supplier chain management. The need to include sustainably and green, practises into supply chain management (GSCM) has been highlighted by the general increase in environmental concern.

GSCM is one of the strategies to battle the ongoing conservation concerns in Malaysia and attain a risk-free and clean environment. The Malaysian Environmental Quality Act, which was first passed in 1974, has undergone periodic revisions and now includes eighteen new laws to permit duties of evaluation on sewage, clean air, and industrial leakage. The adoption of green and environmentally friendly concepts in the service sector, rather than the industrial sector, has recently been under the spotlight.

The relationship between GSCM and the food retail industry is gaining attention since it serves as a key industry that is most suited to reduce environmental impacts. The intention of this study is to provide a response to the matter of how GSCM practises and raises awareness towards food and beverage retailers in Kelantan. The target group was Kelantan's food and beverage retailers who adopted GSCM practices. Once retailers integrate green supply chain strategies into their current supply chains, communities may have healthier natural ecosystems.

2 Literature Review

2.1 The Awareness of Green Supply Chain Management among Food and Beverage Retailers

The awareness of green supply chain management among food and beverage sellers in Kelantan involves applying environmental considerations to all aspects of supply chain management. Being environmentally friendly is just one aspect of GSCM. It also serves as a key commercial value driver and sound business strategy. Supply chain management is a significant element that has a direct impact on productivity and competitiveness. By lowering costs, going green in the supply chain can help the company compete better with other sellers. Being sustainable is the same as considering a product or organization's social, economic, and environmental impact. The old-fashioned method of managing a supply chain is no longer effective in the modern world nowadays. Most of retailers not alert about the green of supply chain management in their business. For the government to compete internationally in the nation's industrial sector, green supply chains are also crucial.

2.2 Green Manufacturing

Green manufacturing is about designing products using design for environment principles and using eco-efficient processes. This means delivering them to the customer with the least amount of environmental impact. Mendler et al. (2005) claim that green manufacturing can satisfy the needs of the current generation without imperilling capacity of future generations. Seliger et al. (2008) argue that green manufacturing, its application, and resource recovery is crucial issues for governments and industries everywhere. Businesses are now expected to use these techniques to create safer consumer goods and more environmentally friendly workplaces. Since the introduction and adoption of ISO 14001 in 1996, strict product and process specifications have been mandated. The production of food contributes significantly to resource consumption, which has a striking environmental impact. Researchers are looking into ways to address the growing concerns regarding eco- environmental practises in the foodservice sector. Based on this research, the positive relationship between green manufacturing and the awareness among food and beverage retailers in Kelantan can be proof that this GSCM element can improve environmental effect in this food and beverage industry. Hence, the study suggests the following hypothesis:

H1: Green manufacturing has a significant positive relationship with the awareness of green supply chain management among food and beverage retailers.

2.3 Green Purchasing

The production of food is one of the most challenging environmental issues that the world is now facing (iGPS 2019). Applying green purchasing can increase business efficiency and enhance its public image. Based on the previous study from Thoo & Izzati (2015), these businesses could have an advantage because their green supply base offers lower costs, higher quality, and concern about environmental aspects. Tritoset al., (2013) states that buying organization with a green supply chain initiative will pay attention to the green practices of their suppliers, especially small and medium-sized enterprises. In response to this, the adoption of green purchasing is crucial (Jones 2019). In view of that, the following hypothesis is suggested:

H2: Green manufacturing has a significant positive relationship with the awareness of green supply chain management among food and beverage retailers.

2.4 Green Packaging

Mothersbaugh, A. (2021) defines green packaging as sustainable packaging that uses materials and manufacturing methods to reduce energy use and environmental impact. Pune (2022) predicted that the global food green packaging industry will grow due to increased environmental awareness and plastic packaging use. Food companies utilise green packaging because it can be reused, recycled, and biodegrades. Keller, D. (2019) found that product packaging materials can impact market performance, including F&B. Packaging design can affects brand awareness, product protection, product presentation, and consumer communication. Gonzalo (2021) found that sustainable development addresses social issues such as climate change, the environment, resource efficiency, and raw material availability. One of the most important strategies is the promotion of "green packaging," which refers to the utilisation of environmentally friendly materials and designs for the product's packaging. Taking head of this study, the third hypothesis is stated as follows:

H3: Green packaging has a significant positive relationship with the awareness of green supply chain management among food and beverage retailers.

2.5 Conceptual Framework

The Awareness of Green Supply Chain Management among Food Beverage Retailers in Kelantan.

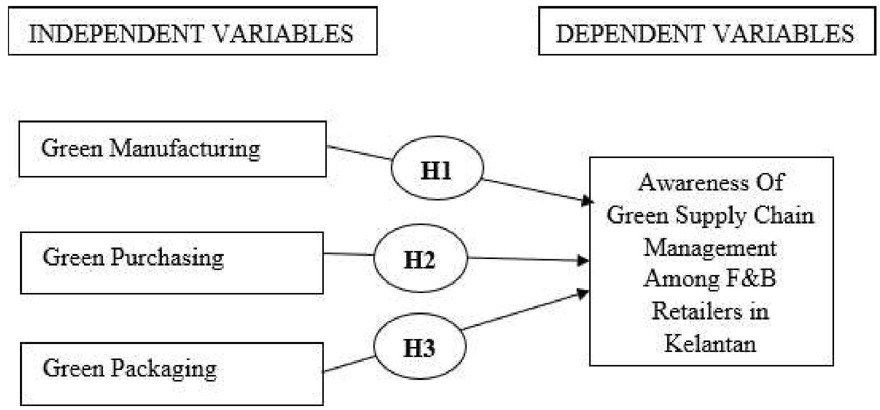


Figure 2.1: The Conceptual Framework for Dependent Variable and Independent Variable

3 Research Methodology

The research of this study has used sampling facilities as the primary source in collecting data from respondents. The questionnaire consisted of the following five sections: A, B, C, D and E. The respondent's demographic information is included in Section A's demographic profile. A few demographics of the respondents were age, race, ethnicity, gender, education, and employment status. The researcher can target the audience using this area. Following Section B, a question based on the awareness of green supply chain management among food and beverage retailers in Kelantan as dependent variable will be presented. This section discusses the green supply chain management practises of food and beverage retailers in Kelantan. In Section C, the first independent variable is green manufacturing; in Section D, the second independent variable is green purchasing; and in Section E, the third independent variable is green packaging. Section B to E will be using a five-point Likert scale that is measured with 1 = Strongly Disagree and 5 = Strongly Agree. Therefore, the questionnaire used the Likert scale, 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree.

The purpose of this study is to evaluate the relationship between the awareness and green supply chain management practices which is the independent variables such green manufacturing, green purchasing and green packaging among food beverage retailers in Kelantan. As a sample strategy, probability sampling was selected for the analysis. The study by Shukla stated that depending on the goal of their research, researchers can choose from a variety of sampling techniques. According to Hair et al. (2010), the sample size was at least five times of items to be analyzed if researchers cannot find the number of populations. This research requires 115 completed questionnaires (5× 34 items to be analyzed). Nevertheless, 200 questionnaires will be distributed to the respondents of food and beverage retailers in Kelantan.

Table 1: Rule of Thumb of Cronbach's Alpha Coefficient Size

Coefficient Alpha Range, a	Strength of Association
>0.90	Excellent

0.80 to <0.90	Very Good
0.70 to <0.80	Good
0.60 to <0.70	Moderate
<0.60	Poor

Source: (Hair et al., 2003)

The rule of thumb for Cronbach's Alpha Coefficient size is shown in Table 1. This table was used to look at how consistent and reliable the questionnaires were. Correlation Analysis was also used to look at the strength and direction of the relationship between the two variables in this study. Table 2 shows the general rules for using the Correlation Coefficient to figure out how dependent variables and independent variables affect each other (Kumar et al., 2013).

Table 2: Rules of Thumb of Correlation Coefficient

Coefficient Range	Strength of Association
>0.90	Very Strong
0.80 to <0.90	High
0.70 to <0.80	Moderate
0.60 to <0.70	Small but definite relationship
<0.60	Slight, almost negligible

Source: Samouel et al. (2003)

Multiple Linear Regression Analysis was used to predict the value of a variable based on the values of two or more variables in order to get useful data for this study. Presented below are the equations for Multiple Linear Regression for this study:

$$\mathit{Awareness\ of\ Green\ Supply\ Chain\ Management\ among\ Food\ and\ Beverage\ Retailers} = \beta_0 + \beta_1\,(\mathit{Green\ Manufacturing}) + \beta_2\,(\mathit{Green\ Purchasing}) + \beta_3\,(\mathit{Green\ Packaging})$$

4 Finding and Discussion

Table 3: Demographic profile of respondents

Demographic profile	**Gro up**	**Frequency (N)**	**Percent (%)**
Gender	Mal	8	43.0
	e	6	57.0
	Fem	1	
	ale	1	
		4	
Age (years old)	18-25	6	34
	26-35	9	.5
	36-45	3	17
	46-55	4	.0
	Above 55	5	28
		6	.0
		3	16
		3	.5

		8	4. 0
Race	Mala y Chin ese India Othe rs	9 5 4 5 5 4 3 1 7	47 .5 22 .5 21 .5 8. 5
Academic Qualificati on	SPM STPM / DIPLO MA Degree Master Degree PhD	2 6 4 6 9 9 2 1 8	13 .0 23 .0 49 .5 10 .5 4. 0
Occupation Level	First-level Middle- level Top-level managers	9 8 1 2 2 0	65.3 73.3 86.7
Period of time with the retailer	Less than 1 year A year to less than 3 years 3 years to less than 5 years 5 years to less than 10 years 10 years or more	6 1 4 4 3 3 4 1 2 1	30.5 22.0 16.5 20.5 10.5
Current environmental management system	Y e s N o In progress	1 6 0 2 0 2 0	80.0 10.0 10.0
Retail Certification	ISO 14001 Others	1 2 0 8 0	60.0 40.0

Among the 200 respondents, most were female respondents (57.0%), while the male respondents were 43.0%. The Malays dominated the data collection, with 47.5%. The majority of the respondents were degree holder (49.5%) and mostly is the first-level occupation. The longest period of time with the retailer was less than a year (30.5%)

and 80.0% of them has current environmental management system. Lastly, 60.0% of the respondents use ISO 14001 retail certification.

Table 4: Result of Reliability Coefficient Alpha for the Independent Variables and Dependent Variable

Variables	No of items	Cronbach's Alpha	Strength
Awareness of GSCM	6	0.953	Excellent
Green Manufacturing	7	0.948	Excellent
Green Purchasing	8	0.954	Excellent
Green Packaging	5	0.953	Excellent

The reliability of the questionnaires was analyzed using reliability analysis. Before being delivered to 200 respondents via the online survey method, the pilot test was conducted with 30 respondents.

Table 5: Pearson Correlation Analysis

		Awareness of GSCM	Green Manufacturing	Green Purchasing	Green Packaging
Awareness of GSCM	Pearson Correlation	1	0.853**	0.828**	0.790**
	Sig. (2-tailed)		0.000	0.000	0.000
	N	200	200	200	200
Green Manufacturing	Pearson Correlation	0.853**	1	0.808**	0.798**
	Sig. (2-tailed)	0.000		0.000	0.000
	N	200	200	200	200
Green Purchasing	Pearson Correlation	0.828**	0.808**	1	0.734**
	Sig. (2-tailed)	0.000	0.000		0.000
	N	200	200	200	200
Green Packaging	Pearson Correlation	0.790**	0.798**	0.734**	1
	Sig. (2-tailed)	0.000	0.000	0.000	
	N	200	200	200	200

Pearson's correlation coefficient was used to examine the statistical relationship between independent variables and awareness of GSCM among food and beverage retailers in Kelantan. Based on Table 5, the correlation between independent variables is shown in table 5. The table above highlighted figure shows the correlation, or r, between each independent variable. There is only one relationship between the variables which is between the dependent variable and green manufacturing the value is bigger than 0.85. However, here is no relationship between other variables because none of them are bigger than 0.85. The independence assumption then was met.

Table 6: Multiple Linear Regression

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.150	0.173		-.867	0.387
	Green Manufacturing (IV1)	0.470	0.091	0.424	5.192	<.001
	Green Purchasing (IV2)	0.282	0.089	0.246	3.162	.002
	Green Packaging (IV3)	0.283	0.063	0.261	4.508	<.001
a. Dependent Variable: Awareness of GSCM (DV)						

Table 6 shows the table of Coefficients. It explained which independent variables were individually predictor of dependent variable. According to the table 4.83, the factors such as green manufacturing and green packaging were significant since their p-values less than 0.05. However, the coefficients of green purchasing value were 0.002 greater than 0.001. Thus, green purchasing was not significant to estimate the awareness of GSCM among food and beverages retailers in Kelantan.

5 Discussions

Table 7**:** Summary of Correlation Analysis

Hypothesis	**Significant Value**	**Correlation Value**	**Conclusion**
1	0.000	0.853	Significant, High positive correlation
2	0.000	0.828	Significant, High positive correlation
3	0.000	0.790	Significant, High positive correlation

Based on table 7 above shows the results of correlation analysis to determine the relationship between the dependent variable which is the awareness of GSCM among retailers in Kelantan and green manufacturing, green purchasing and green packaging, which are independent variables. The result above show that the independent for green manufacturing, green purchasing and green packaging have a very high relationship with the dependent variable.

Where, the value of correlation coefficient for green manufacturing is 0.853 which is significant and high positive correlation. According to Mendler et al. (2005) supported that green manufacturing can satisfy the needs of the current generation without imperiling the capacity of future generations to satisfy their own needs. Next, the value of correlation for green purchasing is 0.828 where is significant and have high positive correlation. As per Thoo & Izzati (2015), stated that by using materials that are long-lasting, recyclable, and reusable, "green" purchasing strives to reduce the amount of damage done to the environment during the manufacturing process Meanwhile, the value of correlation coefficient for green packaging is 0.790 which is significant and also high positive correlation. Based on Pune (2022) also said that the fast-growing food and beverage industry is expected to drive the growth of the food green packaging market.

Table 8: Multiple Linear Regression Summary

Hypothesis	Significant Value	Significant Result
Green Manufacturing has an influence to the awareness GSCM among food and beverage retailers in Kelantan.	0.000	Significant
Green Purchasing has an influence to the awareness GSCM among food and beverage retailers in Kelantan.	0.002	Not Significant
Green Packaging has an influence to the awareness GSCM among food and beverage retailers in Kelantan.	0.000	Significant

According to table 8 above, only two hypotheses had been accepted because there were less than thealpha 0.001. In conclusion, it can be concluded that green manufacturing and green packaging have influence the awareness of GSCM among food and beverage retailers in Kelantan. Hence, the equation for this study was:

Awareness of GSCM= -0.150 + 0.470(green manufacturing) + 0.283(green packaging)

It can be concluded that green manufacturing and green packaging predicted the dependent variable which is awareness of GSCM among food and beverage retailers in Kelantan.

5.1 Implication of the Study

Hence, by going through the overall finding of the study, some of the important implications should be emphasized among food and beverages retailers. First of all, the implications of this study on green manufacturing towards food and beverage retailers in Kelantan are the retailers would be able to consider on how to use their environmental initiatives as a competitive advantage. Retailers would be able to cut expenses and waste by improving operational efficiency. Meanwhile, green purchasing also brings an important implication towards food and beverages retailers because the majority of empirical study on environmental and green purchasing issues only focused on a manufacturer's own internal operations and activities.

Last but not least, green packaging brings a big implication among food and beverage retailers because food companies might switch to eco-friendly packaging as a means to protect the environment and win over customers who care about the environment. The food and beverage industry are projected to be the greatest consumer of green packaging across all food and beverage retailers, with the worldwide green packaging market forecast to increase at a rate of roughly 8% over the next five years.

5.2 Limitation of the Study

Discovering a limitation can be an important opportunity to identify new literature gaps and describe the need for further research. The first limitation of this study is the difference in the perspective of the respondents. Besides that, this study only focuses on the dependent variables which is the awareness of GSCM and three independent variables which is green manufacturing, green purchasing, and green packaging.

The next limitation is the small experimental group such as the researcher only focused on food and beverage retailers where is only 200 respondents who answered this questionnaire which the researcher prepared on google form and the respondents answered this questionnaire on the online platform. The last limitation is the researcher's lack of time to find respondents is very limited.

5.3 Recommendation of the Study

After completing this study, the researchers found space for improving future study quality. First of all, as respondents respond, the researcher has the opportunity to assist and inform a target respondent by offering a clarification of each question to ensure that they rank on the correct scale. This is to make sure respondents completely contribute to answering the questionnaire by having the information to answer the question.

Next, for researchers to get accuracy in data collection, the time constraint is the biggest challenge. Future research may expand the time to sort the actual data and examine only the perfect random scale that has been addressed. The time frame of conducting the survey should be extended for the researchers to get sufficient time to distribute and collect from many respondents.

6 Acknowledgements

First of all, we would like to indicate our earnest gratefulness and appreciation to our supervisor, who helped us patiently and provided valuable guidance, attention, enthusiasm and advice in conducting our research project. His enthusiasm and encouragement for this project helped us significantly complete our final year project.

Secondly, we would like to acknowledge the help of University Malaysia Kelantan (UMK) for providing us with this opportunity to be involved in the research project, a good environment and facilities to help us complete this research. Then, we would like to thank all the Faculty of Entrepreneurship and Business (FKP) staff and lecturers of the University Malaysia Kelantan (UMK). They have provided valuable technical advice and allowed us to find the related sources to complete this research.

Last but not least, our gratitude to family members for their moral support and motivation in helping us complete this project. We also appreciate all of the respondents' time and effort in completing the questionnaires and sincerely filling out the responses.

7 References

Acquah, I. S. K., Essel, D., Baah, C., Agyabeng-Mensah, Y., & Afum, E. (2021). Investigating the efficacy of isomorphic pressures on the adoption of green manufacturing practices and its influence on organizational legitimacy and financial performance. *Journal of Manufacturing Technology Management*.

Afum, E., Agyabeng-Mensah, Y., Sun, Z., Frimpong, B., Kusi, L. Y., & Acquah, I. S. K. (2020). Exploring the link between green manufacturing, operational competitiveness, firm reputation and sustainable performance dimensions: a mediated approach. *Journal of Manufacturing Technology Management*, *31*(7), 1417-1438.

Afum, E., Osei-Ahenkan, V. Y., Agyabeng-Mensah, Y., Owusu, J. A., Kusi, L. Y., & Ankomah, J. (2020). Green manufacturing practices and sustainable performance among Ghanaian manufacturing SMEs: the explanatory link of green supply chain integration. *Management of Environmental Quality: An International Journal*.

Ali, A., Bentley, Y., Cao, G., & Habib, F. (2017). Green supply chain management– food for thought? *International Journal of Logistics Research and Applications*, *20*(1), 22-38.

Astroawani.com. (n.d.). Retrieved November 24, 2022, from https://www.astroawani.com/berita-malaysia/annual-plastic-usage-getting-worse- 148000-tonnes-food-packaging-alone-311794

Bernama. (2021, February 8). *- annual plastic usage is getting worse – 148,000 tonnes for food packaging alone*. BERNAMA. Retrieved November 24, 2022, from https://www.bernama.com/en/thoughts/news.php?id=1988370

Bıçakcıoğlu, N. (2018). Green business strategies of exporting manufacturing firms: Antecedents, practices, and outcomes. *Journal of Global Marketing*, *31*(4), 246-269

Bor, J. K. M. (2021). *Green Supply Chain Management Practices and Performance of Food and Beverage Processing Sector in Kenya* JKUAT-COHRED].

Chien, M., & Shih, L.-H. (2007). An empirical study of the implementation of green supply chain management practices in the lectrical and electronic industry and their relation to organizational performances.

Chiu, J.-Z., & Hsieh, C.-C. (2016). The Impact of Restaurants' Green Supply Chain Practices on Firm Performance. *Sustainability*, *8*(1), 42. https://www.mdpi.com/2071- 1050/8/1/42

Cilingir, M., & Swaen, V. Development of Sustainable Supply Chain Management through Green Manufacturing Practices The case of food sector in Belgium.

Croasmun, J. T., & Ostrom, L. (2011). Using likert-type scales in the social sciences. *Journal of adult education*, *40*(1), 19-22.

WP-content uploads effect-of-credit-management-on-performance-of-commercial-banks-in rwanda-A-case-study-of-...: Linguistics, analysis, case study. Pinterest. (2017, September 5). Retrieved November 25, 2022

Admin. (2022, February 22). Examples of a problem statement. Harappa. Retrieved November 25, 2022

Arora, K. (2020, February 2). Green Supply Chain Management: Need, advantages and challenges. LinkedIn. Retrieved November 25, 2022,

Dalati, S. (2018). Measurement and Measurement Scales. In *Modernizing the Academic Teaching and Research Environment* (pp. 79-96). Springer.

Doğdubay, M., Sarıoğlan, M., Avcıkurt, C., Köroğlu, A., & Özkan, E. A Suggestion of Model for the Feasibility of Green Supply Chain Management in Food and Beverage Establishments.

Dornfeld, D. A. (2012, December 9). *Green Manufacturing: Fundamentals and Applications*. Google Books. Retrieved November 24, 2022, from https://books.google.com/books/about/Green_Manufacturing.html?id=XRqHvaKTXZYC

Eccles, M. P., Hrisos, S., Francis, J. J., Stamp, E., Johnston, M., Hawthorne, G., Steen, N., Grimshaw, J. M., Elovainio, M., & Presseau, J. (2011). Instrument development, data collection, and characteristics of practices, staff, and measures in the Improving Quality of Care in Diabetes (iQuaD) Study. *Implementation Science*, *6*(1), 1-21.

Githara, M. W. (2018). *Green Supply Chain Management Practices and Supply Chain Performance of Large Scale Food and Beverage Manufacturing Firms in Nairobi* university of nairobi].

Godfred, A. (2015). Research instruments for data collection. *group*, 1.

Herrmann, F. F., Barbosa-Povoa, A. P., Butturi, M. A., Marinelli, S., & Sellitto, M. A. (2021). Green Supply Chain Management: Conceptual Framework and Models for Analysis. *Sustainability*, *13*(15), 8127.

Hodges, A. W., Hall, C. R., Palma, M. A., & Khachatryan, H. (2015). Economic contributions of the green industry in the United States in 2013. *HortTechnology*, *25*(6), 805-814.

Ivascu, L. (2020). Measuring the implications of sustainable manufacturing in the context of industry 4.0. *Processes*, *8*(5), 585.

Jenn, N. C. (2006). Designing a questionnaire. *Malaysian family physician: the official journal of the Academy of Family Physicians of Malaysia*, *1*(1), 32.

Khamis, A. A., Issa, I., & Munishi, E. J. (2022). Constraints to manufacturing companies in implementation of green manufacturing in Dar es Salaam, Tanzania. *International Journal of Research in Business and Social Science (2147-4478)*, *11*(7), 377-384.

Malti, J. N. (2021). *Green Supply Chain Management for Competitive Advantage* Walden University].

Meager, S., Kumar, V., Ekren, B., & Paddeu, D. (2020). Exploring the drivers and barriers to green supply chain management implementation: A study of independent UK restaurants. *Procedia Manufacturing*, *51*, 1642-1649.

Musau, E. M. (2019). *Effect of Green Manufacturing on Operational Performance of Manufacturing Firms in Mombasa County, Kenya* University of Nairobi].

Nderitu, A. M. (2016). *Green supply chain management and organizational performance of food and beverage manufacturing firms in Kenya* University of Nairobi].

Ojo, E., Mbowa, C., & Akinlabi, E. T. (2014). Barriers in implementing green supply chain management in construction industry. International Conference on Industrial Engineering and Operations Management.

Factors that Influence Efficiency of the Humanitarian Logistic Support during Flood Disaster Relief

Marun Raaj A/L Thevindran, Tharshini A/P Neelamagam, Nur Fatin Natasha Issammudin, Nur Hanim Binti Hasbullah, Haiqal Alif Bin Masri & Abd Aziz Mat Hassan*

Faculty of Entrepreneurship and Business,
Universiti Malaysia Kelantan,
Malaysia

Email: abdaziz.mh@umk.edu.my

Abstract:
The topic of this research is Factors that influencing efficiency of the humanitarian logistics supports during flood disaster relief in Selangor, Malaysia. The purpose of this research is identify how the factors which is collaboration, communication, accessibility, and coordination influences efficiency of the humanitarian logistics supports during flood disaster relief in Selangor, Malaysia. The sample size of this study is 384 respondents. A quantitative method used to gather the respondent's data. A Pearson correlation coefficient have used in this research to analyse correlation and coefficients and identify the factors that influencing efficiency of the humanitarian logistics supports during flood disaster relief. The Statistical Package for Sciences (SPSS) version 26 was used for data analysis. From the findings of this research, it shows that collaboration, communication, accessibility, and coordination have a positive significant relationship with efficiency of the humanitarian logistics supports during flood disaster relief. Furthermore, it also shows that coordination factor influences more on efficiency of the humanitarian logistics supports during flood disaster relief than other factors. Therefore, all four hypothesis of this research is accepted. From the outcome of this research, limitations of this study and recommendations are included in this study to give a better idea for future researchers related to studies involving the factor influences more on efficiency of the humanitarian logistics supports during flood disaster relief.

***Keywords**: Collaboration, Communication, Accessibility, Coordination, efficiency of the humanitarian logistics supports during flood disaster relief*

1 Introduction

In this study, the researcher has been investigating the Factors that influencing efficiency of the humanitarian logistics supports during flood disaster relief in Selangor, Malaysia. Humanitarian logistics refers to the focused organisation of transporting and storing goods in places affected by natural disasters or other localised emergency circumstances in order to benefit the citizens and environments there (Sundram, 2021). Humanitarian logistics activities can be situated among disaster preparedness and disaster response in the disaster management cycle (Fadzline Tamyez et al., 2019). Humanitarian logistics commonly involve in a disaster which is flood.

Floods are frequently induced in coastal regions by heavy rainfall, quick snowmelt, or a severe storm which cause from a tropical cyclone or tsunami (World Health Organization, 2022). Selangor is one of the states in Malaysia which affected due to flood. According to Bernama (2021c), several regions in the Klang Valley, including Hulu Langat, Kuala Langat, Shah Alam, Klang, Hulu Selangor, Kuala Lumpur, Petaling, and Bentong, Mentakab, and Temerloh in Pahang, were "submerged" beneath water as a result of the floods, which happened after two days of nonstop, torrential rain. Nearly 400,000 people had to be evacuated due to the floods in Malaysia which involves 50 deaths along in December 2021, which also caused an estimated financially around RM6.1 billion damages (Serina Rahman, 2022).

Throughout a flood disaster, many supporters step forward to help. NGO is the main backer. In addition to NGO, Malaysia's Armed Forces have expertise in flood rescue operations in part because of the East Coast's flooding occur almost every year, especially in both Kelantan and Terengganu (Nazari, 2021). Cash donations are made by donors; money contributions are gathered by collectors from clients, staff, and vendors; A company -provide offers its products and services without charge (Negi, 2022). As per Prime Minister Datuk Seri Ismail Sabri Yaakob in 2021, The National Disaster Management Agency (NADMA) is collaborating with the Social Welfare Department and other organisations to distribute food (Augustin, 2021). As we can see, there are a variety of supporters who were involved in the flood disaster and encountered several hurdles in overcoming the crisis.

1.1 Problem Statement

In Malaysia, the concerns have already been apparent, with frequent floods in the densest portions of Kuala Lumpur and Selangor demonstrating a lack of preparation, inadequate administrative coordination, and insufficient measures to fight the problem's core causes, such as deforestation and pollution (Wong, 2022). The magnitude of the crisis may overwhelm to government agencies and any other stakeholder groups. As a result, humanitarian aid and response activities may be inadequate and ineffectual (Mazrul Hisyam Ab Malik, 2022).

The humanitarian logistic teams have challenges in handling the delivery of goods like as food, clothing, medication, machinery, and manpower, all of which must be delivered rapidly in order to optimise victim survival rates. Humanitarian logistics in Malaysia is inadequate whenever there are no clear lines of command in organising the response from higher levels of government and when the local response at the region is insufficient." Because of these flaws, the inventory of resources—including emergency buses, trucks, boats, earthmoving machinery, emergency energy generators, and mobile telecommunications equipment—cannot be made accessible when it is needed (Mimi Suriani Mat Daud, 2019).

Humanitarian help was sometimes delayed owing to unstable roads, restricted access, and weak traffic flow, all of which occur whenever a disaster. For example, an earthquake or flood occurs (Halizahari et al., 2021). Additionally, there are five key obstacles to handling flood disasters: a lack of expertise, a lack of necessary power, organisational collaboration, a labour shortage, resources for coordination, insufficient funding, and communication difficulties (Muzamil et al., 2022).

1.2 Research Objectives

1. To examine the relationship between the Collaboration and efficiency of the humanitarian logistics supports during flood disaster relief.

2. To examine the relationship between Communication and efficiency of the humanitarian logistics supports during flood disaster relief.
3. To examine the relationship between Accessibility and efficiency of the humanitarian logistics supports during flood disaster relief.
4. To examine the relationship between Coordination and efficiency of the humanitarian logistics supports during flood disaster relief.

1.3 Scope Of The Study

First, consider the study's population. The number of respondents to be questioned is also limited according to the specific population. Secondly, the geographical area is also the scope of the study. Selangor state is the scope for the study to be taken. In addition, the data will be done through the utilization of questionnaire as a survey within specific period in Selangor, Malaysia.

2 Literature Review

2.1 Underpinning Theory

The underpinning theory that had been used in this study is Resources Based View. The resource-based view (RBV) is a concept that emphasises the importance of resources in achieving enhanced firm performance (Jurevicius, 2021). In the RBV model, there are two categories of assets which is tangible assets and intangible assets. The tangible assets are indeed the firm's measurable physical resources. Resources that belong to organisations but do not have a physical existence are known as intangible assets (Saviom, 2022). The factors that influence the efficiency of the humanitarian logistics supports during flood disaster which is collaboration, communication, accessibility, and coordination are consider as the intangible assets. This is because those factors do not have any physical presence but will occur impact to the efficiency of the humanitarian logistics supports during flood disaster. RBV contends that a company may thrive not just by having tangible assets but also by properly utilising intangible assets, which enable it to gain a long-term competitive edge. Technology is indeed an intangible asset that heavily relies on knowledge, much of which is implicit information (Nasab et al., 2013). For example, communication and coordination is a factor that more related to technology because both factors can maintain progress if it has standard level of technology.

2.2 Previous Studies

2.2.1 Efficiency of the Humanitarian Logistics Supports During Flood Disaster Relief

Governments or authorities, the military, aid agencies, donors, and non-governmental organisations (NGO) are all participants in humanitarian logistics (Daud et al., 2016). NADMA was established as a prior agency committed to disaster management after the country experienced a worst monsoon flood in December 2014, affecting 541,896 people and causing estimated damages of RM2.6 billion (Hadi, 2022). NADMA take initiative to provide information regarding flood disaster in advance to aware the related citizens and other humanitarian logistics supporters.

Apart from that, The Malaysian Armed Forces (MAF) is ready to tackle the monsoon season, particularly in regions prone to floods (Bernama, 2022b). Whenever it comes to humanitarian aid activities, MAF does not take the lead, but rather assists civil authorities in providing humanitarian assistance (Kumar, 2015). According to International Federation of Red Cross and Red Crescent Societies (IRFC) (2022), The Malaysian Army and Navy have dispatched boats as well as heavy machinery such as tractors and trucks to clear the muddy route and convey flood-affected residents to the relief centre.

NGOs contribute a crucial role during flood disaster in Selangor. According to Tan (2021), there are various of NGOs which helped the victims during flood disaster in Selangor, Malaysia. For instance, The Malaysian Red Crescent Society raises contributions to assist flood victims in Selangor, particularly Klang, Shah Alam, and Hulu Langat. The Hope Branch seeks financial assistance in order to collect basics such as dental health kits, face masks and etc for distribution to individuals in Hulu Langat and Shah Alam. Moreover, NGOs seeks helps from donor in term of financially. A donor is someone who donates something that is of value to another person or group, usually a charity (Vocabulary, 2022). According GlobalGiving (2022), Malaysia Flood Relief Fund had collected RM 76,262 from 204 donor within 11 months.

2.2.2 Collaboration

Collaboration problems have been noted as a significant barrier in the administration of humanitarian programmes. According to Johor Bharu Civil Defence Force Disaster Operations representative Captain (PA) Osmirizan Melan, collaboration is crucial, in order to organise a swift reaction team to deliver relief to the victims at Selangor (Aida Ahmad, 2022).

Due to security concerns and a lack of confidence, there has been relatively little collaboration among the government and non-governmental organizations (Yagub, 2014). Many Selangor citizens confront that donor should collaborate with NGOs instead of government. Abdul Latiff Ahmad, special duties minister and chairman of the National Disaster Management Agency (NADMA), has been criticised by an NGO for neglecting to handle the severe flooding that has affected numerous regions (FMT Reporters, 2021). This kind of dissatisfaction could lead to a humanitarian logistic supporter to not collaborate with another humanitarian logistic supporter during flood disaster. The duties and obligations of government agencies in assisting non-governmental organisations (NGOs) in delivering humanitarian help are not well defined under present legislation. Based on National Disaster Management Agency (NADMA), there is only one system or instrument in place to coordinate those NGOs and their diverse capabilities and capacities (Hisyam et al., 2020).

Most humanitarian logistics supporters range greatly in terms of their goals, capacities, mandates, skills and expertise, values, and organisational cultures. It can be challenging to establish areas of collaboration with such variability (Papier, 2021). Without waiting for a command from the National Disaster Management Agency (NADMA), the Malaysian Armed Forces jumped into action on Friday, assisting in the evacuation of flood victims to relief centres as extensive flooding devastated five states over the weekend. According to the source, the Selangor government was likewise hesitant to involve the military (Free Malaysia Today (FMT), 2021). This statement shows that Malaysian armed force made their own decision to help the victims without collaborate with NADMA or with the Selangor government. Due to majority humanitarian logistics supporters have authority to take decision by their self, they hesitate to collaborate with other organization or supporter.

2.2.3 Communication

Any communication problems may result in stakeholders' or NGOs' being unable to understand how collaboration works, which would lower their satisfaction with humanitarian efforts (Mazrul Hisyam Ab Malik, 2022). The citizen volunteers and emergency responders were largely affected by communication overload. Local authorities disregarding warnings, poor communication, and unusual rainfall all led to the failures in handling the enormous floods that ravaged Selangor last month, Prime Minister Ismail Sabri Yaakob told the Dewan Rakyat today (Writers, 2022).

During the recent floods in Selangor, 343 telecommunication towers providing mobile connection for 2G and 4G services were damaged (KKMM Minister, 2021). Due to communication failure, many people were trapped on key routes, uninformed of the dangers that halted traffic and floodwaters, some of which were car-deep, might ended up cutting them off or take their automobiles away (Rashid, 2021). According to Khamarrul Azahari Razak, when there is a need to provide back - ups for information exchange during disasters among local communities, district councils, and the state disaster operations command centre, where the social media app such as WhatsApp cannot be depended when electricity supply is interrupted and mobile phone batteries are running low (Lim, 2022).

The second mode of communication is indeed the Government Integrated Radio Network (GIRN). All government agencies participating in the 'response' phase will communicate via GIRN. However, GIRN frequently jams during flood relief when many officers are utilising it (Mabahwi & Nakamura, 2020). Retired Malaysian Army Colonel Azlan Iskandar claimed that the main problem in most situation during disaster in Selangor, Malaysia was communication because individuals who were more accessible or had better communication would be able to get aid earlier than others who were less accessible or had poorer communication. Before incident like these occur, a communication system that the populace can utilise in an emergency must be built (Bernama, 2021b).

2.2.4 Accessibility

Humanitarian logistics supports during flood disaster relief will need accessibility to complete their service. Route might be viewed as the key component of accessibility. According to Bernama (2021a), Izham Hashim, the Selangor state executive councillor for infrastructure, claimed that 38 slopes and landslide instances were recorded in five areas under local councils, and that a totalling of 284 federal and state highways in Selangor were impacted by the floods. When the road was damaged by the flood disaster, the humanitarian logistics support team would encounter difficulties due to landslides or slopes. NGOs, Malaysian army, firefighter, and relief team face challenges due to unavailable routes and limited accessibility for transport. The rescue teams in Selangor had difficulty continuing their efforts owing to several limits, according to Prime Minister Datuk Seri Ismail Sabri Yaakob. He further claimed that these obstacles included difficulty for rescue boats entering flooded regions due to inaccessible pathways. As a result, the relief team cannot accomplish their rescue mission without a proper method, and they must find another approach to assist the sufferer (Bhuiyan et al., 2022).

The Malaysian army was actively involved in assisting flood victims in Selangor, however owing to unfamiliarity with the places, it was difficult for them to approach the districts without hesitation. Brigadier Jen Noorrul Azril Ariffin, operations commander of the Armed Forces Taman Sri Muda command post was one of the most difficult problems, he said, was operating our assets at night time and lacked local knowledge of the location (Taman Sri Muda, Selangor) and need guides to assist boats (Zack, 2021). The humanitarian logistics supports were not able to request additional backup vehicles necessary to carry out the rescue effort successfully because of their lost connectivity to the flood-affected regions (Yazid et al., 2017). This justifies that accessibility become the main struggle of humanitarian logistics supports during flood disaster relief in Selangor, Malaysia

2.2.5 Coordination

A major problem in humanitarian logistics was also found to be a lack of coordination, which might have several negative effects, such as inefficient assistance distribution, rivalry for scarce resources among participants, and overcrowding on transportation networks (Negi, 2022). An inflow of NGOs can overload government agencies and municipal disaster response systems if there is insufficient coordination, which can sometimes worsen the situation (Osa, 2003).

According to Zet (2021), NADMA plainly failed to use existing government infrastructure to combat the potentially fatal flood that is expected in the West Malaysia region. This statement explains that these are a crucial example of Nadma struggles to coordinate properly the facilities provided by government during the flood disaster. The 58-year-old from Batu Tiga, Shah Alam, claimed the lack of adequate coordination among the National Disaster Management Agency (Nadma), the Selangor Department of Irrigation and Drainage (DID), and the people on December 19 led to the flood's widespread destruction (Solhi, 2021).

Apart from that, there are numerous numbers of people from NGO who are interested in helping people during flood disaster in Selangor but without proper coordination most of the individual gathered in one location cause lack of volunteers to help at other districts in Selangor. As an example, according to Bernama (2022a) Datuk Seri Amirudin Shari stated that the Hulu Langat region was discovered to be congested yesterday after many employees and volunteers were gathered there.

Datuk Seri Ismail Sabri Yaakob agreed that there had been a few delays and other flaws in Selangor's flood relief operations. Taman Sri Muda in Shah Alam, Selangor, is one of the worst-affected areas following the weekend's severe floods in the Klang Valley. Civilian boats carrying supplies just arrived yesterday, but according to Siti, one of the victims, they were uncoordinated, causing issues with distribution. Due to the improper coordination by related humanitarian logistic supporter, most people at Taman Sri Muda in Shah Alam, Selangor suffer without food for 48 hours (Yap, 2021).

2.3 Hypotheses Statement

H1: There is a relationship between Collaboration and efficiency of the humanitarian logistics supports during flood disaster relief.

H2: There is a relationship between Communication and efficiency of the humanitarian logistics supports during flood disaster relief.

H3: There is a relationship between Accessibility and efficiency of the humanitarian logistics supports during flood disaster relief.

H4: There is a relationship between Coordination and efficiency of the humanitarian logistics supports during flood disaster relief.

2.4 Conceptual Framework

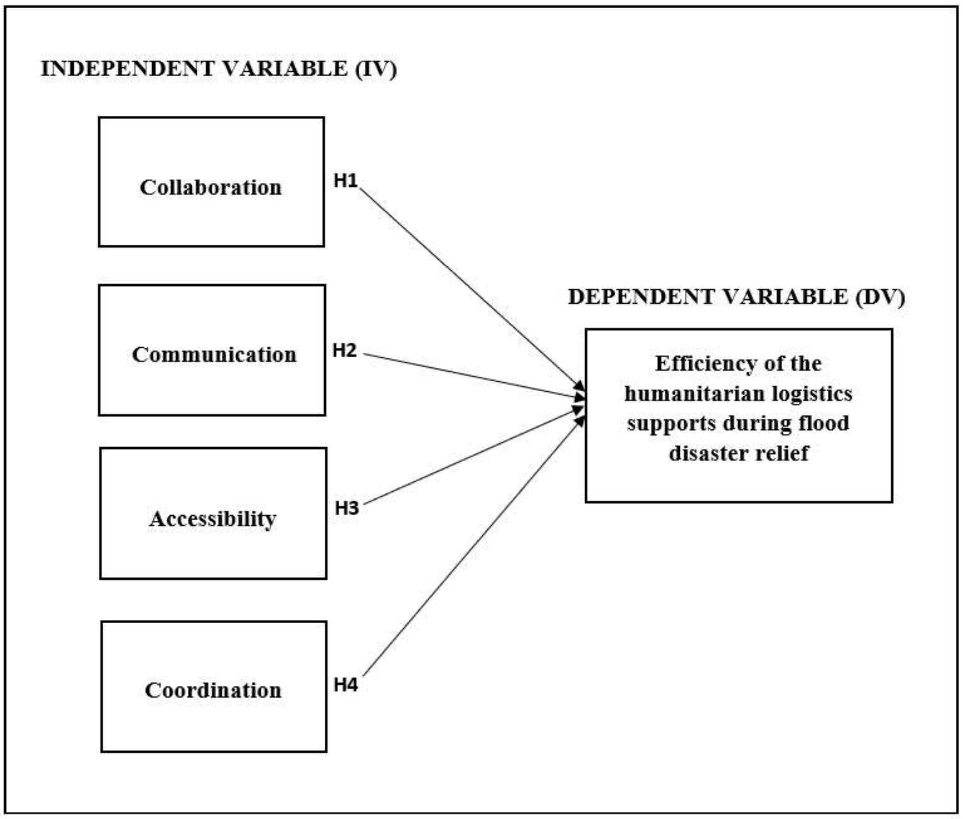


Figure 1: Conceptual Framework of factors that influencing efficiency of the humanitarian logistics supports during flood disaster relief

3 Research Methodology

3.1 Research Design

In this study, a quantitative research design was used to estimate the relationship between the dependent variable and the independent variable. This study uses quantitative techniques. This is because they are more objective in studying and understanding the link between independent variables and factors that influence the efficiency of the humanitarian logistics supports during flood disaster relief in Selangor, Malaysia.

3.2 Data Collection Methods

Primary data collection prior aim is to gather information that is as accurate and comprehensive as feasible (Maione, 2022). The example of Primary data is Surveys, investigations, questionnaires, focus groups, interviews, and etc (Formplus Blog, 2022c). The aim of data collection was to identify the Factors that influencing efficiency of the humanitarian logistics supports during flood disaster relief in Selangor, Malaysia. A questionnaire will be distributed using Google Form.

3.3. Study Population

According to the Department of Statistics Malaysia Official Portal (DOSM) (2022), the current population of Selangor citizens on 21 Nov 2022 are 7,091,519 people. The population targeted for this study is residents of Selangor who are male and female between 18 to 60 years old.

3.4 Sample Size

Since the population of Selangor had exceed the maximum number of populations in Krejcie and Morgan sample size determination table which is N = 1000000, the researcher had conducted manual way to determine the sample size by using the formula of Krejcie & Morgan. Based on the outcome of the calculation, the sample size is estimated as 384.

<u>The calculation for sample size</u>

n = sample size

N = 7091519 People

e = 0.05

$X^2 = 3.841$

p = 0.5

$$n = \frac{3.841 \times 7091519 \times 0.5 \times (1-0.5)}{((0.05)^2 \times (7091519 - 1)) + (3.841 \times 0.5 \times (1-0.5))}$$

$$n = \frac{6809631.11975}{17728.795 + 0.96025}$$

$$n = \frac{6809631.11975}{17729.75525}$$

$$n = 384.079$$

Figure 2: Calculation for sample size

3.5 Sampling Techniques

To accomplish the study's goal, a non-probability sampling technique called "Convenience sampling" was adopted. The primary goal of this sampling method was to select representatives at random based on their accessibility and proximity to the respondent. The sample was assigned randomly to 384 respondents. Therefore, Due to the time constraints and huge sample size, convenience sampling is the best strategy for this investigation.

3.6 Research Instrument Development

This study found that both quantitative and descriptive methodologies employ questionnaires as their primary research tool. It is a list of inquiries used to gather responses' private information as well as statistically significant data.

3.6.1 Questionnaire Survey

In this study, gathering exact data in the most reliable manner is a questionnaire's main objective. The questionnaire which is google form will be distributed by the researcher to the respondent, which will be Selangor residents. It will be disseminated via social media networks including Telegram, Instagram, and WhatsApp.

3.6.2 Questionnaire Design

The questionnaire will be designed in two languages (Dwibahasa), English and Malay, to make it easier for respondents to comprehend and respond correctly. In this research, the questionnaire will be distributed to 384 respondents. The questionnaire has been expanded to six main sections whereas Section A, Section B, Section C, Section D, Section E and Section F. The questionnaire from Section B through F are uses a Likert scale measurement. A scale from 1 to 5 is used to express the level of consent.

3.7 Measurement Of The Variables

There are four types of measurement variables which is nominal, ordinal, interval, and ratio variables (Formplus Blog, 2022a). In this study, the researcher uses three scales of measurement which is nominal, ordinal and interval.

3.7.1 Nominal Scale

Nominal scale is known as measuring scale in which an object is only identified or classified using numbers (QuestionPro, 2022b). In this survey, the nominal scale is categorised in Section A. The nominal scale that is used in this survey is gender.

3.7.2 Ordinal Scale

The Likert scale, an agreement scale employed in this study's questionnaire to gauge respondents' level of agreement with various assertions, was utilised (Scribbr, 2022). Formerly, researchers used a five-point scale which is strongly agree, agree, neutral, disagree, strongly disagree. Five points in this research which is range from strongly agree = 5, agree = 4, neutral = 3, disagree = 2 and strongly disagree = 1.

3.7.3 Interval Scale

Interval data known as an integer which is a data type that is calculated along a scale with each point being situated at an appropriate interval from the other (QuestionPro, 2022a). The researcher's interval scale was employed to denote the respondents' ages in this study. In Section A, this scale was used.

3.8 Procedure For Data Analysis

The statistical programme Statistical Package for the Social Sciences (SPSS) 26.0 was used to examine the data for this investigation. The ability to analyse data using methods such the Pearson correlation coefficient, normality test, descriptive analysis, and reliability test makes this programme useful.

3.8.1 Pilot Test

Pilot testing includes a number of procedures that let assess the many facets of the researcher's project in advance Formplus Blog (2022b). To further clarify, the research's required subgroups will be tested in the pilot test. In order to conduct a pilot test, 30 sets of questionnaires are indeed being given out to the intended respondents.

3.8.2 Descriptive Analysis

Descriptive Analysis, it enables the researchers to condense a big quantity of data and create a straightforward explanation of the facts the researchers analyse (Trochim, 2022). Additionally, it entails the creation of tables for measures of central tendency such as the mean, median, and mode, as well as variability measurements such as variance, standard deviation, minimum and maximum variables, skewness and kurtosis (Hayes, 2022).

3.8.3 Reliability Test

The reliability test is in charge of evaluating and determining the validity and reliability of the scale (Statistics, 2021). Cronbach's Alpha reliability test was employed by the researchers to demonstrate the suitability of the test and scale. The internal reliability of a test or scale is also measured by Cronbach's alpha, which has a scale from 0 to 1. The figure below shows range of reliability and its coefficient of Cronbach's alpha.

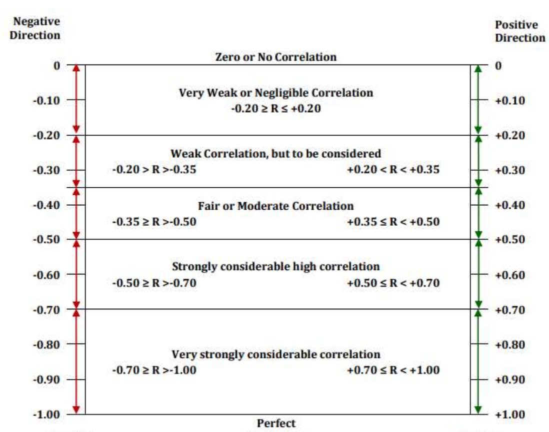
No	Coefficient of Cronbach's Alpha	Reliability Level
1	More than 0.90	Excellent
2	0.80-0.89	Good
3	0.70-0.79	Acceptable
4	0.6-.69	Questionable
5	0.5-0.59	Poor
6	Less than 0.59	Unacceptable

Source : (Mohd Arof et al., 2018)

. Figure 3: Range of reliability level and its coefficient of Cronbach's alpha

3.8.4 Pearson correlation coefficient

The Pearson correlation coefficient (r) often used metric for determining a linear relationship. It is a number ranging from -1 to 1 that indicates the direction and strength of a link between two variables (Turney, 2022). Correlation analysis is extremely effective in determining the functional relationship among two variables. The relationship can often be classified as positive, negative, or zero. The rule of thumb for correlation coefficient is shown in figure below.



Source: (Senthilnathan, 2019)

Figure 4: **Usefulness of Correlation Analysis**

3.8.5 Normality Test

Primary sources should be cited using footnotes, identified in the text by consecutive numbers in superscript, like this[1]. The footnotes themselves should appear at the foot of each page in Times New Roman, 9 points. There is no need to also include primary legal sources in the 'References' section at the end of the paper which should be restricted to sources cited using the APA latest edition style.

The citation of secondary sources / references to other publications should use the Harvard referencing style. The full bibliographic description of the cited work should also appear in a 'References' section under the final main heading of the paper as described at the end of this document.

4 Data Analysis and Findings

4.1 Demographic Profile Of Respondents

The demographic profile starts with gender which is male with 61.2 % and female with 38.8% respondents which showed male respondents are more than female. Next, it followed up with age which 18-25 years old is stated 34.6%, the age group 26-33 years old is 41.1%, 34-41 years old with 9.1% and 42-49 age and 50 years old above stated the same percentage which is 7.6%. Then marital status shows that single respondents are 63.0%, married are 33.6% and others are 3.4%. Followed by Educational Background. SPM or STPM which stated 12.5%, diploma stated 39.3%, bachelor's degree which is 38.5% respondents, master's degree with 6.8% and doctoral degree which is 2.9%. Finally, race where Malay respondents are 55.7%. the second race group is Indian which stated 25.8% and Chinese race come up with 15.6% and others with 2.9%.

4.2 Validity and Reliability Test

Table 1: Reliability test for each variable

Variable	Content	Cronbach's Alpha	Sum Of Items	N (Sample Size)
Dependent Variable	Efficiency of the Humanitarian Logistics Supports During Flood Disaster Relief	0.848	5	384
Independent Variable	Collaboration	0.855	5	384
Independent Variable	Communication	0.883	5	384
Independent Variable	Accessibility	0.885	5	384
Independent Variable	Coordination	0.886	5	384

It is important to use the Cronbach's alpha to measure the reliability test of this study. Cronbach's alpha value is considered good when it is $0.7 \leq a \geq 0.9$, the Cronbach's alpha value for dependent variable which is efficiency of the humanitarian logistics supports during flood disaster relief is 0.848. Cronbach's alpha value for independent variables which are collaboration is 0.855, for communication is 0.883, for accessibility is 0.885 and for coordination is 0.886.

4.3 Hypotheses Testing (Pearson Correlation Analysis)

Table 2: Pearson Correlation Coefficient

Correlations

		MEAN_D	MEAN_COL	MEAN_COM	MEAN_ACC	MEAN_COR
MEAN_D	Pearson Correlation	1	.695**	.714**	.762**	.806**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	384	384	384	384	384
MEAN_COL	Pearson Correlation	.695**	1	.743**	.706**	.680**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	384	384	384	384	384
MEAN_COM	Pearson Correlation	.714**	.743**	1	.805**	.751**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	384	384	384	384	384
MEAN_ACC	Pearson Correlation	.762**	.706**	.805**	1	.832**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	384	384	384	384	384
MEAN_COR	Pearson Correlation	.806**	.680**	.751**	.832**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	384	384	384	384	384

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

There is a significant and good correlation between efficiency of the humanitarian logistics supports during flood disaster relief and collaboration because the P value is 0.000 where $P < 0.005$ considered statistically significant. The relationship between the variables is 0.695 which is relatively have moderate positive relationship between the independent variable and dependent variable. Other than that, there is a significant and strong correlation between efficiency of the humanitarian logistics supports during flood disaster relief and communication. r is 0.714 and the P value is 0.000 which is $P < 0.005$. There is a significant and strong correlation between efficiency of the humanitarian logistics supports during flood disaster relief and accessibility because the P value is 0.000 where $P < 0.005$ and r is 0.762. Lastly, there is also a significant and strong correlation between efficiency of the humanitarian logistics supports during flood disaster relief and coordination because the P value is 0.000 where $P < 0.005$ considered statistically significant and r is 0.806.

Table 3: Summary of Hypotheses

Code	Hypothesis	Status
HI	There is a relationship between collaboration and efficiency of the humanitarian logistics supports during flood disaster relief.	Accepted
H2	There is a relationship between communication and efficiency of the humanitarian logistics supports during flood disaster relief.	Accepted
H3	There is a relationship between accessibility and efficiency of the humanitarian logistics supports during flood disaster relief.	Accepted
H4	There is a relationship between coordination and efficiency of the humanitarian logistics supports during flood disaster relief.	Accepted

5 Discussion and Conclusion

From the previous chapter, the first objective of this research is to examine the relationship between the collaboration and efficiency of the humanitarian logistics supports during flood disaster relief. The first research question is What is the relationship between the collaboration and efficiency of the humanitarian logistics supports during flood disaster relief? The hypothesis of this variable is there is a relationship between collaboration and efficiency of the humanitarian logistics supports during flood disaster relief. The findings of this study showed that there is a moderate positive relationship between collaboration and efficiency of the humanitarian logistics supports during flood disaster relief with a correlation coefficient of 0.695 and P value is 0.000 which is $P < 0.005$. So, collaboration has positive significance influence on efficiency of the humanitarian logistics supports during flood disaster relief. From this discussion, it indicates that this research objective is achieved and hypothesis 1 (H1) is accepted.

The second objective of this research is to examine the relationship between communication and efficiency of the humanitarian logistics supports during flood disaster relief. The second research question is What is the relationship between relationship between the communication and efficiency of the humanitarian logistics supports during flood disaster relief? The hypothesis of this variable is there is a relationship between communication and efficiency of the humanitarian logistics supports during flood disaster relief. The findings of this study showed that there is a high positive relationship between communication and efficiency of the humanitarian logistics supports during flood disaster relief with a correlation coefficient of 0.714 and P value is 0.000 which is $P < 0.005$. So, communication has positive significance influence efficiency of the humanitarian logistics supports during flood disaster relief. From this discussion, it indicates that this research objective is achieved hypothesis 2 (H2) is accepted.

The third objective of this research is to examine the relationship between accessibility and efficiency of the humanitarian logistics supports during flood disaster relief. The third research question is what is the relationship between relationship between the accessibility and efficiency of the humanitarian logistics supports during flood disaster relief? The hypothesis of this variable is there is a relationship between accessibility and efficiency of the humanitarian logistics supports during flood disaster relief. The findings of this study showed that there is a high positive relationship between accessibility and efficiency of the humanitarian logistics supports during flood disaster relief with a correlation coefficient of 0.762 and P value is 0.000 which is $P < 0.005$.

So, accessibility has positive significance influence on efficiency of the humanitarian logistics supports during flood disaster relief. From this discussion, it indicates that this research objective is achieved hypothesis 3 (H3) is accepted.

The fourth objective of this research is to examine the relationship between coordination and efficiency of the humanitarian logistics supports during flood disaster relief. The fourth research question is what is the relationship between relationship between the coordination and efficiency of the humanitarian logistics supports during flood disaster relief? The hypothesis of this variable is there is a relationship between coordination and efficiency of the humanitarian logistics supports during flood disaster relief. The findings of this study showed that there is a high positive relationship between coordination and efficiency of the humanitarian logistics supports during flood disaster relief with a correlation coefficient of 0.806 and P value is 0.000 which is $P < 0.005$. So, coordination has positive significance influence on efficiency of the humanitarian logistics supports during flood disaster relief. From this discussion, it indicates that this research objective is achieved hypothesis 4 (H4) is accepted.

5.2 Conclusion and Future Research

This study was focused to examine in-depth investigation on factors that influencing efficiency of the humanitarian logistics supports during flood disaster relief in Selangor, Malaysia. This study had accomplished the objectives to identify the independent variables of efficiency of the humanitarian logistics supports during flood disaster relief, which is collaboration, communication, accessibility, coordination and identify the relationship between factors and efficiency of the humanitarian logistics supports during flood disaster relief.

Due the value of the Cronbach alpha coefficient of all independent variables and dependent variable is more than 0.7, the study of the whole variables met the minimal requirement for the reliability analysis. Meanwhile, the findings from the Pearson correlation coefficient analysis shows that collaboration, communication, accessibility, and coordination have positive significance relationship with efficiency of the humanitarian logistics supports during flood disaster relief. According to the results of the hypothesis test, all of the H0 are rejected, however H1, H2, H3, and H4 have been accepted in this study. Most importantly, this research showed that the humanitarian logistics supports are concern about the factors that influencing their efficiency during flood disaster relief and accept that these are the few of the prime factors that become an issue for them. This study also indicates that humanitarian logistics supports in Selangor, Malaysia is willing to overcome those factors that influence their efficiency.

Humanitarian logistics supports or future researchers can use the outcome of this study to determine factors that influencing efficiency of the humanitarian logistics supports during flood disaster relief and crucial information's regarding flood disaster in Selangor, Malaysia. This is because it able the humanitarian logistics supports in various region to realize the depth of the issue and struggles faced by the humanitarian logistics supports that involved in Selangor, Malaysia. The findings in this study can indirectly help provide information to government or the public to understand humanitarian logistics supports contributions and struggles to aid the victim during flood disaster issue. This is because, without us realizing about humanitarian logistics supports, there will be lack of appreciation for their efforts and contribution to the society. In summary, this research can help the humanitarian logistics supports gain a wide knowledge and researchers from other countries can also use the data for their usage.

Future researchers should utilize both qualitative and mix method to gather data. When a researcher able to utilize both methods, they may gain deeper understanding about the relationship of the factors influence efficiency of the humanitarian logistics supports during flood disaster relief. In addition, the future researcher should increase the sample size, population, cover other districts and states to achieve a more reliable and representative study result. Future researcher also needs to expand the limitation of the research to whole people of Malaysia as this research only focuses people on Selangor. Lastly, Researchers in the future should devote more time to their studies and read more papers, books, and other sources that may be relevant to the subject. Future researchers should use other internet platforms to improve their study results to get better results and to get useful information from other nations research papers and related article as flood disaster does not only occur in Malaysia perhaps it is an issue often occur in other countries also.

5.3 Implication and Limitation

The first implication is this research will be beneficial in terms of government support. This research can assist the government agencies to figure possible and effective ways to overcome flood disaster problems. The second implication of this study is aimed for the society. With the knowledge that gained from this study, it can help the public to make decision and create awareness among them during faced flood disaster by considering avoiding burden the humanitarian logistics supports. Lastly, this study could serve as an action plan for future academics who want to learn more about the humanitarian logistics supports. This research can be a reference to future researcher to know more depth about the tittle.

Firstly, self-administered survey questionnaires were employed in this study's data gathering, as well as a single method of collection. Participants may provide careless replies to the questionnaire if it is influenced by the period. Moreover, the duration to carry out this study are less, and data collection usually takes a long period of time. Due to that, data processing has only been carried out within 1 to 2 months. Closed-ended questions are used to arrange the questionnaire. As a result, our research will yield limited results.

6 Acknowledgement

A project’s success is dependent on our efforts and the guidance of many people. Firstly, we want to express our gratitude to the Almighty God for giving us the good health, strength, and chance to complete this project successfully in particular period. Next, we would like to express our deepest appreciation and a lot of thanks to our supervisors. This is because without his assistance, direction, and mentoring, we would not have been able to complete this project in various phases. Moreover, we would like to indicate our thanks to the library University Malaysia Kelantan to provide a lot of assistance through the reference and materials that help us in make a reference while doing this project. Finally, a special thanks to our beloved family for their unwavering support, consideration, and the encouragement words to us during doing this project.

7 References

Aida Ahmad. (2022). *Facing floods full on*. The star. Retrieved November 28 from https://www.thestar.com.my/metro/metro-news/2022/09/24/facing-floods-full-on

Augustin, S. (2021). *Fed up of waiting, the military rolls into flood relief*. Free Malaysia Today. Retrieved November 23 from https://www.freemalaysiatoday.com/category/nation/2021/12/21/fed-up-of-waiting-the-military-rolls-into-flood-relief/

Bernama. (2021a). *284 routes in Selangor affected by floods, 27 roads closed*. Selangor Journal. Retrieved November 23 from https://selangorjournal.my/2021/12/284-routes-in-selangor-affected-by-floods-27-roads-closed/

Bernama. (2021b). *Lack of coordination and no centralised body cause of slow rescue operations*. Sinar Harian. Retrieved November 8 from https://m.sinarharian.com.my/mobile-article?articleid=221995

Bernama. (2021c). *Major floods mark the end of 2021*. The Malaysian Reserve. Retrieved November 1 from https://themalaysianreserve.com/2021/12/30/major-floods-mark-the-end-of-2021/

Bernama. (2022a). *8 districts in Selangor identified as flood hotspots*. Free Malaysia Today (FMT). Retrieved November 22 from https://www.freemalaysiatoday.com/category/nation/2022/09/20/8-districts-in-selangor-identified-as-flood-hotspots/

Bernama. (2022b). *Armed Forces ready for monsoon floods*. Selangor Journal. Retrieved November 12 from https://selangorjournal.my/2022/09/armed-forces-ready-for-monsoon-floods/

Bhuiyan, T. R., Er, A. C., Muhamad, N., & Pereira, J. J. (2022). Evaluating the cumulative costs of small-scale flash floods in Kuala Lumpur, Malaysia. *Journal of Hydrology*, *612*, 128181.

Daud, M. S., Hussein, M. Z. S. M., Nasir, M. E., Abdullah, R., Kassim, R., Suliman, M. S., & Saludin, M. R. (2016). Humanitarian logistics and its challenges: The literature review. *5*, 107-110.

Department of Statistics Malaysia Official Portal (DOSM). (2022). *Population Clock by State*. The Source of Malaysia's Official Statistics. Retrieved November 21 from https://www.dosm.gov.my/v1/index.php?r=columnnew/populationclock

Fadzline Tamyez, P., Christiane Isabella Gerth, N., & Firdaus bin Anuar, K. (2019). Flood-Related Disaster Communication and Humanitarian Logistics. *KnE Social Sciences*.

FMT Reporters. (2021). *Drop Nadma head Latiff for flood failure, govt urged*. Free Malaysia Today (FMT) Retrieved November 23 from https://www.freemalaysiatoday.com/category/nation/2021/12/20/drop-nadma-head-latiff-for-flood-failure-govt-urged/

Formplus Blog. (2022a). *Nominal, Ordinal, Interval & Ratio Variable + [Examples]*. Formplus Retrieved November 23 from https://www.formpl.us/blog/nominal-ordinal-interval-ratio-variable-example#:~:text=A%20measurement%20variable%20is%20an,take%20qualitative%20values%20in%20statistics

Formplus Blog. (2022b). *Pilot Testing: Meaning, Importance + [Question Example]*. Formplus. Retrieved November 28 from https://www.formpl.us/blog/pilot-testing

Formplus Blog. (2022c). *What is Primary Data? + [Examples & Collection Methods]*. Formplus. Retrieved November 23 from https://www.formpl.us/blog/primary-data

Free Malaysia Today (FMT). (2021). *Fed up with awaiting Nadma's orders, military rolls into flood relief*. Daily Express. Retrieved November 23 from https://www.dailyexpress.com.my/news/183921/fed-up-with-awaiting-nadma-s-orders-military-rolls-into-flood-relief

GlobalGiving. (2022). *Malaysia Flood Relief Fund*. GlobalGiving.org. Retrieved November 23 from https://www.globalgiving.org/projects/malaysia-flood-relief-fund/

Hadi. (2022). *Ensuring Malaysia's Disaster Preparedness*. National Disaster Management Agency. Retrieved November 9 from https://www.nadma.gov.my/en/media-en/news/302-ensuring-malaysia-s-disaster-preparedness

Halizahari, M., Zain, R., Ismail, A., Hj, N., Yaacob, S., Rashed, n. i., & Zahari, H. (2021). Humanitarian Logistics Support Challenges During Flood in the Five States in Malaysia. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, 3247-3254.

Hayes, A. (2022). *Descriptive Statistics: Definition, Overview, Types, Example*. Investopedia. Retrieved November 23 from https://www.investopedia.com/terms/d/descriptive_statistics.asp

Hisyam, M., Malik, A., Omar, E. N., Maon, S., Sultan, P., Abdul, S., Shah, A., & Alam, S. (2020). Humanitarian Logistics: A Disaster Relief Operations Framework During Pandemic Covid-19 in Achieving Healthy Communities. *6*, 101-113. https://doi.org/10.24191/abrij.v6i2

International Federation of Red Cross and Red Crescent Societies (IRFC). (2022). *Malaysia: Flash Floods - DREF Operation N° MDRMY008 - Final Report*. Reliefweb. Retrieved November 28 from https://reliefweb.int/report/malaysia/malaysia-flash-floods-dref-operation-ndeg-mdrmy008-final-report#:~:text=A%20total%20of%2054%20fatalities,estimated%20MYR%206.1%20billion%20(USD1.

Jurevicius, O. (2021). *Resource-Based View*. Strategic Management Insight. Retrieved November 25 from https://strategicmanagementinsight.com/tools/resource-based-view/

KKMM Minister. (2021). *KKMM: 342 Telco Towers affected during Flood in Selangor, 153 Restored*. Malaysian Wireless. Retrieved November 8 from https://www.malaysianwireless.com/2021/12/kkmm-telco-towers-flood-selangor/

Kumar, A. (2015). HADR - Flood Relief Operations in Malaysia. In (pp. 43-53). https://doi.org/10.13140/RG.2.1.3573.9767

Lim, I. (2022). *How Malaysia can handle massive floods better: Here's a checklist*. Malaymail. Retrieved November 8 from https://www.malaymail.com/news/malaysia/2022/01/05/how-malaysia-can-handle-massive-floods-better-heres-a-checklist/2033013

Mabahwi, N., & Nakamura, H. (2020). The Issues and Challenges of Flood-Related Agencies In Malaysia. *Environment-Behaviour Proceedings Journal*, *5*. https://doi.org/10.21834/e-bpj.v5i13.2069

Maione, I. (2022). *What is Primary Data Collection? Types, Advantages, and Disadvantages*. Clickworker. Retrieved November 19 from https://www.clickworker.com/customer-blog/primary-data-collection/

Mazrul Hisyam Ab Malik, E. N. O. A. D. (2022). Malaysia Humanitarian Logistics: A Successful Collaboration in Humanitarian Relief Works Between NGOs in Malaysia. *International Journal of Academic Research in Business and Social Sciences.*, *12*(7), 857 – 879. https://doi.org/10.6007/IJARBSS/v12-i7/14317

Mohd Arof, K., Ismail, S., & Saleh, A. L. (2018). Contractor's Performance Appraisal System in the Malaysian Construction Industry: Current Practice, Perception and Understanding. *International Journal of Engineering & Technology*, *7*, 46.

Muzamil, S., Zainun, N. Y., Ajman, N., Sulaiman, N., Khahro, S., Rohani, M., Mohd Bukari, S., & Ahmad, H. (2022). Proposed Framework for the Flood Disaster Management Cycle in Malaysia. *Sustainability*, *14*, 4088.

Nasab, S., Farhangnejad, M., & Naysary, B. (2013). Casting a Resource-Based View on Intangible Assets and Export Behaviour. *Business, Management and Education*, *11*, 315-332.

Nazari, H. (2021). *Malaysia's Armed Forces Joined Flood Relief Efforts Without Approval*. The Rakyat Post. Retrieved October 30 from https://www.therakyatpost.com/news/malaysia/2021/12/20/malaysias-armed-forces-joined-flood-relief-efforts-without-approval/

Negi, S. (2022). Humanitarian logistics challenges in disaster relief operations: A humanitarian organisations' perspective. *Journal of Transport and Supply Chain Management*, *16*. https://doi.org/10.4102/jtscm.v16i0.691

Osa, Y. (2003). The role of Japanese NGOs in the pursuit of human security: limits and possibilities in the field of refugees. *Japan Forum*, *15*, 251-265. https://doi.org/10.1080/0955580032000108414

Papier, M. K. F. F. (2021). Collaboration in Humanitarian Operations in the Context of the COVID-19 Pandemic. 1-21. https://doi.org/dx.doi.org/10.2139/ssrn.3827430

QuestionPro. (2022a). *Interval Data: Definition, Characteristics and Examples*. QuestionPro Survey Software Retrieved November 22 from https://www.questionpro.com/blog/interval-data/#:~:text=Age%20is%20also%20a%20variable,to%20A%20by%205%20years

QuestionPro. (2022b). *Nominal Scale: Definition, Characteristics and Examples*. QuestionPro Survey Software. Retrieved November 20 from https://www.questionpro.com/blog/nominal-scale/

Rashid, E. (2021). *NST Leader: Flood chaos*. New Straits Time. Retrieved November 8 from https://www.nst.com.my/opinion/leaders/2021/12/756438/nst-leader-flood-chaos

Saviom. (2022). *Using the Resource-based View Strategy for a Competitive Advantage*. Saviom Software Pty. Ltd. . Retrieved November 23 from https://www.saviom.com/blog/using-the-resource-based-view-strategy-for-competitive-advantage/

Scribbr. (2022). *Are Likert scales ordinal or interval scales?* Scribbr.com. Retrieved November 20 from https://www.scribbr.com/frequently-asked-questions/are-likert-scales-ordinal-or-interval-scales/

Senthilnathan, S. (2019). Usefulness of Correlation Analysis. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3416918

Serina Rahman. (2022). Malaysia's Floods of December 2021: Can Future

Disasters be Avoided? , *26*(2022).

Solhi, F. (2021). *Flood victims want heads to roll for flood mismanagement, poor coordination*. New Straits Time. Retrieved November 5 from https://www.nst.com.my/news/nation/2021/12/757819/flood-victims-want-heads-roll-flood-mismanagement-poor-coordination

Statistics, S. (2021). Reliability Analysis. https://www.ibm.com/docs/en/spss-statistics/25.0.0?topic=features-reliability-analysis

Sundram, V. P. K. (2021). Ensuring smooth aid operations through logistics. *New straits times*. https://www.nst.com.my/opinion/letters/2021/06/702315/ensuring-smooth-aid-operations-through-logistics#:~:text=Humanitarian%20logistics%20is%20a%20complex,supplies%20can%20reach%20their%20destinations

Tan, J. (2021). We verified 14 fundraisers in Malaysia that you can donate to in aid of flood victims. https://vulcanpost.com/772756/malaysia-flood-donate-charities-list/

Trochim, W. M. K. (2022). *Research Methods Knowledge Base*. Conjointly Retrieved November 17 from https://conjointly.com/kb/research-design/

Turney, S. (2022). *Pearson Correlation Coefficient (r) | Guide & Examples*. Scribbr. Retrieved November 23 from https://www.scribbr.com/statistics/pearson-correlation-coefficient/

Vocabulary. (2022). *donor*. Vocabulary.com. Retrieved November 13 from https://www.vocabulary.com/dictionary/donor

Wong, D. J. (2022). *Flooding problems will be too much for Malaysia to handle by 2050, says report*. Mashable SEA. Retrieved October 30 from https://sea.mashable.com/life/20660/flooding-problems-will-be-too-much-for-malaysia-to-handle-by-2050-says-report

World Health Organization. (2022). *Floods*. World Health Organization. Retrieved October 30 from https://www.who.int/health-topics/floods#tab=tab_1

Writers, S. (2022). *PM says personally contacted army, police for help after slow flood response in Selangor*. Malaysia Now. Retrieved November 8 from https://www.malaysianow.com/news/2022/01/20/pm-says-personally-contacted-army-police-for-help-after-slow-flood-response-in-selangor

Yagub, I. A. (2014). Collaboration between Government and Non-Governmental Organizations (NGOs) in Delivering Curative Health Services in North Darfur State, Sudan- a National Report. *Iran J Public Health*, *43*(5), 561-571.

Yap, V. (2021). *48 hours of hunger and desperation drive Sri Muda folks to the limit*. Malaysiakini. Retrieved November 7 from https://www.malaysiakini.com/news/603855

Yazid, A. S., Tengku Adnan, T. F. F., Abdullah, A. A., Wan Daud, W. N., Salleh, F., & Husin, M. R. (2017). Flood Risk Mitigation: Pressing Issues and Challenges. *International Review of Management and Marketing*, *7*(1), 157-163. https://www.econjournals.com/index.php/irmm/article/view/3353

Zack, J. (2021). *Floods: Army on the ground from day one; 12 boats, 300 soldiers deployed in Shah Alam*. The Star. Retrieved November 7 from https://www.thestar.com.my/news/nation/2021/12/21/floods-army-on-the-ground-from-day-one-12-boats-300-soldiers-deployed-in-shah-alam

Zet, C. H. (2021). *LETTER | The inadequacy of the govt's disaster management efforts*. Malaysiakini. Retrieved November 7 from https://www.malaysiakini.com/letters/604266

Factors That Affecting Green Logistics Practices Among Public University Students

Gayatry Vijayan A/P, Ku Farhan Ku Azami, Mohamad Fazrulikwan Mohd Jaafar, Thaqif Ilmam Bin Ibrahim & Abd Aziz Mat Hassan*

Faculty of Entrepreneurship and Business,
Universiti Malaysia Kelantan,
Malaysia

Email: abdaziz.mh@umk.edu.my

Abstract:

Green logistics is known as "green supply chain management," which can be defined as an operation by companies that take environmental concerns into account and incorporate them into supply chain management in order to modify the environmental efficiency of suppliers and consumers (Lee & Klassen, 2008). From the perspective of sustainable development, green logistics can be defined as "sustainable production and distribution of goods, taking into account environmental and social factors as well." The purpose of this research study is to examine the factors that affect green logistics practises among students' public universities. A theoretical framework comprised of various variables such as attitude, personal responsibilities, and beliefs was investigated to see how it influences the adoption of green logistics practises among students at public universities. This survey was performed by public university students using a quantitative analysis methodology, and 381 respondents participated in the study. The data collected were analysed using the Social Science Methodological Kit (SPSS). Based on the data obtained from the questionnaire sample, various types of data processing, such as descriptive, reliable, and Pearson correlation, are carried out. The findings reveal that the variables considered in the study have a high positive correlation with green logistics practises among public university students in Kelantan. According to the findings, personal responsibilities resources appear to have a significant impact on green logistics activities. The analysis also suggests implications and future research directions.

***Keywords**: green logistics, green logistics practices, attitude, personal responsibilities and beliefs.*

1 Introduction

Environmental issues have become major concerns all around the world, and companies are under constant pressure to implement environmentally responsible and friendly operations. As a consequence, interest in developing green logistics from enterprises, governments, and the general public is skyrocketing, especially since traditional logistics cannot meet the demands of modern civilization and have a substantial environmental impact. Depending on the form of transportation, there are extra technologically caused repercussions such as the emission of disease-causing air pollutants, the emission of chemicals that influence the environment, noise emissions, and traffic accidents that harm humans and animals. As a result, climate change might be one of the side effects of air pollution, which could lead to widespread and possibly fatal diseases. Much previous research has focused on the impact of environment on individual illnesses without finding obvious linkages to broader population health trends (Byass, 2009).

The definition of green logistics, also known as ecological logistics, is "identifying and mitigating the environmental effects of logistics." These activities are designed to examine the environmental impact of transportation by reducing energy and material use. Furthermore, the aims of green logistics differ, but in general, green logistics focuses on increasing and improving the usage of ecologically friendly technology, as well as lowering total items moved (Martinsen & Huge-Brodin, 2014). With the rise of green solutions, the logistics business has moved beyond the traditional logistical imperatives of efficiency, effectiveness, quick handling, and flow of products (Zailani et al., 2014). Environmentally conscious customers want the corporation to produce a product with minimal emissions, requiring suppliers to become green. To summarise, this environmental problem in the logistics business has remained a pipe dream in recent years, and implementing green logistics operations will be a daring move for public spaces. The primary goal of this research study is to investigate the factors that influence green logistics practises among public university students in order to create a more sustainable environment. Attitudes, personal responsibilities, and beliefs are three major factors that may influence public university students' adoption of green logistical practises.

1.1 Research Question

1. What is the relationship between attitudes affecting the green logistics practices among Public University students?
2. What is the relationship between personal responsibilities affecting the green logistics practices among Public University students?
3. What is the relationship between beliefs affecting the green logistics practices among Public University students?

1.2 Research Objectives

1. To identify the relationship between the attitude and green logistics practices among Public University students.
2. To identify the relationship between the personal responsibilities and green logistics practices among Public University students.
3. To identify the relationship between beliefs and green logistics practices among Public University students.

2 Literature Review

2.1 Green Logistics Practices

Green Logistics practises are becoming more important in logistics systems across the world. Green logistics practises inside firms, formerly regarded to be proactive activities, now have an influence on whole value chains and are required to do business. Businesses are under growing pressure to incorporate green practises into their value-creation operations. Green logistics practises (GLPs) are initiatives to carry and distribute environmentally friendly goods in a sustainable manner (Noorliza Karia, 2020). The focus of GLPs, according to Noorliza Karia (2020), is on the complete green physical distribution (inbound and outbound logistics), including greening in transportation, storage and inventory, order processing, materials handling, and packaging. Controlling the flow of environmentally friendly products and services from the point of consumption to environmentally friendly providers is part of this. These prevent logistics companies from inflicting environmental damage. The word "GLP" refers to a logistical system, transportation and distribution operations, environmental performance criteria, and measures to reduce environmental damage or negative environmental consequences. It is a kind of green delivery that may improve performance in the economy, environment, and society by lowering operational costs, saving energy, safeguarding the environment, and raising living standards. The GLP idea strives to spread environmentally friendly goods and products in a sustainable way with as little or no environmental effect as possible while taking social and economic aspects into consideration (Noorliza Karia, 2020).

2.2 Attitude

Attitude is a mental or neurological state of readiness that has been organised by experience and that leads or impacts how a person reacts to all relevant items and situations (Baker, 1992). Attitude is a simple and effective way to describe repeating behavioural patterns. According to Kendra Cherry (2019), experiences or upbringing typically impact opinions. Opinions may change despite their longevity. The attitude of a person is described as how they perceive and judge something or someone. It is also known as their proclivity to react positively or negatively to a given concept, item, person, or event. Vargas-Sánchez et al. (2016), divide it into three categories which are behavioural in actions or explicit intents toward the object based on "cognitive" and "emotional" responses, cognitive in perceptions and beliefs, and affective likes and dislikes, sensations, or provoked emotions. Attitudes are defined by psychologists as entrenched tendencies to perceive the world in various ways. This might include assessing individuals, situations, products, or even particular events. These assessments are either positive or negative; nevertheless, they may also be perplexing at times (Kendra Cherry, 2022).

Affective responses are distinct from attitudes in that they are not necessarily connected with a particular thing. The most crucial point to remember is that affect is typically a solid basis for attitudes. Furthermore, conceptualising attitudes as memories rather than judgements may exclude the literature on attitude development and change since these literatures often include the observation of judging outcomes rather than measurements of memory. As a result, attitudes may be either judgements or memories, or both. An attitude might alter significantly when seen as an evaluative judgement. To begin, some individuals have good attitudes, while others have negative views, and still others have neutral attitudes. Second, the intensity of sentiments varies. For example, one person's thoughts about the euro may be quite strong, but another's feelings about the same issue may be very weak.

2.3 Personal Responsibilities

Personal responsibility, according to Ruyter (2002), is being responsible for one's own needs as well as the wants and wellbeing of others. Personal responsibility is becoming increasingly popular in the fields of business, politics, law, and health. It is clear that many people are curious about why certain people seem unwilling to accept responsibility for their own acts. A perceived lack of individual personal responsibility is being blamed for an increasing number of societal issues, rekindling interest in personal accountability (Reeves, 2004). These rules are commonly used for personal rewards such as successes, plaudits, goal achievement, being more conscientious, enhancing quality of life, and so on. This personal potential will pervade every part of your life and reflect in your surroundings over time, having considerably more of an influence than you could have anticipated. When you take complete responsibility for your actions, choices, and ideas, among other things, you are demonstrating personal responsibility. Personal responsibility may also suggest that you are aware of and embrace the behavioural rules of society. Personal responsibility empowers you to influence your choices and your vision of reality. Individual responsibility is crucial because it helps you to properly organise your life and keeps your mental and physical health safe. Personal responsibility is shown in how you care for yourself.

2.4 Beliefs

Beliefs are significant because we believe them to be true, and they provide the basis for how we view and interact with the world (Halligan, 2006). Beliefs, or maybe more precisely, belief systems, offer the "mental framework" for assessing the environment, explaining new findings, and developing a shared view of the world (Halligan, 2007). As a result, beliefs may have significant emotional consequences. Beliefs serve as a basis for action in addition to representing the environment and providing a framework for aims and behaviour (Tullett et al., 2013). The definition of believe is the mental acceptance or conviction of the validity or reality of a concept (Schwitzgebel, 2010). According to Schwitzgebel, (2010), a belief is a "propositional attitude," which means it takes a position on the truth of a proposition. As a proposition, it has a specific meaning that may be embodied in a phrase. Thus, at least two components of beliefs are assumed validity and representational content (Stephens and Graham, 2004). As a consequence, beliefs contain fundamental convictions about ideas that people use and take for granted, such as causes, agents, events, and objects. Beliefs are typically used to refer to unchanging ontological representations of the cosmos (Connors & Halligan, 2015). This is similar to Stern's (2000) prior study, which revealed that belief influences environmental behaviour. As a consequence, it has been shown that strong environmental beliefs are required for pupils to govern their behaviour toward the environment. Based on interviews with people in the United States and the Netherlands, Alexander and Dochy (1995) propose a definition of beliefs. People perceive beliefs as part of a level of perception rather than as knowledge or a solid reality, according to the research. Brown and Coney's difference between beliefs and knowledge is supported by these results.

2.5 Hypotheses Statement

H1: There is a positive relationship between the attitude and green logistics practises among public university students in Kelantan.

H2: There is a positive relationship between personal responsibilities and green logistics practises among public university students in Kelantan.

H3: There is a positive relationship between beliefs and green logistics practises among public university students in Kelantan.

2.6 Conceptual Framework

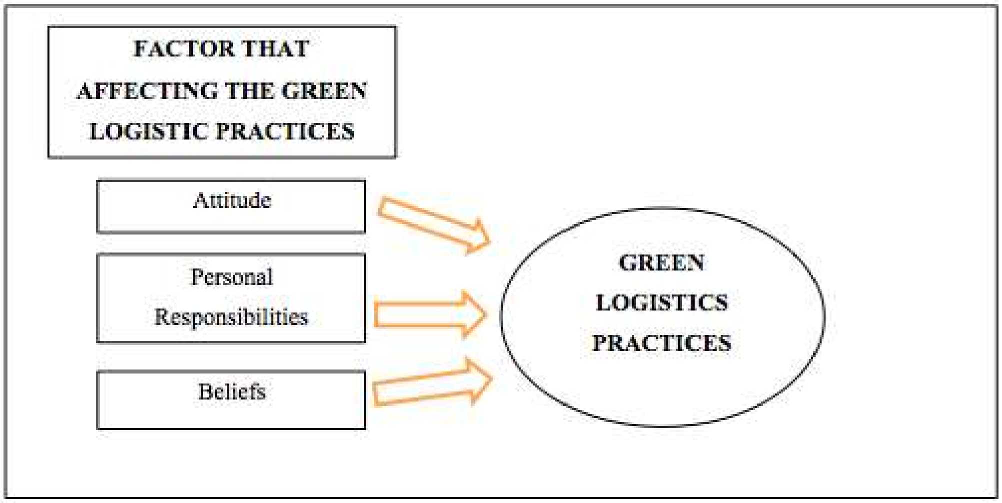


Figure 1: Conceptual Framework of the study

A study framework was established based on the literature evaluation to explore the link between the factor that impacts green logistics practises and green logistics practises among public university students in Kelantan. Figure 1 depicts the suggested conceptual framework. Attitude, personal responsibility, and beliefs are among the suggested independent components. The dependent variable is green logistics practises among Kelantan public university students.

3 Research Methodology

3.1 Research and Design

The word "research design" refers to the entire method to doing research that develops a clear and logical plan to answer a planned research topic via data collection, interpretation, analysis, and presentation. A research design is a strategy plan that explains how a study will go from the research objective or questions through the results. It is a meticulous planning technique used to gather and analyse data in order to have a better understanding of a certain topic. The goal of this research was to find out what variables impact green logistics practises among Kelantan public university students. The researcher employed the quantitative technique since the empirical evaluation comprises of numerical measurement and analysis. Online surveys were used to acquire primary data. The data gathered will aid the researchers in determining the relationship between attitude, personal responsibilities, and beliefs with the factors that affect green logistic practises among Public University students in Kelantan via this research design, which entails the process of developing and organising research designs.

3.2 Data Collection Methods

The techniques used to gather data have a significant influence on how they are maintained and, ultimately, how the study is conducted (Wilcox et al., 2012). Researchers employed two kinds of data gathering approaches in this study: primary data collection and secondary data collection. The major data gathering approach included both solicited and spontaneous data. A stimulus, such as a survey question or an open inquiry, is used by the researcher to elicit information from the study subject (Hox & Boeije, 2005). In this study, researchers are collecting data from public university students in Kelantan using online surveys.
Secondary data collecting techniques rely on data acquired previously by another researcher or for reasons other than study, such as official statistics, administrative records, or other accounts maintained on a regular basis by organisations (Hox & Boeije, 2005). The researchers in this study rely on primary data.

3.3 Study Population

The population of a nation or territory is the total number of people or residents. The study population is the group of study participants. The study's target demographic is students at Kelantan's public universities. According to the Ministry of Higher Education 2021, there are 52,901 public students in Kelantan. Since a result, providing an online questionnaire using Google Form is critical, as it allows the researcher to easily share the link with the student. Furthermore, the researcher has enough students at the public institution to do the study.

3.4 Sample Size

The population variable is referred to by the sample. The sample participant is the subject, and the sample scale is the total number of individuals in the sample. According to Krejcie and Morgan (1970), the researcher will calculate sample size using the population estimating approach presented in Table 3.1. As the population rises, so does the sample size. The sample size will continue to shrink, eventually remaining steady at 384 or slightly more. The most essential elements in selecting sample size are the quality of the analysis and the projected result prior to the commencement of the investigation. The choice is distinct from the statistical analysis of the analysis, which is performed using either the confidence interval approach, similar to estimate, or the significance assessment method. As a consequence of Krejcie and Morgan's sample size determination, 381 respondents were included as a sample in this research. Students' availability would make it simpler for researchers to gather information and create hypotheses. The presence of a large number of students would aid researchers in gathering information and developing a hypothesis for this study based on the details of the participants.

N	S	N	S	N	S
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note.—N is population size.
S is sample size.

Figure 3.1: sample size determination

3.5 Sampling Techniques

The sampling approach is divided into two parts: chance sampling and non-probability sampling. Because it is simpler for the researcher, simple random sampling was utilised to obtain data. Convenience sampling employs non-probability sampling. Convenience sampling collects information from respondents who are easily accessible to the researcher (Etikan, Musa, & Alkassim, 2016). A sample picked at random is referred to as "basic random sampling" or "randomly chosen sample" by the researcher. To eliminate bias and other undesired consequences, a basic random sample is utilised. The researcher must ensure that the results are really random. It is a method in which each element in a population has the same function and is chosen as a sample.

3.6 Research Instrument Development

The researcher collects data for this study by utilising online questionnaires as tools. A questionnaire is one of the research tools used to assist the researcher obtain information from respondents (Bhat, 2020). In quantitative research, questionnaires are the most effective and convenient way to gather information or data. Questionnaires should make it clear where the information collected will be utilised for research purposes. Depending on the nature of the research, many methods of measurement, such as a case study, survey, or questionnaire, might be employed by researchers for their study (Umoh, 2019).

The questionnaires are divided into three sections: Section A, Section B, and Section C. Section A spoke on demographic segmentation. A demographic profile is a market segment based on the age, gender, religion, race, and education of the responder (Kaushik, 2015). Section B concentrated on all of the independent variables, which included the researchers' personal duties, attitudes, and beliefs in this study. Section C also covered the dependent variable, which is the variables influencing green logistics practises among Kelantan public university students.
Each of the scale items was rated from number 1 with the vocal remark "strongly disagree" to numeral 5 with the verbal statement "strongly agree." The study observed

that interpreting the whole array of scale descriptors on a 5-point scale is relatively simple (Dawes, 2008). Aside from the seven or eleven-point scales, another research offered a five-point scale to improve data quality (Revilla, Saris, & Krosnick, 2014).

Table 3.2: Likert Scale in Questionnaire of the Research

1	2	3	4	5
Strongly Disagree (SD)	Disagree (D)	Neutral (N)	Agree (A)	Strongly Agree (SA)

A questionnaire was created using instruments created by Kaushik, Agrawal, & Rahman (2015), Abd Rahman, N., Halim, L., & Ahmad, A. R. (2014) and Vienažindienė, M., Tamulienė, V., & Zaleckienė, J. (2021). There is a division of the questionnaire into sections A, B, and C. In response to research goals, three components were generated in the data instrument. In table 3.2, all the elements are simplified and further clarified in the corresponding section.

Table 3.3 Shows Questionnaire Composition

SECTION	DIMENSION	NUMBER OF ITEMS	SOURCES
SECTION A	DEMOGRAPIC PROFILE	8	Kaushik, Agrawal & Rahman (2015)
		Factors of affecting green logistics practices	
SECTION B	Independent variable Personal responsibilities	5	Abd Rahman, N., Halim, L., & Ahmad, A. R. (2014)
	Attitude	5	Abd Rahman, N., Halim, L., & Ahmad, A. R. (2014)
	Beliefs	5	Abd Rahman, N., Halim, L., & Ahmad, A. R. (2014)
SECTION C	**Dependent variable** Green logistics practices among public students in Kelantan.	5	Vienažindienė, M., Tamulienė, V., & Zaleckienė, J. (2021)

3.7 Measurement Of The Variables

Variable measurement, also known as scales of measurement, is a technique used by researchers to assess how accurately variables are recorded (Pritha Bhandari, 2020). There are four measuring scales: nominal, ordinal, interval, and ratio. The different levels limit the types of inferential statistics that a researcher may run on their data to validate or refute their hypothesis, as well as the descriptive statistics that can be used to get a basic picture of the data (Pritha Bhandari, 2020).
In this research, the nominal and ordinal scales (Likert-scale) for the questionnaire were employed. The surveys were split into five (5) sections: Section A contains the respondents' demographic profile, Section B contains questions about independent factors, and Section C contains questions about dependent variables.

13.1.1 3.7.1 Nominal Scales

Nominal data inside a variable is labelled using mutually exclusive categories. These categories cannot be grouped in a logical manner. The nominal level of data is the most precise and complicated. Because "nominal" implies "in name," this sort of data can only be labelled. It lacks a rank order, regular number spacing, and a true zero value. Questionnaires using nominal scales will be utilised in Section A of this research to ask respondents about their demographic profile, such as gender, age, race, education level, and which public institution they attended.

13.1.2 3.7.2 Ordinal Scales

Ordinal data, according to Pritha Bhandari (2020), is categorised inside a variable into categories with a natural rank order. Distances between categories, on the other hand, are inconsistent or imprecise. Ordinal variables in social science research usually comprise assessments of views or impressions, as well as categorised or bracketed demographic data such as social position or income. Likert scales are often employed in the social sciences to gather ordinal data. Likert scales are made up of four or more Likert-type questions with a range of answer alternatives for responders to choose from (Pritha Bhandari, 2020). Sections B and C will use ordinal scales. We also utilised the amount of agreement to assess respondents' comprehension of green logistics practises and the variables that influence them.

Table 3.4 Likert Scale

Level of agreement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Scale	1	2	3	4	5

3.8 Procedure For The Variables

Statistical analysis is the process of collecting and analysing data in order to identify trends and patterns and influence decision-making (Bender, 2014). Statistical analysis must be rigorously organised from the start of the research process in order to achieve reliable findings. Following the collection of sample data, the researcher may organise and summarise the data using descriptive statistics. They may then utilise inferential statistics to explicitly test hypotheses and estimate population sizes. Finally, analyse and generalise the findings.
The data collected in this study was analysed using the Statistical Package for Social Science (SPSS), descriptive analysis, reliability analysis, and Pearson correlation.

3.8.1 Social Science Statistical Package (SPSS)

The SPSS Statistics software programme may be used to conduct statistical analyses. The initial version of the software, created by Norman H. Nie, Dale H. Bent, and C. Hadlai Hull, was sold as the Statistical Package for the Social Sciences (SPSS) and made accessible to the public in 1968. (Bala J., 2016).

According to Jyoti Bala (2016), the researcher gathers as much evidence as feasible throughout the research process in order to get an accurate and clear conclusion. Because analysing a significant quantity of data is undoubtedly a crucial activity, software is often employed to analyse the obtained data. The researcher will utilise this programme to get the most accurate data discovery findings possible.

3.8.2 Reliability Analysis

A measuring method's dependability reveals how regularly it measures something. When the same process is done on the same sample under the same circumstances, the results should be the same. If this is not the case, the measuring technique may be unreliable.
According to Chua Yan Piaw (2013), the researcher might use the Cronbach's alpha internal consistency technique since it is the best index score for assessing the correlation value between test item scores and the total score of all test items. Cronbach's alpha reliability will be measured by an alpha value between 0.65 and 0.95, which is appropriate since a low alpha coefficient is 0.65 or less than 0.65. (Chua Yan Piaw, 2013).

Table 3.5 Cronbach's Alpha

Cronbach's Alpha	**Internal Consistency**
$\alpha \geq 0.9$	Excellent
$0.9 \geq \alpha \geq 0.8$	Good
$0.8 \geq \alpha \geq 0.7$	Acceptable
$0.7 \geq \alpha \geq 0.6$	Questionable
$0.6 \geq \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

3.8.3 Descriptive Analysis

According to Pritha Bhandari (2020), descriptive statistics characterise a dataset. A data set comprises responses or observations from a sampling or population-wide sample. The first step in quantitative research statistical analysis is to define the answers, such as the average of one variable, such as age, or the connection between two variables, such as age and creativity. The descriptive analysis will assist the researcher in conducting and comprehending all of the variables in the demographic section by using mean, median, and mode for the variables in this study.

3.8.4 Pearson Correlation

The Pearson correlation coefficient, sometimes known as r, is the most commonly used metric for assessing the strength of a linear association. The coefficient of determination is a number between -1 and 1 that is used to assess both the intensity and direction of the relationship between two variables (Turney, 2022). The Pearson correlation coefficient, according to Shaun Turney (2022), is an example of a descriptive statistic, which implies that it offers a brief overview of the qualities of a dataset. It characterises the strength of a linear connection between two quantitative variables as well as the direction of that relationship. Pearson's correlation coefficient is an inferential statistic that aids in the testing of hypotheses. The researcher may investigate if two factors are linked.

Table 3.6: Pearson Correlation Coefficient value (r)

Correlation Coefficient	**Strength Relationship**
1	Perfect
$0.7 < r < 1$ or $-0.7 < r < 1$	Strong
$0.3 < r < 0.7$ or $-0.3 < r < 0.7$	Moderate
$0 < r < 0.3$ or $0 < r < -0.3$	Weak
0	Zero

4 Data Analysis and Discussion

4.1 Reliability Test

Table 4.6: Results on reliability Cronbach's alpha for the variables

Variables	**Number of items**	**Cronbach's alpha before item deletion**	**Number of items after item deleted**	**Cronbach's alpha after item deletion**
Attitude	5	0.711	5	0.711
Personal responsibilities	5	0.843	5	0.843
Beliefs	5	0.710	5	0.710
Green logistics practices	5	0.849	5	0.849

Table 4.6 reveals that the questionnaire's Cronbach's Alpha values were above the acceptable level (i.e., 0.70), with values ranging from 0.750 to 0.856. The first independent variable is attitude found to be statistically reliable (5 items: a = 0.711). The second variable, which is personal responsibilities, showed good reliability (5

items: a = 0.843). The third independent variable, which is beliefs, showed acceptable reliability (5 items; a = 0.710), and the dependent variable, which is the green logistics practices, was found to be good reliable (5 items; a = 0.849). The items in the data were unchanged as the Cronbach's Alpha value was considered suitable enough for further analysis.

4.2 Descriptive Analysis

Descriptive analysis refers to the conversion of raw data into a form that will make it easy to understand and interpret such as rearranging, ordering, and manipulating data to provide insightful information about the provided data. Descriptive Analysis is the type of analysis data that helps describe, show or summarize data points in a constructive way such that patterns might emerge that fulfill every condition of the data. It measures of central tendency include the mean, median, and mode while measures of variability include standard deviation, variance, minimum and maximum variables.

4.2.1 Attitude (Independent Variable)

Table 4.13: Attitude of The Respondents

Descriptive Statistics

	N	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
I use products with a lower environmental impact. (e.g., biodegradable products, recycled or reduced packaging)	381	1	5	4.58	.776
I'm so satisfied with using green products	381	1	5	4.65	.722
I get a lot of benefits from green products from an individual and community perspective.	381	1	5	4.65	.717
I encourage my friends to support companies which manufacture green products and use sustainable packaging	381	1	5	4.66	.691
I prefer public transport/carpooling because it reduces traffic congestion and reduces harmful pollutants emissions	381	1	5	4.69	.660
Valid N (listwise)	381				

Based on the table 4.7 above, the highest mean question is “I prefer public transport/carpooling because it reduces traffic congestion and reduces harmful pollutants emissions” which its mean is 4.69. The lowest mean indicates 4.58 which is “I use products with a lower environmental impact. (e.g., biodegradable products, recycled or reduced packaging)”.

4.2.2 Personal Responsibilities (independent variable II)

Table 4.14: Personal Responsibilities of The Respondents

Descriptive Statistics

	N	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**

I actively participate in the go gree n program or green logistics practices.	381	1	5	4.49	.851
I usually post or share about the green environment on social media.	381	1	5	4.44	.903
I share knowledge about green logistics with each other's.	381	1	5	4.54	.872
I support manufacturing companies or shipping businesses that use sustainable packaging.	381	1	5	4.63	.712
I participated in earth hour by switching off lights for an hour once a week.	381	1	5	4.60	.801
Valid N (listwise)	381				

Based on the table above, respondents have strongly agreed that "I support manufacturing companies or shipping businesses that use sustainable packaging." showing it has the highest mean than the others which is 4.63. Then, the lowest mean is "I usually post or share about the green environment on social media." which is 4.44.

4.2.3 Beliefs (Independent Variable III)

Table 4.15: Beliefs of The Respondents

Descriptive Statistics	**N**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
As a student, do you believe GLP can make a difference in sustainable development?	381	1	5	4.60	.725
Do you believe that the forest is guarded by the spirits and gods of the environment, so we have no right to destroy the environment?	381	1	5	4.51	.936
As a student, can using green modes of transportation decrease the demand for fuel and gasoline?	381	1	5	4.63	.719
Can this GLP bring awareness to the public and organizations?	381	1	5	4.62	.679
Will implementing GLP for students bring a better future and help minimize waste and gas emissions?	381	1	5	4.62	.687
Valid N (listwise)	381				

According to the table, the highest mean is 4.63 which is "As a student, can using green modes of transportation decrease the demand for fuel and gasoline?" showing that most of the respondents agreed to the question. Meanwhile, the lowest mean is "Do you believe that the forest is guarded by the spirits and gods of the environment, so we have no right to destroy the environment?" indicate the mean is 4.51.

4.2.4 Intention to Adopt Green Logistics Practices (Dependent Variables)

Table 4.16: Intention to Adopt Green Logistics Practices

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Our university intends to adopt green logistics practices.	381	1	5	4.59	.751
Our university management provides financial support for developing green practices.	381	1	5	4.56	.785
Our university welcomes students who are genuinely interested in green logistics.	381	1	5	4.63	.738
Our public university encourages postgraduate/undergraduate students to propose green logistics practices.	381	1	5	4.61	.704
Our university would highly recommend green logistics practices for students to adopt.	381	1	5	4.65	.709
Valid N (listwise)	381				

Based on the table, the highest mean is 4.65 showing the majority is agreed to "Our university would highly recommend green logistics practices for students to adopt." Next, the lowest mean is 4.56 which it has the lowest agreed which is "Our university management provides financial support for developing green practices".

4.3 Pearson Correlation

The Pearson Correlation is the most often used statistical phrase to describe correlation. The full name of the statistic is Pearson Product Moment Correlation (PPMC). It depicts the linear relationship between two sets of data. The strength and direction of the relationship between two variables are indicated as numbers ranging from -1 to 1. As the first variable changes, the secondary variable follows it. The Pearson correlation method is the most often used methodology for assessing numerical variables. It gives a value between 0 and 1, with 1 signifying entire positive correlation and 0 denoting total negative correlation. A correlation value of 0.7 between two variables indicates a considerable and favourable link between them, according to the following explanation. A positive correlation indicates that if variable A rises, variable B rises as well, while a negative correlation suggests that if A rises, variable B falls.

Table 4.17: Pearson Correlation

Correlations

		Attitude	Personal Responsibilities	Beliefs	Green Logistics Practices
Attitude	Pearson Correlation	1	.758**	.846**	.785**
	Sig. (2-tailed)		.000	.000	.000
	N	381	381	381	381
	Pearson Correlation	.758**	1	.833**	.712**

Personal Responsibilities	Sig. (2-tailed)	.000		.000	.000
	N	381	381	381	381
Beliefs	Pearson Correlation	.846**	.833**	1	.773**
	Sig. (2-tailed)	.000	.000		.000
	N	381	381	381	381
Green Logistics Practices	Pearson Correlation	.785**	.712**	.773**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	381	381	381	381

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

According to the table, the correlation between the independent variable and the dependent variable is 0.000 which is significant at the 0.001 level. Therefore, we can reject the null hypothesis because the p-value is less than α= 0.05. While the Pearson Correlation Coefficient value for attitude, personal responsibilities and beliefs is 0.785, 0.712 and 0.773 respectively.

4.4 Hypothesis Testing

A statistical hypothesis test is a technique for determining if the available data are sufficient to support a specific hypothesis. We can make probabilistic claims regarding population parameters through hypothesis testing. In statistics, hypothesis testing is the process by which an analyst verifies an assumption about a population parameter. The analyst's approach is determined by the type of the data and the purpose of the study. The relationship of hypothesis testing can be determined between independent variables (Attitude, Personal Responsibilities and Beliefs) with the dependent variables (Green Logistics Practices). The hypothesis testing result is shown at the table below

Table 4.18: Hypothesis Testing

Hypothesis		Direction	Significant	R-value
H1	There is a positive relationship between the attitude and green logistics practices among public university students in Kelantan.	Has a relationship	0.000	0.785
H2	There is a positive relationship between personal responsibilities and green logistics practices among public university students in Kelantan.	Has a relationship	0.000	0.712
H3	There is a positive relationship between beliefs and green logistics practices among public university students in Kelantan.	Has a relationship	0.000	0.773

5 Conclusion and Recommendation

5.1 Implication of the Study

The purpose of this research was to better understand the variables that influence green logistics practises among public university students. The findings of this research have ramifications for attitudes, personal duties, and beliefs.

Attitudes have an impact on green logistical methods; for example, public university students choose public transportation or carpooling to contribute to environmental sustainability. Furthermore, personal obligations play a part in logistical practises among Kelantan public university students. Personal duties such as assisting a manufacturing firm in using sustainable packaging such as eco-friendly packaging such as biodegradable forms of packaging would increase the student's obligation to maintain a sustainable environment surrounding colleges. Following that, beliefs are part of the research, and most students believe that utilising a green mode of transportation may reduce the need for fuel and gasoline since carbon monoxide emissions are minimal. For example, choosing a green mode of transportation, such as carpooling, may reduce demand for fuel and gasoline since consumption is low.

Green logistics adoption will also minimise carbon in the supply chain, as well as carbon emissions and waste management in the supply chain. As a result, implementing green logistical methods among public university students in Kelantan is critical to preserving the environment for the future. One of the key causes for green logistics practises among Kelantan public university students is the air pollution surrounding the institution. If the air quality surrounding the universities is poor, students get more stressed in college, making it difficult for them to concentrate during their own revision, implying that the better the air quality around the universities, the more productive and focused students will be in their studies.

5.2 Limitations of the Study

These are some of the constraints discovered throughout this research. The study's primary goal was to investigate the relationship between attitude and green logistics practises among public university students, as well as the relationship between personal responsibilities and green logistics practises among public university students and the relationship between beliefs and green logistics practises among public university students. Only three independent factors were examined in this study: attitude, personal responsibility, and assumptions. As a result, it limits the researchers' capacity to investigate other issues.

Furthermore, the location of this study is a constraint. This survey was done among public university students in Kelantan using social networking sites. As a consequence, the findings must be more credible and relevant in order to represent general feedback on variables influencing green logistics practises among Kelantan public university students. Since a consequence, the researcher could only depend on a certain objective size and geographic area to a limited extent, as this may result in a more significant effect.

In contrast, the third constraint is that, although this research achieved its objectives, it also had certain unavoidable limits. Krejcie and Morgan's table was used to calculate the sample size of the responder based on the entire population in order to collect data through questionnaire. Data processing has taken between 1 and 2 months since then. More time is needed to complete this research since data collecting takes a long period. Respondents may misread questionnaire statements because they need extra interpretation and clarification. Furthermore, since our target respondents are exclusively public university students in Kelantan, the limited size of the target population is another constraint of our study.

Finally, the core data for the research was gathered using an online questionnaire. The researchers were unable to accurately establish the respondents' identities while completing the questionnaire using this approach. The responders interpreted the question in different ways and responded accordingly. What some respondents deem "neutral" may be considered "agree" or "disagree" by others. As a result, there may be prejudice and subjectivity that is not recognised.

5.3 Recommendation/Suggestion for Future Study

5.3.1 Theoretical recommendations for future research

This study looked at institutional theory in relation to "factors influencing green logistics practises among public university students in Kelantan." This study found that institutional theory characteristics such as attitude, personal duties, and beliefs are highly connected with green logistics practises (a dependent variable) and have a strong positive correlation connection. Pearson's coefficient of correlation (r-value) is 0.805, respectively. In terms of suggestions, public universities should consider the study's conclusions and be worried about these determining elements. The findings of this research may be useful in their decision-making process. The research contributes to understanding how the theory encourages public university students to handle environmental concerns as a result of external constraints. As a result, institutional theory has emerged as a prominent study field for explaining environmental behaviours. Furthermore, it is suggested to explore and investigate another study framework that would inspire students to embrace green logistics techniques in their working settings. Natural resource-based view (RBV) theories and resource-based view theories (N-RBV) with distinct variables from institutional factors, for example, may impact comparable dependents at the same time. According to the RBV, personal environmental responsibility or healthy development may optimise long-term competitive advantage when its resources are uncommon, unique, precious, non-substitutable, and non-tradable (Barney, 2001).

5.3.2 Future research methodology suggestions

First, the prospective researcher is advised to enhance the sample size and population in order to get a more trustworthy and representative study outcome. Only Kelantan public university students participated in the study. It is suggested that prospective researchers do relevant studies in diverse industries or states, since this would result in a varied result. Furthermore, the number of respondents for future research might be raised to improve data accuracy. Prospective researchers must invest more time to gathering and analysing data in order to acquire a credible result from a larger number of replies.

Future studies may obtain a better knowledge of the elements that influence green logistics practises among Kelantan public university students. Furthermore, future studies should begin using quantitative analytic approaches. Interviews with respondents allow the researcher to learn about the elements that influence green logistics practises. The use of a quantitative method may provide different perspectives on the relationship between factors influencing green logistics practise adoption among public university students.

5.3.3 Practical research suggestions for the future

The first practical suggestion is that future studies learn how far students' opinions toward green logistics techniques have evolved. This is the most important instrument for communicating the message of environmental sustainability. To expand and succeed with environmental movements, first boost the level of education by making people literate. Otherwise, in poor countries, literacy and education will be impediments to the adoption of green goods.

Furthermore, the study advises that green ads should enhance customer awareness and understanding, and then convert this information into buying green goods. As a result, green advertising benefits the facilitators at the highest levels. Eco-labelling will increase customer trust and foster a good attitude toward green items.

Furthermore, the researcher suggests that consumers should be willing to change their eCommerce purchasing habits as an incentive to help reduce their environmental impact. Because consumer awareness increases their sensitivity to and comprehension of cultural values regarding environmental protection, environmentally conscious consumers can also spread environmental sustainability knowledge to their peer groups.

6 Acknowledgement

First and foremost, we would like to express our heartfelt gratitude to everyone who assisted us in completing this final year project. We are extremely grateful to our supervisor, who has always assisted us in improving, providing advisors, and providing extensive supervision for us to complete this research project. We learned so much new information, and we are grateful to our lecturer for sharing so much information about our research topic as the research progressed. Next, we would like to dedicate our gratitude to the University Malaysia Kelantan, particularly the Faculty of Entrepreneurship and Business (FPK), for providing us with the opportunity to conduct this research in order to complete our studies and graduate soon. Further to that, we would like to express our gratitude to our group members, who have always been dedicated to making this research project a success, no matter how difficult it has been. Without their assistance, we would not have been able to complete this research project in the allotted time. Last but not least, a heartfelt thank you to our adored family for their financial support as well as for standing by our side and encouraging us in our studies.

7 References

Baker, C. (1992). *Attitude and Language*. Multilingual Matters.

Bell, V., Halligan, P. W., & Ellis, H. D. (2006). Explaining delusions: A cognitive perspective. *Trends in Cognitive Sciences*, *10*(5), 219-226.

Bunkar, A. R., & Bhatt, D. D. (2020). undefined. *DESIDOC Journal of Library & Information Technology*, *40*(03), 139-146.

Byass, P. (2009). Climate change and population health in Africa: Where are the scientists? *Global Health Action*, *2*(1), 2065.

Dawes , J. (2008). Do data characteristies change according to the number of scale points used? An experiment using 5-point, 7-point and 10-point scales International journal of market research, 50(1). 61-104

Etikan, I. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, *5*(1), 1.

Hox, J. J., & Boeije, H. R. (2005). Data collection, primary versus secondary.

Karia, N. (2020). Green logistics practices and sustainable business model. *Handbook of Research on the Applications of International Transportation and Logistics for World Trade*, 354-366.

Kaushik, A.K., Agrawal, A. K., & Rahman, Z. (2015). Tourist behaviour towards self-service hotel technology adoption: Trust and subjeetive norm as key antecedents. Tourism Management Perspectives, 16, 278-289

Kendra Cherry. (2019). The Big Five personality traits and human values. *Personality, Values, Culture*, 25-46.

Martinsen, U., & Huge-Brodin, M. (2014). Environmental practices as offerings and requirements on the logistics market. *Logistics Research*, *7*(1).

Pritha Bhandari. (2020). https://www.scribbr.com/author/pritha/. Scribbr

Reeves, D. (2004). Planning for diversity. https://doi.org/10.4324/9780203506523

Ruyter, D. D. (2002). undefined. *Educational Philosophy and Theory*, *34*(1), 25-35.

Stern, P. C. (2000). undefined. *Journal of Social Issues*, *56*(3), 407-424.

Tullett, A. M., Prentice, M. S., Teper, R., Nash, K. A., Inzlicht, M., & McGregor, I. (2013). *Neural and motivational mechanics of meaning and threat*. American Psychological Association.

Vargas-Sánchez, A., Plaza-Mejía, M. Á., & Porras-Bueno, N. (2016). undefined. *Encyclopedia of Tourism*, 58-62

Wilcox, A. B., Gallagher, K. D., Boden-Albala, B., & Bakken, S. R. (2012). undefined. *Medical Care*, *50*, S68-S73.

Zailani, S., Iranmanesh, M., Nikbin, D., & Jumadi, H. B. (2014). Determinants and environmental outcome of green technology innovation adoption in the transportation industry in Malaysia. *Asian Journal of Technology Innovation*, *22*(2), 286-301.

Factors of High-Level Logistics Services to Improve Customer Satisfaction

Danesh A/P Solleyappan, Tiu Hui Sing, Prakassraj Santhanathas, Amirul Zakwan Hariz Arman & Abd Aziz Mat Hassan*

Faculty of Entrepreneurship and Business,
Universiti Malaysia Kelantan,
Malaysia

Email: abdaziz.mh@umk.edu.my

Abstract:
This study's goal is to learn more about the connections between high-level logistical service characteristics and customer satisfaction in Kelantan. Factors of high-level logistic service are one of the most significant determinants of customer happiness. In this topic of study, several researchers are looking for the elements of high-level logistic service (innovation capability, customer demand management capability, and information management capability) that have an influence on customer satisfaction. The research provided in this article is focused on the link between customer happiness at Kelantan and proclaimed elements of high-quality logistic service, which, according to the authors, provides value to research in the area of customer satisfaction in logistics. In order to improve customer satisfaction in Kelantan, the article addresses the problem of identifying the elements of high-level logistic service that are essential. This research will look at three aspects of high-level logistic service, specifically innovation capability, customer demand management capability, and information management capability, all of which will boost customer satisfaction in Kelantan. There will be an online survey. The residents of Kelantan will be the population this survey targets. Our team will conduct a study with 260 participants, and questionnaires will be sent to the intended sample size using an online social media platform. To accomplish the study goal in this work, we will make use of a pilot test, frequency analysis, descriptive analysis, reliability analysis, normalcy test, and Pearson's Correlation Coefficient analysis.

Keywords*: Customer satisfaction, innovation capability, customer demand management capability and iinformation management capability.*

1 Introduction

1.1 Background of the Study

Logistics supply chains transport and store goods. Starting with raw materials, the process continues via manufacture, distribution, and delivery to consumers or to their original site. Supply chain management plans and manages logistical activities in factories, distribution centers, and other facilities (Mentzer et al., 2001). Supply chain management involves making finished products from raw resources and shipping them to consumers. Supply chain management streamlines supply chain processes, which benefits customers and partners (Mentzer et al., 2001). Supply chain management involves managing a large number of suppliers, manufacturers, wholesalers, distributors, retailers, producers, and sub-suppliers (such as raw material suppliers).

Many supply chain participants have different relationships. Supply chain management improves distribution to provide completed products and services to clients on time (Cardona-Valdés et al., 2011). This aim is attained by making completed items accessible at the right time and place in the right amount. Customer happiness and service improve sales and profitability. Supply Chain AI momentum. Supply chain AI is helping provide powerful ideal solution capabilities for more exact production scheduling, increased performance, high quality, lower costs, output vector, and safer working surroundings. Technology is replacing human resources and improving operations under Revolution 4.0. Customers want logistics efficiency and effectiveness, particularly in logistics operations, due to life's fast pace.

The customer satisfaction as the percentage of customers whose reported experiences with a firm, its products, or its services exceed established satisfaction standards. This study examines how high-level logistics services affect customer satisfaction in Kota Bharu. According to (Bowersox et al., 2008), logistics services may save costs and provide companies a competitive advantage by improving customer satisfaction. Logistics underpins global trade and economic prosperity. The logistics sector's significance to Malaysia's economy is well known. Logistics is crucial to Malaysia's economy since it enables international commerce. The industry is so important that in November 2013, when announcing the 2014 budget, Prime Minister Datuk Seri Najib Tun Razak promised to develop a master plan for the logistics industry to improve the country's logistics operations from its 2012 ranking of 29th in the World Bank Logistics Performance Index Report. Logistics firms will benefit from this. Smooth service department operations will increase customer satisfaction and retention, or the chance that customers will keep buying from the firm. Quality underpins the service industry's tremendous expansion (Balachandran & Radhakrishnan, 2005). Given this, it is safe to say that one of the most important current logistics business success guarantors is the quality of the provided services, especially since a service is an impalpable act or process (Chen et al., 2009) that is closely related to meeting clients' needs.

Under Revolution 4.0, technology is replacing humans and improving efficiency. Due of life's fast pace, customers demanded better logistics, especially reverse logistics. Customer wants to return damaged goods quickly and cheaply. Internet buyers lack the expertise to return products. Logistics manages a supply chain's product and service flow and storage. Logistics moves information together with commodities and services. The environment's instability and unpredictability in requirements make consumer fulfillment difficult. Retailers must satisfy client requests for fast, cost-effective delivery. Logistics is crucial for retail organizations to ensure product flow, timely delivery, and inventory availability. If things are late or prices increase, customers will leave and shop elsewhere. To please consumers and boost profits, a company's performance must be top-notch. Businesses also struggle to gain loyal customers. Client satisfaction and excellent services are vital for customer retention. A delighted customer will buy or use the company's services. Loyalty isn't necessarily based on satisfaction. A customer may be satisfied until a better-priced, higher-quality service arrives. Clients may like a company but not a service, and vice versa.

Additionally, information is scarce. Product return information is scarce on internet retailers like Facebook and YouTube. Due to a lack of product return information, online consumers can't return faulty items. Further studies said that social media buyers cannot access the return policy since online shops did not provide it. Logistic companies need high-level logistic service elements, and logistic students should learn them for future usage. This research will analyse high-level logistics service characteristics and customer satisfaction.

1.2 Research Objectives

The main objective of this research is to study the relationship between factors of high-level logistics services to improve customer satisfaction:

i. To examine the relationship between the innovation capability and customer satisfaction?

ii. To examine the relationship between the customer demand management capability and customer satisfaction?

iii. To examine the relationship between the information management capability and customer satisfaction?

2 Literature Review

2.1 Previous Studies

Scientific research requires past study. Since they are valued, every researcher and student worries about it. Previous studies address the subject the researcher is studying. When researching a topic, a researcher must revisit previous studies, evaluate them, and compare them to their own.

2.1.1 Customer Satisfaction

Customer satisfaction measures a company's customers' happiness with its products and services. Surveys and reviews may inform product and service development. Companies must put customers first. This list includes manufacturing, retail, wholesale, government, service, charity, and internal committees. Companies shouldn't assume they know consumers' wants. To hear customers, employ consumer surveys, focus groups, and polling. Client preferences may help organizations improve service. Why happy consumers matter. Client happiness strongly predicts target audience approval. High customer satisfaction increases brand loyalty, lifetime value, and favourable word-of-mouth. Service quality and customer satisfaction have been studied recently (Rasidah & Bohari, 2014). These studies have improved our understanding of service quality's dimensional approach. Customer happiness and brand loyalty depend on service quality. Service quality predicts customer satisfaction, according to many experts. One research indicated that customer satisfaction affects loyalty more than service quality. Customer loyalty may need more than service satisfaction.

2.1.2 Innovation capability

Most manufacturers and retailers now value innovative abilities. It is found that firms can only adapt and grab possibilities via innovation. Transportation and logistics services are vital in Malaysia, particularly for small and medium-sized companies that deliberately steer their goods into niche markets. In today's competitive logistics service market, new talents are essential. Learning-by-doing may help logistics service providers improve their core expertise, making it difficult for competitors to replicate and buy. It is also listed service provision and innovation capability as the logistics industry's primary future issues. Price, dependability, adaptability, on-time transshipment, accurate distribution, damage to delivering, delivery speed, decreased time delivery, and regeneration for new and improved services are used to assess logistics providers. Thus, logistics abilities depend most on innovation. Response to requests on a timely, acceptable day and location, help to clients in addressing newly appearing difficulties, and correct information that shows logistics businesses' creative skills compared to their competitors. Logistics companies must provide good service regardless of location or personnel (Bolton et al., 2004). The business's ability to turn ideas and information into functioning innovations, fully functional processes, and advantageous technology raises quality standards and has considerable benefits. Innovative performance means providing consumers with specific services (Berry & Parasuraman, 1993). Integrated logistics service providers often work with a company's property resources; therefore this is their most fundamental expertise.

2.1.3 Customer demand management capability

Demand management planning is a fresh study. Businesses predict demand and prepare to meet it with products and services using it. Demand management improves marketing-operations communication. Strategy, capacity, and customer needs are better aligned. Demand management "provides a key bridge between the marketplace and a company's internal operations," a 2014 Global Journal of Management and Business research found. The study described demand management as "the creation of interactions between operations and marketing with the objective of understanding the market and taking actions in sync with company strategy, production capacity, and end-customer needs." Demand management is also known as customer centre logistics competency or integrating knowledge. To successfully service clients with unique or diversified demands, a firm must be adaptable and responsive. Consumer wants and logistical capacities are connected (Teresa & Evangelos, 2015). The order's client needs drive all logistical processes. Customers want perfect service every time. Organization clients have different needs than consumer consumers due to their characteristics. Clients want full solutions, not simply a service result. Business customers desire many service products. Clients want a stable, long-term source. Customer demands are secondary, cyclical, and inelastic. If a firm doesn't provide outstanding service, consumers won't build long-term transport partnerships (Teresa & Evangelos, 2015).

2.1.4 Information management

Cooper et al., (2016) found that in an increasingly information-based economy, enterprises need information management skills to succeed. Although knowledge management literature is extensive, little is known about how an organization's learning culture affects knowledge management outcomes. In the changing logistics and supply chain management environment, there is little information on how to effectively implement knowledge management projects. According to recent research, establishing effective information management methods, creating a learning culture, and investing in human capital may result in considerable returns on investment, enhanced customer satisfaction, and a competitive edge (Cooper et al., 2016). Supply chain information system assessment. The platform's logistics are tight since its cross-sectional functionalities demand data from many enterprises and functional domains. Supply chain information systems need electronic connectivity for these reasons. Information is heavily implemented in all logistic chain links, and it underpins all business activities. Information management in the logistics system, which supports development and planning, can only be done via included data processing, which creates supply chain channel transparency (Mentzer et al., 2001). Information flow management and control collects and prepares all electronic data. One strategy to save costs, increase product and service quality, and rationalize the information systems business. The reorganization of the observed area improves information flow and quality and reduces expenses by dedicating resources. Information quality and timeliness affect shipment times, correctness, and errors. computerizing logistics chain information systems.

2.2 Hypotheses Statement

Hypotheses identify research problems and forecast solutions. It is the foundation of scientific experiments. Thus, your theory must be careful and comprehensive. In 2021, experts warned that a little hypothesis error might hurt your research.

H1: There is a positive relationship between the innovation capability and customer satisfaction at Kelantan

H2: There is a positive relationship between the customer demand management capability and customer satisfaction at Kelantan

H3: There is a positive relationship between the information management capability and customer satisfaction at Kelantan.

2.3 Conceptual Framework

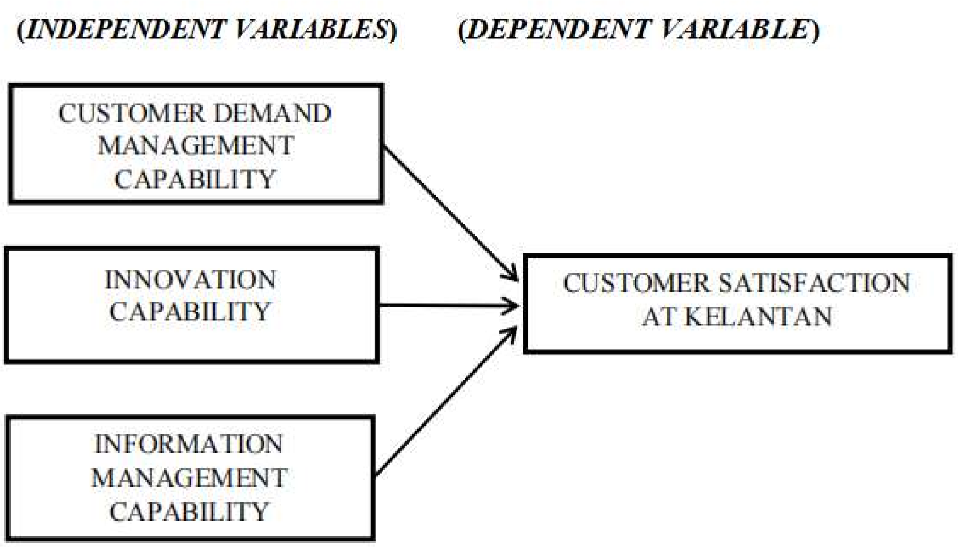


Figure 2.1: The Conceptual Framework of the Research
(Independent Variables 1, 2, 3 and Dependent Variable)

3 Research Methodology

3.1 Research Design

Raw data collection, numerical data collection and analysis can be related to quantitative methods of data collection and evaluation. The information will be acquired through a sample survey on the local people in Kelantan. A quantitative method can be used to swiftly collect a great collection of information for this study issue. The variables and data collected from the survey will also be used for descriptive analysis in this study. This method can be utilized to test a wide range of varying hypotheses by applying a function such as variance or standard deviation.

3.2 Data Collection Methods

The two main categories of data collection techniques are primary and secondary. The study will use a quantitative data approach due to the primary data collection method. A questionnaire will be used in the study as a primary data in order to obtaining the data related to our research topic. We will use online questionnaire by using the Google form and distributed the questionnaire among the local citizen who lived in Kelantan. The goals and queries of the study's research will be linked to our online questionnaire. The online questionnaire will automatically record and save the data evaluation from the respondent’s in the Google Form account.

3.3 Study Population

Kelantan has a population of 1.93 million people, Kota Bharu, a city with a population of 358,000. The 784 residents of Kota Bharu who make use of logistics services are the primary audience for this research. Those who live in Kota Bharu and who use logistics services were selected as our target audience because they are representative of the general population and have the most direct experience with the services we want to improve. In addition, customers who make use of logistics services have a deep understanding of both the services themselves and the processes involved in utilizing them.

Figure 3.1 : The number of population living in Kota Bharu

3.4 Sample size

There are a variety of patterns that may be used to represent sample size. The assigned sample size is the total number of units used in the study's touch or information combination tests. The sample size for this research will be determined to be 260 people, who will be representative of the whole population. The "N" in the table indicated the size of the whole population, while the "S" indicated the size of the study group. The equation of sample size were written below:

N	*S*	*N*	*S*	*N*	*S*
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note.—*N* is population size. *S* is sample size.

Source: Krejcie & Morgan, 1970

Figure 3.2 : The Determining of Population and Sample Size

Equation:

$$\boldsymbol{n = \frac{x^2\, NP\,(1-P)}{e^2\,(N-1) + x^2\, P(1-P)}}$$

x^2 = 3.841 (The table value of chi-square for 1 degree of freedom at the desired confidence level)

Population size = 784 / N = 784

Population proportion = 50% / P = 0.5

Margin of error = 5% / e = 0.05

Output:

$$n = \frac{3.841 \times 784 \times 0.5 \times (1 - 0.5)}{((0.05)^2 \times (784 - 1)) + 3.841 \times 0.5\,(1 - 0.5)}$$

$$n = \frac{752.836}{1.9575 + 0.96025}$$

$$n = 258.02$$

$$\boldsymbol{n = 260}$$

Therefore, our population size is 784 people majorly using logistics services, thus a sample size of 260 is sufficient for our purposes.

3.5 Sampling Techniques

For this study's population, a sample size of 260 people is required. We'll use a method called "convenience sampling" to choose some of the responses from among that massive pool. The preferred sample size is substantial, and this method will facilitate the researcher's rapid collection of a sample size of 260 respondents. The term "convenience sampling" refers to a research technique in which information about a market is gathered from a pool of respondents chosen because they are easy to reach. Thus, using convenience sampling in this way will guarantee that the primary study doesn't need any more resources. Since time is of the essence, convenience sampling is the method of choice given the constraints of time and the urgency of the data collection task at hand. However, while using (Scheff et al., 2002). criteria for sample size accumulation, the examiner must always exercise caution. Assuming the level of accuracy is 0.05 and that alpha is known to be 0.05 under these circumstances.

3.6 Research Instrument Development

The measurement tools in this study, we decided to use questionnaires to gather data in an effective manner. To avoid any problems and make it simpler for respondents to understand all the questions, this questionnaire was created and distributed to them in two different languages, English and Malay. There are various methods for conducting quantitative, qualitative, and hybrid research. A group discussion interview is a conversation in which a group of participants or interviewers are presented questions to determine their opinion or opinions on a certain topic. There are five sections to the questionnaire (A, B, C, D and E). Each part represents a distinct variable: section A represents demographic questions, section B represents customer satisfaction questions, section C represents customization and innovation questions, section D represents customer demand management capability questions and section E represents information management capability questions. Element to enhance and perceive by logistics services to improve customer satisfaction.

3.7 Measurement of the Variables

The distribution of the questionnaire was done at random, the data gathered was important given the issue related to the study, and using the questionnaire allowed for immediate feedback. 260 people completed the set of questionnaires, which was divided into two main sections.

3.7.1 Nominal Scale

Normative Scale With the help of a nominal scale, this research study may classify the participants into several categories or classes. Simply said, the categories are there to make it simpler for respondents to select a response from the many groupings. According to (Sekaran & Bougie, 2016), using SPSS software, the nominal scale offers practitioners a few quick, normative techniques to evaluate the data. The demographic responded utilizing the nominal scale is asked to enter gender, race, and education level and race in Section A.

3.7.2 Interval scale

The Likert scale, which enabled respondents to choose a scale from 1 to 5 to represent their honest thoughts, was used in sections B through E of the questionnaire. According to the researcher, the Likert scale might have as many different ranges of values. Due to the fact that we sought to examine the connection between the high-level logistic elements and customer satisfaction in Kelantan, our group decided to utilize just a 5-level Likert scale as the range. As a result, it is simple to comprehend the scale and less onerous for the respondent to complete the questionnaire.

3.8 Procedure for Data Analysis

Statistical Programmer for Social Science was the computer programme we used to find the prior data for this study (SPSS). We used SPSS to calculate the data that was obtained in a shorter amount of time and to streamline the quantitative analysis in the simplest way possible. We were able to understand the data used in quantitative research with the aid of SPSS. The pilot test, frequency analysis, descriptive analysis, reliability analysis, normality test, and Pearson's correlation coefficient analysis were all used in the statistical analysis for this study.

4 Data Analysis and Findings

4.1 Pilot Test

The pilot test can help the researcher finish the task of the study and also provides an opportunity to review the questions, identify any potential issues, and re-plan the investigation. We had conducted pilot test and distributed 30 sets of sample questionnaire survey to participants from this community in order to obtain a test of reliability for the study's target population, which comprises citizens of Kelantan. The range of the Cronbach's Alpha (α) coefficient provides a clear statement of the strength of connection in Table 3.2 of Chapter 3. The questionnaire's reliability score should not be less than 0.6, as this is regarded as having poor reliability. The item's internal consistency dependability is increased by the value's proximity to 1.

Table 4.1: Result of Reliability Coefficient Alpha for Pilot Test

Variable	Number of item	Cronbach's Alpha Coefficient (**α**)	Internal Consistency
Customer Satisfaction	5	0.936	Excellent
Innovation capability	5	0.940	Excellent
Customer Demand Management Capability	5	0.944	Excellent
Information Management Capability	5	0.939	Excellent

Table 4.1 above showed the reliability of pilot test analysis for dependant variable and independent variables. Based on the table 4.1, all variables were above the α of 0.6. The questionnaire was therefore approved. There were 5 questions were computed in each variable. The Cronbach's Alpha coefficient value (α) was varying. The α for the dependent variable which is customer satisfaction is 0.936, thus showed the reliability was excellent. The first α was 0.940 for the independent variable 1 (innovation capability) which was indicated that was good and reliable. The second α was 0.944 for the independent variable 2 (customer demand management capability) which was indicated acceptable and reliable. Lastly, the third α was 0.939 for the independent variable 3 (information management capability) which was indicated acceptable and reliable. The overall findings for this research study thereby provided a strong indication of the strength of relationship.

4.2 Frequency Analysis

The frequency analysis of the respondents' demographic background. The results of this survey included 260 respondents. Section A of the data includes inquiries about the respondents' gender, race, age, and academic qualifications as well as questions about their demographic profile. Descriptive statistical analysis involving frequency and percentage were used to examine the demographic profile.

4.2.1 Gender

Table 4.2: Gender of Respondents

GENDER		
Item	**Frequency**	**Percentage (%)**
Male	118	45.4
Female	142	54.6
Total	**260**	**100.0**

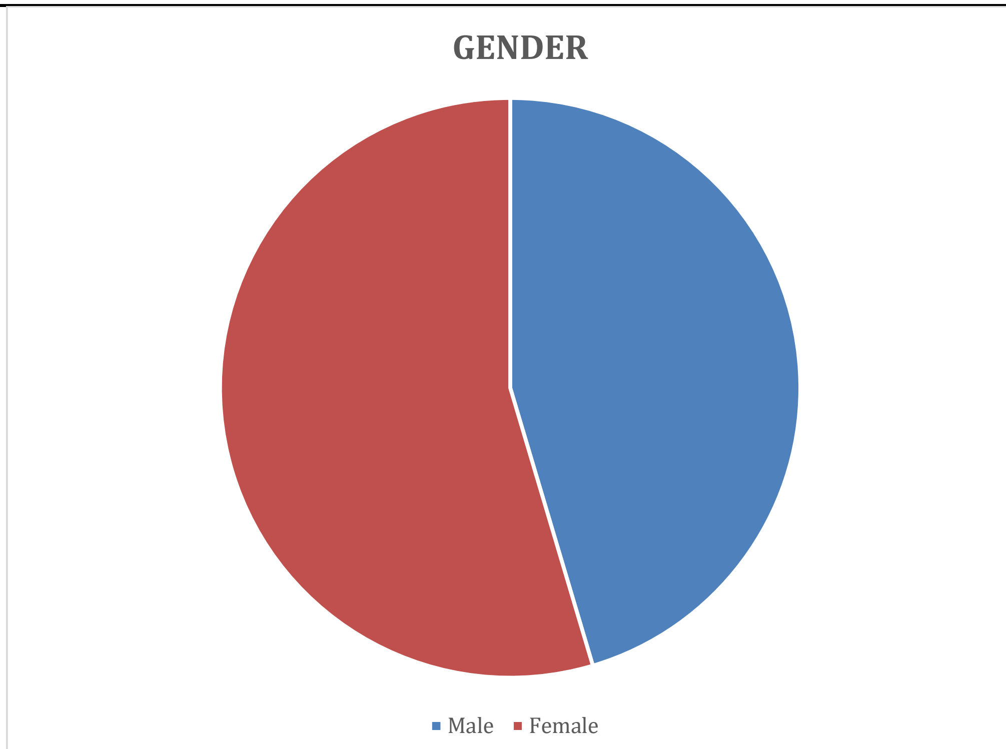


Figure 4.1: Gender of Respondents

According to table 4.2 above, there were 142 female respondents in this study, making up 54.6% of the total, compared to 118 male respondents, who made up 45.4%. The percentage based on the figure 4.1 indicated that there were more female respondents than male respondents.

4.2.2 Race

Table 4.3: Race of Respondents

RACE		
Item	**Frequency**	**Percentage (%)**
Malay	90	34.6
Chinese	106	40.8
Indian	57	21.9
Others	7	2.7
Total	**260**	**100.0**

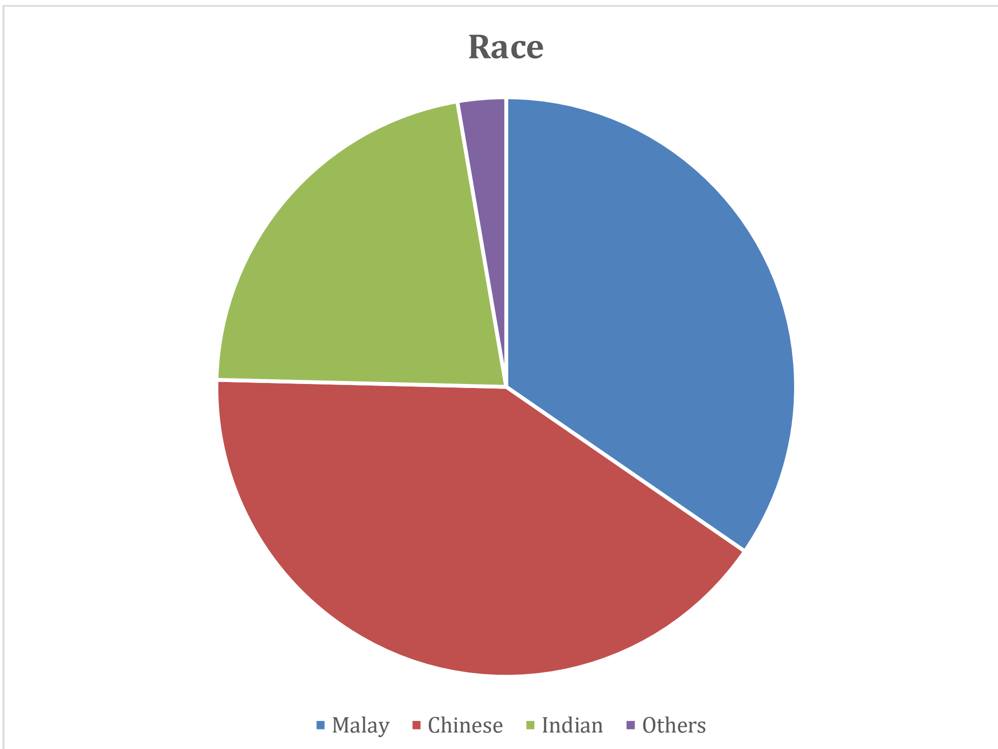


Figure 4.2: Race of Respondents

Based on table 4.3 showed in term of race, the majority of respondents were Chinese, accounting for 106 respondents (40.8%), followed by Malay, accounting for 90 respondents (34.6%). The third highest respondents came from Indian with 57 respondents (21.9%) and last was others with 7 respondents (2.7%). Therefore, the Chinese race people had the highest percentage compared to other races based on figure 4.2.

4.2.3 Age

Table 4.4: Respondent's age

AGE		
Item	**Frequency**	**Percentage (%)**
19 years old and below	13	5.0
20-29 years old	163	62.7
30-39 years old	35	13.5
40-49 years old	38	14.6
49 years above	11	4.2
Total	**260**	**100.0**

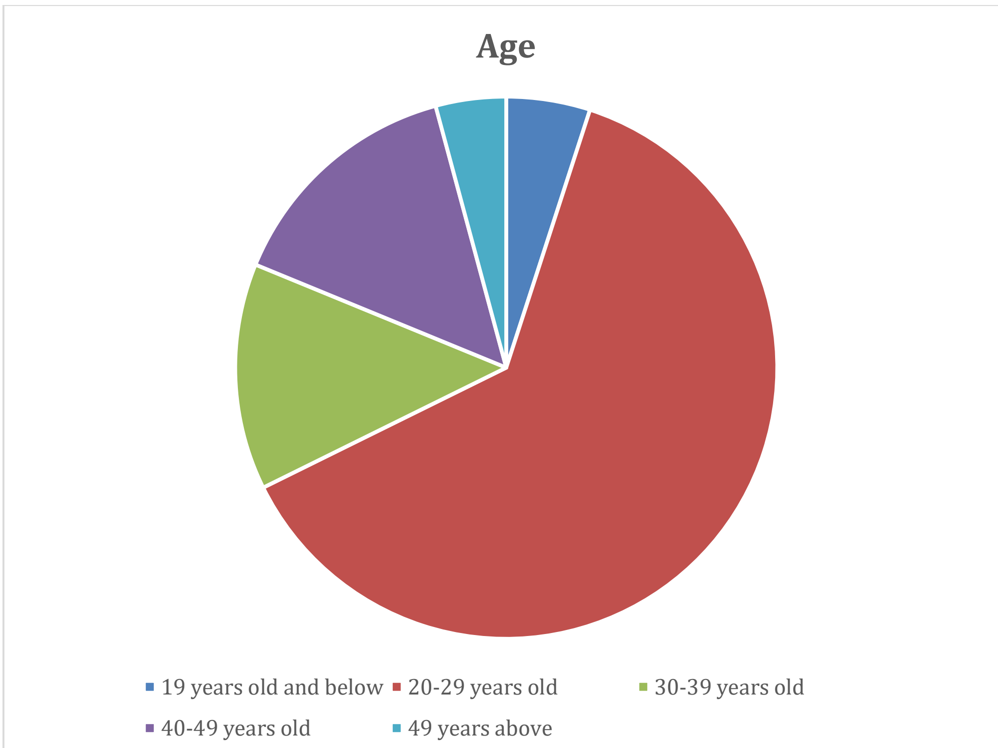


Figure 4.3: Respondents' Age

The age of the respondents from our survey was shown in table 4.4 and figure 4.3. The age category with the biggest percentage of respondents is 20–29 years old, with 163 (62.7%), while the second highest percentage is 40–49 years old, with 38 (14.6%). The age range of 30-39 years old is the third highest with 35 (13.5%) respondents. Meanwhile, there were respondents with the age range of 19 years old and below and 49 years old and above with 13 (5.0%) and 11 (4.2%) respondents respectively.

4.2.4 Academic Qualification

Table 4.5: Respondent's Academic Qualification

ACADEMIC QUALIFICATION		
Item	**Frequency**	**Percentage (%)**
SPM	37	14.2
STPM / DIPLOMA	51	19.6

DEGREE	142	54.6
OTHERS	30	11.5
Total	**260**	**100.0**

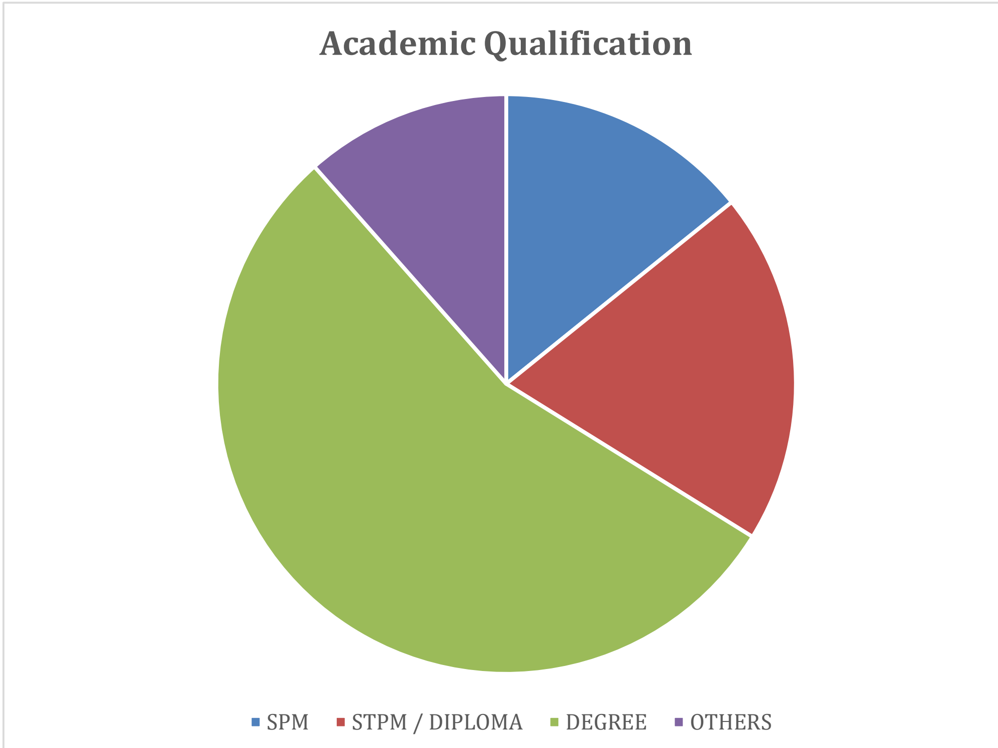


Figure 4.4: Respondents' Academic Qualification

The respondents' academic qualifications were shown in table 4.5 and figure 4.4. It showed that the highest number of respondents with 142 (54.6%) were Degree qualification while the second highest number of respondents with 51 (19.6%) were STPM or Diploma qualification. Meanwhile, there were SPM qualification and others which were 37 (14.2%) respondents and 30 (11.5%) respondents respectively.

4.3 Descriptive Analysis

The term "descriptive statistics" may be used to offer straightforward explanations of statistical measures like the mean and standard deviation that are useful for summing up large amounts of data. This section will go into the mean and standard deviation for both the independent and dependent studies, as well as the frequency distributions for respondent demographics and a selection of questions pertaining to customer service, insurance, and baggage delivery.

The mean score is a common statistic used in surveys, and it captures how respondents felt about various aspects of the survey process such as customer service, insurance, and baggage delivery (customer satisfaction of courier service). To assess the mean score, we shall consider a variety of possible interpretations. In this study, the questionnaire's sections B to E's mean and standard deviation (α) were examined.

4.3.1 Customer Satisfaction

Table 4.6: Descriptive Analysis of Customer Satisfaction

Variables	N	Mean	Std. Deviation
1. Company's professional services and friendly behaviors will increase customer satisfaction.	260	4.36	0.913
2. Product ordered, delivered, and received in a timely manner will increase customer satisfaction.	260	4.36	0.908
3. The details provided about service time is appropriate and accurate will increase customer satisfaction.	260	4.33	0.913
4. Items are shipped in accordance with the orders made will increase customer satisfaction.	260	4.35	0.904
5. Inform customers if there is a delay in delivery will increase customer satisfaction.	260	4.22	0.853

Table 4.6 showed the mean and standard deviation of dependent variable (Customer satisfaction). The mean for variable 1 and 2 is the highest which was ‘Company's professional services and friendly behaviors will increase customer satisfaction.’ and ‘Product ordered, delivered, and received in a timely manner will increase customer satisfaction.’ with mean of 4.36 (σ = 0.913,0.908). Meanwhile, variable 5 which was ‘Inform customers if there is a delay in delivery will increase customer satisfaction.’ was the lowest mean with 4.22 (σ = 0.853).

4.3.2 Innovation Capability

Table 4.7: Descriptive Analysis of Innovation Capability

Variables	N	Mean	Std. Deviation
1. Increase efficiency through automation to provide customers with faster resolutions will increase customer satisfaction.	260	4.24	0.929
2. Using technology to aid fulfillment processes and reduce human error will increase customer satisfaction.	260	4.19	0.934
3. Logistics innovation helps to saves time.	260	4.26	0.982
4. Warehouse technology to increases order picking processes.	260	4.08	0.960
5. Innovative helps to keep up with customer needs	260	4.23	0.940

Table 4.7 showed the mean and standard deviation of independent variable (Innovation Capability). The mean for variable 3 is the highest which was ‘Logistics innovation helps to saves time.’ with mean of 4.26 (σ = 0.982). Meanwhile, variable 4 which was ‘Warehouse technology to increases order picking processes.’ was the lowest mean with 4.08 (σ = 0.960).

4.3.3 Customer demand management capability

Table 4.8: Descriptive Analysis of Customer demand management capability

Variables	N	Mean	Std. Deviation
1. Help customers in resolving cargo transportation dispute will increase customer satisfaction.	260	4.15	0.903
2. Help customers in contacting insurance companies to file claims for compensation will increase customer satisfaction.	260	4.20	0.920

3. Flexibility in responding to consumer requests will increase customer satisfaction.	260	4.13	0.966
4. Adapting processes to suit unforeseen client needs in a flexible manner will increase customer satisfaction.	260	4.19	0.987
5. Dealing with customer problems patiently will increase customer satisfaction.	260	4.00	0.977

Table 4.8 showed the mean and standard deviation of independent variable (Customer demand management capability). The mean for variable 2 is the highest which was 'Help customers in contacting insurance companies to file claims for compensation will increase customer satisfaction.' with mean of 4.20 (σ = 0.920). Meanwhile, variable 5 which was 'Dealing with customer problems patiently will increase customer satisfaction. ' was the lowest mean with 4.00 (σ = 0.966).

4.3.4 Information management capability

Table 4.9: Descriptive Analysis of Information management capability

Variables	N	Mean	Std. Deviation
1. Help customers with valuation, cost savings, problem solutions, and other tasks will increase customer satisfaction.	260	4.08	0.957
2. Sending per-alert notices of shipment/delivery issues will increase customer satisfaction.	260	4.12	0.956
3. The services for returning and exchanging things are straightforward, convenient, and responsible will increase customer satisfaction.	260	4.28	0.926
4. The company offers cargo tracking services will increase customer satisfaction.	260	4.12	0.926
5. Recommending alternative actions when unexpected issues occur will increase customer satisfaction.	260	4.11	0.954

Table 4.9 showed the mean and standard deviation of independent variable (Information management capability). The mean for variable 3 is the highest which was 'The services for returning and exchanging things are straightforward, convenient, and responsible will increase customer satisfaction.' with mean of 4.28 (σ = 0.926). Meanwhile, variable 1 which was 'Help customers with valuation, cost savings, problem solutions, and other tasks will increase customer satisfaction.' was the lowest mean with 4.08 (σ = 0.957).

4.4 Reliability Test

Standardizing the studies or trials was how researchers determined how accurate a certain measurement was. There are two perspectives on reliability: internal and external. Internal validity and efficacy of the experiment were calculated using the general correlation element and the alpha index. If you want to know how devoid of random mistake a scale is, go no further than its dependability. In addition, if the result is constant throughout time, the instrument might be considered trustworthy. Internal reliability, a split-half approach, includes Cronbach's alpha as well. Cronbach's alpha is a part of internal reliability; it is used to calculate the average correlation or internal consistency of the research instrument (Cronbach, 1951).

Table 4.10: Reliability Test

Variable	Number of item	Cronbach's Alpha Coefficient (α)	Internal Consistency
Customer Satisfaction	5	0.909	Excellent
Innovation capability	5	0.919	Excellent
Customer Demand Management Capability	5	0.910	Excellent
Information Management Capability	5	0.894	Good

Cronbach's alpha for each variable was calculated using the reliability analysis tool in SPSS and is shown in Table 4.12. In this model, the levels of customer satisfaction, the innovation capability, and the ability to manage customer demand all operate as independent variables. The SPSS data shows that the Cronbach's alpha values for the three independent variables are 0.909, 0.919, and 0.910, respectively. The Cronbach's alpha score of 0.894 for the dependent variable "Information management capabilities" demonstrates good levels of internal consistency. A total of 260 participants were surveyed, and the findings confirmed the validity and trustworthiness of the real questionnaire.

4.5 Normality Test

Normality test was an additional of the graphical assessment of normality (Elliot & Woodward, 2007). Normality test usually used to define the sample data that had been collected from a normal distribution. Normality test that developed by the SPSS software are Kolmogrov-Smirnov test and Shapiro-Wilk test. According to the rule of thumb, the research was concluded that the variable was not normally distributed if value p is less than. 0.05 (p<0.05).

Table 4.11: Normality Test

Variable	**Kolmogorov-Smirnov**^{a}		**Shapiro-Wilk**	
	Statistic	Sig.	Statistic	Sig.
Customer Satisfaction	0.258	0.000	0.672	0.000
Innovation capability	0.265	0.000	0.725	0.000
Customer Demand Management Capability	0.209	0.000	0.784	0.000
Information Management Capability	0.241	0.000	0.748	0.000

The results of the normality test, which the Shapiro-Wilk and Kolmogorov-Smirnov tests, were presented in Table 4.13. There were outliers discovered in the data following the normality test. Each independent variable's significance value, or p value, is 0.000, which is less than 0.05 (p<0.05). The significant value result for the Kolmogorov-Smirnov test, which was a p-value less than 0.05 for all the variables, was displayed in the table above. This indicated that the data were not average. Additionally, the table displayed the Shapiro-Wilk test's significant value result, which was a p-value of 0.05 or less for all variable. This implied that the data was not average as well. The normality test therefore revealed that all the variables indicated not a normal distribution, and each variable's null hypothesis was rejected.

4.6 Pearson's Correlation Coefficient Analysis

Pearson's correlation coefficient analysis was used in this research to measure the strength and significant relationships between independent variables and dependent variable. Thus, the independent variables of this study were innovation capability, customer demand management capability, information management capability and the dependent variable was customer satisfaction.

4.6.1 The relationship between the innovation capability and customer satisfactions.

Hypothesis to Address Research Question 1:

H0: There is no positive relationship between the innovation capability and customer satisfactions.

H1: There is a positive relationship between the innovation capability and customer satisfactions.

Table 4.12: Hypothesis 1

		Innovation Capability	**Customer Satisfaction**	**Value**
Innovation Capability	Pearson Correlation	1	0.801**	Strong
	Sig. (2-tailed)		0.000	
	N	260	260	
Customer Satisfaction	Pearson Correlation	0.801**	1	
	Sig. (2-tailed)	0.000		
	N	260	260	

Table 4.14 above showed the relationship between the innovation capability and customer satisfactions. According to the result of the Person Correlation Coefficient, this study accepted H1 because with the result of 0.801 it proved that there was significant relationship between the innovation capability and customer satisfactions. Meanwhile H0 was rejected because the value was 0.00 where there are no significant relationships between the innovation capability and customer satisfactions. From the result, H1 showed the level of relationship between the innovation capability and customer satisfactions was strong.

4.6.2 The relationship between the customer demand management capability and customer satisfaction.

Hypothesis to Address Research Question 2:

H0: There is no positive relationship between the customer demand management capability and customer satisfaction.

H2: There is a positive relationship between the customer demand management capability and customer satisfaction.

Table 4.13: Hypothesis 2

		Customer demand management capability	**Customer Satisfaction**	**Value**
	Pearson Correlation	1	0.760**	

Customer demand management capability	Sig. (2-tailed)		0.000	
	N	260	260	Strong
Customer Satisfaction	Pearson Correlation	0.760**	1	
	Sig. (2-tailed)	0.000		
	N	260	260	

Table 4.15 above showed the relationship between the customer demand management capability and customer satisfaction. According to the result of the Person Correlation Coefficient, this study accepted H2 because with the result of 0.760 it proved that there was significant relationship between the customer demand management capability and customer satisfaction. Meanwhile H0 was rejected because the value was 0.00 where there are no significant relationships between the customer demand management capability and customer satisfaction. From the result, H2 showed the level of relationship between the customer demand management capability and customer satisfaction was strong.

4.6.3 The relationship between the information management capability and customer satisfaction.

Hypothesis to Address Research Question 3:

H0: There is no positive relationship between the information management capability and customer satisfaction.

H3: There is a positive relationship between the information management capability and customer satisfaction.

Table 4.14: Hypothesis 3

		Information management capability	**Customer Satisfaction**	**Value**
Information management capability	Pearson Correlation	1	0.767**	Strong
	Sig. (2-tailed)		0.000	
	N	260	260	
Customer Satisfaction	Pearson Correlation	0.767**	1	
	Sig. (2-tailed)	0.000		
	N	260	260	

Table 4.16 above showed the relationship between the information management capability and customer satisfaction. According to the result of the Person Correlation Coefficient, this study accepted H3 because with the result of 0.767 it proved that there was significant relationship between the information management capability and customer satisfaction. Meanwhile H0 was rejected because the value was 0.00 where there are no significant relationships between the information management capability and customer satisfaction. From the result, H3 showed the level of relationship between the information management capability and customer satisfaction was strong.

5 Conclusion

5.1 Recommendations for Future Research

Future research should focus largely on the quantitative and qualitative verification of the contribution of high level logistic service on customer satisfaction. We propose a few ideas for further research so that the researchers might take the initiative to start this transformation. For starters, new research may be conducted in nations where citizens may have different viewpoints regarding the value of logistics companies' most recent offerings. A bigger sample size may help in producing more accurate outcomes that can be extended to a wider environment, but it may also make it more difficult for the researcher to carry out follow-up study.

Additional research may investigate a variety of services to see how various factors, in regard to information management skill, innovation capability, and customer demand management capacity, may affect the use appeal. Although there are many more services that influence consumers' preferences when choosing a logistics provider, this study's research focuses on customer satisfaction, innovation capabilities, and customer demand management competency. Therefore, future studies may further explore the other element that indirectly motivates consumers to use logistics services, such as utilizing observation or survey, using the articles and journal as a reference to acquire the necessary data and finish the analysis.

5.2 Overall Conclusion of the Study

The study's conclusions should assist users or researcher in making decisions on the variables that influence customer satisfaction and the ability of logistic companies to innovate and oversee their operations. The research presented in this chapter demonstrates that the three independent variables of information management capability, innovation capability, and customer demand management capability are crucial in attracting customer to use a logistics service and, correspondingly, improving customer satisfaction. This research focuses on the relationship between customer satisfaction and high logistical factors.

Overall, this study was successful in achieving all three of its objectives. The findings of this study should serve as a guide for logistics providers as they adapt and improve the services, they offer customers in an effort to pique their interest and acquire their business. Logistics experts can utilize the study's findings to evaluate the contribution of high level logistic service to customer satisfaction. It was proven that the dependent variable was considerably influenced by all three independent variables. Customers' behaviors may have an impact on a business, which can produce erratic findings when analyzing the consequences of expanded or new service techniques.

6 Acknowledgements

We first wanted to express our gratitude to the Almighty God for granting us the stamina to complete these research projects successfully. Next, we would like to express our gratitude to the professor on behalf of our supervisor, for his support during this study project. In addition, he merits appreciation for providing our team with excellent leadership, patience, and devotion during the whole research endeavour. Without his continued guidance, this project will never be completed. He is kind enough to answer all of our questions about the research. Secondly, we want to express a special thank you to our coordinator, for his support and for organizing our presentation for the day. Our anticipation for this event has been boosted by his backing and the overall perspectives in this area. We also wanted to thank the respondents for participating in the survey despite their busy teaching schedules and the librarian at Universiti Malaysia Kelantan for spending the time to show us how and when to cite sources in APA style. And lastly, we want to thank for the love and support of our family. Our ability to accomplish the project could be more difficult without their financial and intellectual backing. And also, we would like to express our gratitude to the respondents for taking the time and trouble to complete our survey. Their honesty, which had supplied complete insight, had enabled us to easily carry out all aspects of data processing and study results.

7 References

Balachandran, K. R., & Radhakrishnan, S. (2005). Quality implications of warranties in a supply chain. *Management science*, *51*(8), 1266-1277.

Berry, L. L., & Parasuraman, A. (1993). Building a new academic field—The case of services marketing. *Journal of retailing*, *69*(1), 13-60.

Bolton, R. N., Lemon, K. N., & Verhoef, P. C. (2004). The theoretical underpinnings of customer asset management: A framework and propositions for future research. *Journal of the academy of marketing science*, *32*(3), 271-292.

Bowersox, D., Mentzer, J., & Speh, T. (2008). Logistics leverage. *Journal of Business Strategies*, *25*(2), 85-99.

Cardona-Valdés, Y., Álvarez, A., & Ozdemir, D. (2011). A bi-objective supply chain design problem with uncertainty. *Transportation Research Part C: Emerging Technologies*, *19*(5), 821-832.

Chen, K.-K., Chang, C.-T., & Lai, C.-S. (2009). Service quality gaps of business customers in the shipping industry. *Transportation Research Part E: Logistics and Transportation Review*, *45*(1), 222-237.

Cooper, A. L., Huscroft, J. R., Overstreet, R. E., & Hazen, B. T. (2016). Knowledge management for logistics service providers: the role of learning culture. *Industrial Management & Data Systems*.

Mentzer, J. T., DeWitt, W., Keebler, J. S., Min, S., Nix, N. W., Smith, C. D., & Zacharia, Z. G. (2001). Defining supply chain management. *Journal of Business logistics*, *22*(2), 1-25.

Rasidah, H., & Bohari, Z. (2014). Customer perception towards service quality of fast food restaurants in Klang Valley. *Hospitality and Tourism*, 87.

Scheff, S. W., Saucier, D. A., & Cain, M. E. (2002). A statistical method for analyzing rating scale data: the BBB locomotor score. *Journal of neurotrauma*, *19*(10), 1251-1260.

Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill building approach*. john wiley & sons.

Teresa, G., & Evangelos, G. (2015). Importance of logistics services attributes influencing customer satisfaction. 2015 4th International Conference on Advanced Logistics and Transport (ICALT),

Customer Satisfaction on Parcel Delivery Company

Jalaluddin Jamsuri, Kang Hui Zhen, Muhammad Syahidan Jalaluddin, Nur Farahhani Saidin, Nur Farzana Hasrunlah & Zaminor Zamzamir@Zamzamin*

Faculty of Entrepreneurship and Business,
Universiti Malaysia Kelantan,
Malaysia

Email: zaminor@umk.edu.my

Abstract:
Nowadays, the growing popularity of e-commerce has altered not just how products are sold, but also how they are delivered. Customers expects customized items to be sent swiftly, with full order convenience and flexibility. The SERVQUAL model is important to measure the customer satisfaction for the parcel delivery company so that the parcel delivery company can improve and avoid mistake by knowing the feedback that the customer give them. Due to COVID-19 and the effect of technology, it has resulted in a notable change in business-to-customer delivery. Customer behaviour, values, and culture have also altered the geographical situation and purchasing power. Hence, the primary goal of this research is to determine the relationship between tangible, reliability, and responsiveness with customer satisfaction on parcel delivery company. There are 272 respondents who are University Malaysia Kelantan (UMK) SAL students that were chosen at random to participate in the researchers' questionnaire. Data analysis was conducted by using SPSS tools. This study presented 272 data regarding how tangible, reliability, and responsiveness strongly influences the customer satisfaction on parcel delivery company. The result shows that there are significant correlations between tangible, reliability, and responsiveness with customer satisfaction on parcel delivery company. In conclusion, the findings of this research indicates that tangible, reliability, and responsiveness have positive relationship with the customer satisfaction on parcel delivery company. This study has implications for delivery service providers and individual consumers, who can review their service as to suit the needs of its present customers.

Keywords*: Customer satisfaction, reliability, responsiveness, SERVQUAL, tangible*

1 Introduction

Over the past few years, the customer satisfaction has become increasingly important for the delivery company as there are more people using the delivery company for their daily live usage. This is due to the increase of usage in e-commerce. Due to the covid-19 many people are stuck at home and their movement is limited, because of that many people order item online which will use the delivery company to delivery all the item that is being order and delivered it to the people. Excellent customer satisfaction promotes company reputations, customer loyalty and able to retain the customer. The study shows that having customer satisfaction will help a lot for the company and will bring profit for the company in the long run. This brings the perception of customer satisfaction as a component of financial performance for the long and short term of sales growth for the company.

The increase of the e-commerce has resulted in not only how the product are sold but also how they are delivered. When it comes to e-commerce many customers expect the delivery company to send the product item perfectly and quickly. The e-commerce has successfully revolutionised how the consumer shop for products and has also gained widespread acceptance. All e-commerce revolution can be contributed to the covid-19 MCO.

The study was made to know customer satisfaction when it comes to the parcel delivery company. In some of our daily lives, we may use the delivery company as well to deliver our parcel and we may know how we feel when it comes to the delivery company, but we do not know how the consensus of the general population feels when it concerns the delivery company.

The study objective is to find the relationship between tangibility, reliability, and responsiveness towards the customer satisfaction of the parcel delivery company among SAL students. This study is to know if there is any connection to the satisfaction of the customer when it comes to the tangibility, reliability and responsiveness of the parcel delivery company. The study wants to know either of these variables will bring the positive view on the customer or it will bring negative view of the customer towards the parcel delivery company.

2 Literature Review

2.1 Definition of Customer Satisfaction

In past research, 99% of dissatisfied customers will not repeat using parcel delivery from companies that do not provide true customer satisfaction. This means, recognizing customer satisfaction will be one of the ways to reduce the customers unhappiness while also increasing the company's profit. Many researchers state that, there is a good and strong relationship between service quality and customer trust. Additionally, customer satisfaction is a critical issue for the purpose of increasing profits for the service and companies. Customer satisfaction can be described as the psychology experienced by consumers when the services used are able to meet or exceed the requirements and experience for actual use.

2.2 Previous Research

2.2.1 Online shopping

According to a previous study, online shopping is the form of electronic commerce that enables consumers to purchase things directly from the internet using a web browser. This demonstrates that consumers purchase products directly from the seller, without an intermediary. This online shopping promotion gives a variety of items and services to clients. Therefore, the buyer can compare offers from many intermediaries and select the most advantageous one. This online shopping process is one of the causes of a busy lifestyle and tight working hours. This is an easy solution and can save time compared to walk-in shopping. Online shopping also provides more comfort where it can reduce travel time and cost and can make payments easily.

2.2.2 Parcel Delivery Service

According to a recent study, each available product will be sorted according to the same Delivery Area before leaving the hub. After the package has been delivered to the corresponding hub region, it will be divided for local distribution to the end user's location. As evidence of a successful delivery signature, each shipment will be subject to an additional procedure. When completing a time-sensitive online purchase, it is vital for a customer to choose the most appropriate shipping method. Therefore, this delivery service requires effective technology, such as bar code scanning, that allows customers to monitor the delivery process within a predetermined time range. The company's service quality can be delivered to clients as promptly as feasible using this application.

3 Methodology

The researchers used a quantitative method to obtain data on Customer satisfaction on parcel delivery services. The students from University Malaysia Kelantan (UMK) Sal students are the research's target population. Convenience sampling is used in the research because researchers choose specified demographic rudiments as study participants who are already prepared and conveniently available. The data was gathered via a Google form questionnaire survey. A standardized questionnaire was created for 263 SAL students to complete. The questionnaire was adopted and adapted for the study, and two types of question were used: multiple choice question and five-point Likert-Scale question.

The collected data is analyzed using Statistical Package for Social Science (SPSS) to help us reach our objective. The data was analyzed using frequency analysis, reliability analysis, and Pearson's correlation coefficient. Before distributing the questionnaire, the research conducted a 17-pilot test to assess reliability using Cronbach's Alpha methods, and all the findings of all variables were satisfactory. Because of the pilot test findings, no variables need to be removed. The survey was given to the SAL students using this technique. There were 272 usable replies collected.

Thus, the response rate is 103.4%%. The 272 respondents for the research are comprised of 61.8% female and 38.2% male. The respondents come from year 1, year 2, year 3 and year 4 students. There have only 27 respondents (9.9%) from year 1 answered the questionnaire. Out of 78 respondents (28.7%) and 123 respondents (45.2%) are from year 3 and year 4, respectively. The rest is from year 2. From 272 respondents that have been collected, Malays have collected the highest data which is 46.9% contribute to 135 respondents while 24.6% contributing to 67 respondents are Chinese. For Indian respondents, the questionnaire gathered 21.3% or 58 respondents and the rest are from other races of respondents.

4 Findings and Discussion

4.1 Finding

4.1.1 Reliability Analysis

The reliability coefficient was the amount that inconsistency true to the total of the experiment has been obtained variability. The data was tested using Cronbach's Alpha analysis to ensure the reliability and interior reliability of the information.

Table 4.1: Reliability Statistics

Dimension	**No. of Item**	**Alpha Value (α)**
Tangible	4	0.792
Reliability	5	0.863
Responsiveness	4	0.792

Table 4.1 depicts that the reliability statistics which measure Cronbach's Alpha of all variables to prove the reliability of the research. Cronbach's Alpha is used to determine the reliability of this research and the results found that the value of Cronbach Alpha for tangible is 0.792, reliability 0.863, and responsiveness 0.792. The value shows that all the variables are accepted, and it is valid and exceptionally reliable.

4.1.2 Descriptive Analysis

Descriptive analysis is used to find the average mean for each variable to assess whether the variables meet the respondent's agreed level of the mean. The mean score should be more than 3.50 to meet the agree level of SAL students on customer satisfaction on parcel delivery company.

Table 4.2 Descriptive Statistics

Part	**Dimension**	**Mean**	**Std. Deviation (SD)**	**N**
	Independent Variable	4.1793	0.53372	272
C	Tangible	4.1425	0.59686	272
D	Reliability	4.1976	0.60155	272
E	Responsiveness	4.1978	0.65165	272
	Dependent Variable	4.2482	0.63963	272
F	Customer Satisfaction	4.2482	0.63963	272

Table 4.2 shows that the dependent variable has a high mean score of 4.2482. The Mean score for all independent factors is similarly remarkably high, 4.1793. Each independent variable has a mean score that is extremely high, which satisfies the criteria. The tangible independent variable mean score is 4.1425. The reliability mean score is 4.1976. The responsiveness Mean score is 4.1978. Thus, the average mean shows that the independent variable and dependent variable

4.1.3 Correlation Analysis

Pearson correlation is one of the test statistics used to determine the strength of two variable linear connections. The independent variable is tangible, reliability and responsiveness while the dependent variable is customer satisfaction

Table 4.3: The Pearson Correlation

		Customer Satisfaction	Tangible	Reliability	Responsiveness
Customer Satisfaction	Pearson Correlation	1	.516**	.675**	.697**
	Sig. (2-tailed)		.000	.000	.000
	N	272	272	272	272

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

Table 4.3 shows that there is a strong positive correlation between customer satisfaction and tangible with an r-value of 0.516. The r value between customer satisfaction and reliability is 0.675. This indicates a strong positive correlation between the variables. There is a strong positive correlation between customer satisfaction and responsiveness with an r-value of 0.697. There is a strong positive correlation between tangible and reliability with an r-value of 0.604. There is a strong positive correlation between tangible and responsiveness with an r-value of 0.504. There is a strong positive correlation between reliability and responsiveness with an r-value of 0.752. Thus, all the hypothesis for the variables is accepted. The results show that tangible, reliability, and responsiveness affect customer satisfaction of SAL students.

4.2 Results of Information Analysis

4.2.1 Relationship Between Tangible and Customer Satisfaction on Parcel Delivery Company among SAL students.

HI: There is a significant relationship between tangible and customer satisfaction on parcel delivery company.

From table 4.3, it is showed that there is a significant relationship between tangible and customer satisfaction on parcel delivery company because the p-value is 0.000 which less than α=0.05. while the Pearson Correlation Coefficient value is 0.516 which explained the substantial relationship between tangible and customer satisfaction on parcel delivery company. Therefore, the H1 is accepted.

4.2.2 Relationship Between Reliability and Customer Satisfaction on Parcel Delivery Company among SAL students

H2: There is a significant relationship between reliability and customer satisfaction on parcel delivery company.

From the table 4.3, it is showed that there is a significant relationship between reliability and customer satisfaction on parcel delivery company because the p-value is 0.000 which less than α=0.05. while the Pearson Correlation Coefficient value is 0.675 which explained the substantial relationship between reliability and customer satisfaction on parcel delivery company. Therefore, the H2 is accepted.

4.2.3 Relationship Between Responsiveness and Customer Satisfaction on Parcel Delivery Company among SAL students.

H3: There is a significant relationship between responsiveness and customer satisfaction on parcel delivery company.

From the table 4.3, it is showed that there is a significant relationship between responsiveness and customer satisfaction on parcel delivery company because the p-value is 0.000 which less than α=0.05. while the Pearson Correlation Coefficient value is 0.697 which explained the substantial relationship between responsiveness and customer satisfaction on parcel delivery company. Therefore, the H3 is accepted.

5 Conclusion and Recommendation

5.1 Limitation of Study

There are some limitations found when the researcher conducts this research study. The first limitation that has been identified is that variable for this study limited to three variables. Service quality across five variable which are assurance, empathy, reliability, responsiveness, and tangible. Therefore, the researcher has chosen to use an online survey to distribute the questionnaire using google form to the target respondents. In addition, when using online surveys, researchers find it difficult to get feedback from respondents because the links sent may often be ignored by them.

The next limitation of the study is that the researcher assumes that all respondents have sufficient knowledge to understand the topic being studied to answer this questionnaire. Lastly, this inquiry is just for Logistics students (SAL) at the University Malaysia Kelantan City Campus. The researcher did not have enough time to collect data from students and had to hustle to get data from responders. In the period allotted by the researcher, 372 respondents. The time spent distributing the questionnaire and for them to the respondents was insufficient. To reach the target number of respondents, respondents had to be reminded several times to fill out the Google form.

5.2 Recommendations

Recommendations for future research are based on the limitations of the study in the previous section. Firstly, more questions should be added to each dimension to strengthen the reliability and validity of the questionnaire. In addition, the researcher recommends that this study can be expanded by using qualitative and quantitative methods where it can help future researchers to obtain more in-depth and valuable findings according to the target respondents. The researchers also recommended adding more variables to ensure that the study gets more understanding and complete research about the topic.

Next, future research also can enlarge the sample size and location of the research such as throughout Malaysia. Future research also needs to focus more on respondents which is added more respondents to get more depth and honesty. Other than that, the research recommends to further improve the result of the future study, which is research needs to manage enough time to collect the data in the certain site that has been chosen.

Lastly, researchers also need to choose the right respondent to answer the entire questionnaire that has been distributed. Researchers also can give enough time to the respondent to answer the questionnaire while in the free time.

5.3 Future Research

The level of satisfaction experienced by customers can be affected by three different variables that operate independently of one another. These variables include the tangible, the reliability, and the responsiveness of the business to the needs of the customers. Future researchers have the option of including additional factors in their studies to acquire data and outcomes that are richer in detail. Further investigate should be done to investigate the quality of the services offered by the delivery service to improve their service to attract more customers.

6 Acknowledgements

First, we would like to express our gratitude to everyone who assisted us in our research, and we are grateful to be able to complete our final year project. In performing our research, we had to take the help and guideline of some respected persons, who deserve our greatest gratitude. We would like to show our gratitude to our supervisor, for giving us a good guideline for research throughout numerous consultations. We would also like to expand our deepest gratitude to all those who have directly and indirectly guided us in authoring this research.

Next, we also would like to dedicate our gratitude to University Malaysia Kelantan particularly for the Faculty of Entrepreneurship and Business (FKP), for providing these opportunities to conduct this research for us to be able to complete our studies.

Numerous people, especially our classmates and team members themselves, have made valuable comment suggestions on this research which gave us inspiration to improve our research. We thank all the people for their help directly and indirectly to complete our study.

7 References

Al-Debei, M. M., Akroush, M. N., & Ashouri, M. I. (2015). Consumer attitudes towards online shopping. Internet Research, 25(5), 707–733.

Ali, A. (2021). Quantitative Data Analysis. https://doi.org/10.13140/RG.2.2.23322.36807

Ali, B. J., Gardi, B., Jabbar Othman, B., Ali Ahmed, S., Burhan Ismael, N., Abdalla Hamza, P., ... & Anwar, G. (2021). Hotel service quality: The impact of service quality on customer satisfaction in hospitality. *Ali, BJ, Gardi, B., Othman, BJ, Ahmed, SA, Ismael, NB, Hamza, PA, Aziz, HM, Sabir, BY, Anwar, G.(2021). Hotel Service Quality: The Impact of Service Quality on Customer Satisfaction in Hospitality. International Journal of Engineering, Business and Management*, *5*(3), 14-28.

Franklin, A. (2021). What is customer satisfaction? Definition + importance. *Zendesk Blog.* https://www.zendesk.com/blog/3-steps-achieving-customer-satisfaction-loyalty/#:~:text=hold%20you%20back.-,The%20importance%20of%20customer%20satisfaction,and%20a%20stronger%20brand%20reputation.

Kobiruzzaman, M. M. (2020). Five Dimensions of Service Quality- Servqual Model of Service Quality. Newsmoor. https://newsmoor.com/servqual-model-five-key-service-dimensions-servqual-gaps-reasons/

Nguyen, D. H., Leeuw, S. d., Dullaert, W., & Foubert, B. P. J. (2019). What is the right delivery option for you? Consumer preferences for delivery attributes in online retailing. Journal of Business Logistics, 40(4), 299-321.

Patricks, A., Libaque-saenz, C. F., F., S., & Chang, Y. (2020). Telematics and Informatics An Expectation-confirmation Model of Continuance Intention to Use Mobile Instant Messaging. Telematics and Informatics, 33(1), 34-47.

Powton, M. (2018). Everything You Need to Know About Customer Satisfaction. customerthink. http://customerthink.com/everything-you-need-to-know-about-customer-satisfaction/

Sivanesan, R. (2017). A Study on Problems Faced by Customers in Online Shopping with Special Reference to Kanyakumari District. International Journal of Research in Management & Business Studies, 4(3), 22-25.

Tribhuvan, A. (2020). A Study on Consumers Perception on Food Apps. *International Journal Of Advance Research And Innovative Ideas In Education*, *6*, 36.

Wang, Y. (2017). Customer Satisfaction on Chinese Express Service from Online Shopping *(Doctoral dissertation, University of the Thai Chamber of Commerce).* https://searchlib.utcc.ac.th/library/onlinethesis/302988.pdf

A Study on How Psychological Factors of SMEs Influence the Intention of Logistic Outsourcing in Kelantan, Malaysia

Heng Yik Lun, Khor Hui Er, Nur Hafizah Mohammad Ali Khan, Zulalina Zakaria and Solomon Gbene Zaato*

Faculty of Entrepreneurship and Business,
Universiti Malaysia Kelantan,
Malaysia

Email: solomon.gz@umk.edu.my

Abstract:

Utilizing external partners to carry out tasks that a company would typically do internally is known as outsourcing. While the practice of outsourcing logistics involves using outside firms to carry out logistical tasks that were previously handled internally. The whole of the logistics process or certain steps within it may be handled by third parties. Outsourcing is very common and convenience nowadays and many research have proved that intention outsourcing contributed enormous benefits to organizations in many countries. With the rising of logistics outsourcing, SMEs in Malaysia also started to believe and outsource their logistics activities. Therefore, the 3PL market is growing increasingly competitive and combative. Despite the expanding trend of logistics outsourcing, Malaysia only has little available literature on the subject. When it comes to Kelantan, there is no published research about connection between psychological factors and intention of logistics outsourcing can be found on several database. However, psychological factors become an important element in making a person decide to outsource the logistics activities by creating intention of logistics outsourcing. In line with thus, this paper aims to examine how psychological factors of SMEs influence the intention of logistic outsourcing in Kelantan, Malaysia with underpinning Theory of Planned Behavior. A quantitative approach is used to attain data from 310 small and medium size enterprises in Kelantan, Malaysia through online questionnaires in Google Form and analyzed by SPSS version 26. Out of four independent variables used to test the relationship with dependent variable, core component of TPB which are attitude, subjective norm, and perceived behavioral control have significantly influenced the logistics outsourcing intention of SMEs in Kelantan. Trust also showed a significant relationship with logistics outsourcing intention of SMEs in Kelantan. The implications of these findings have been provided for SMEs in Kelantan, logistics service providers, and successive researchers.

Keywords*: SMEs, logistics outsourcing, attitude, subjective norm, perceived behavioral control, trust, intention, Kelantan, Theory of Planned Behavior*

1 Introduction

Globally, outsourcing logistics has been around for a while. Some Third-Party Logistics (3PLs) are medieval in origin in Europe (Batarlienė & Jarašūnienė, 2017). According to the current growth of logistics outsourcing, it was only possible to outsource warehousing and transportation in the 1950s and 1960s. These operations were primarily short-term. In the 1960s, the emphasis was on efficiency, cost savings, and long-term contracts. In the 1970s, value-added services like packaging, labeling, systems support, and warehousing were offeredDue to increased commerce and investments, Asia is expanding quickly, which has led to a rise in the usage of logistics outsourcing. For example, within the context of logistics and management of the supply chain, Singapore is at the forefront. Notably, Singapore was ranked top in Asia, seventh globally in 2018, and fifth globally from 2012 to 2018 (World Bank, 2018). To add to that, 25 of the top logistics businesses in the world are headquartered in Singapore, including Dalsey, Hillblom and Lynn (DHL), Kuehne + Nagel, Sankyu, Schenker, Toll, United Parcel Service (UPS), and Yusen Logistics. Singapore is now a key centre for global logistics corporations. The most ideal logistics and supply chain management location for top firms across all sectors in Singapore (Economic Development Board, 2020; Thai et al., 2022).

Despite the expanding trend of logistics outsourcing, Malaysia only has little available literature on the subject (Zailani et al., 2017). When it comes to Kelantan, there is no published research about connection between psychological factors and intention of logistics outsourcing can be found on database like Google Scholar, Science Direct, Scopus, Emerald, Taylor and Francis Online, and ProQuest. However, psychological factors become an important element in making a person decide to outsource the logistics activities by creating intention of logistics outsourcing. Apart from psychological factor, trust is also an element that might have a huge influence toward intention of a person or organization to make a decision (Wei, 2022). Therefore, in this study, psychological factors include attitude, subjective norm, and perceived behavioral control.

Apart from these three core components of Theory of Planned Behavior (TPB), researchers also take “trust” as an element to examine. This is because trust has been explored as a significant predictor for TPB in prior research (Nicolaou et al., 2013; Xie et al., 2017). Although many previous studies (Akter, 2015; Busse et al., 2017; Large et al., 2021; Merminod et al., 2019; Rintala et al., 2021) had done between three core components of TPB (attitude, subjective norm and perceived behavioral control) with intention of logistics outsourcing, but researchers found that there are not many studies take “trust” as an element to examine with intention of logistics outsourcing when apply TPB. Thus, this study will take the element “trust” to narrow the research gap within the psychological factors and intention of logistic outsourcing in Kelantan, Malaysia.

1.1 Research Question

RQ1 What is the effect of attitude on logistics outsourcing intention in Kelantan, Malaysia?

RQ2 What is the effect of subjective norm on logistics outsourcing intention in Kelantan, Malaysia?

RQ3 What is the effect of perceived behavioral control on logistics outsourcing intention in Kelantan, Malaysia?

RQ4 What is the effect of trust on logistics outsourcing intention in Kelantan, Malaysia?

1.2 Research Objective

RO1 To determine the effect of attitude on logistics outsourcing intention in Kelantan, Malaysia.

RO2 To determine the effect of subjective norm on logistics outsourcing intention in Kelantan, Malaysia.

RO3 To determine the effect of perceived behavioral control on logistics outsourcing intention in Kelantan, Malaysia.

RO4 To determine the effect of trust on logistics outsourcing intention in Kelantan, Malaysia.

2 Literature Review

2.1 Underpinning Theory

This study employs Ajzen's (1985) Theory of Planned Behavior (TPB). As a theoretical framework, TPB is a psychological theory that links beliefs to conduct. According to this theory, attitude, subjective norm, and a perceived behavioral control are the three primary factors that are hypothesized to have an impact on individuals' intentions toward their behavior. However, the core idea behind TPB is that a person's behavioral intentions are the most accurate indicator of how they would behave in social settings. Ajzen was the one who initially proposed the improvement of the foresightful capacity of the Theory of Reasoned Action (TRA). Ajzen suggests bringing the concept of perceived behavioral control into the TPB. The perceived ability to control one's behavior needs to be accounted for in TRA. The TRA has been utilized in studies that study the interrelationships between a variety of human domains, including beliefs, attitudes, behavioral intentions, and behaviors, amongst others (Ajzen, 1985).

2.2 Logistics Outsourcing Intention

Researchers found that TPB have a strong connection with intention of logistics outsourcing from previous research (Rintala et al., 2021). In order to accurately anticipate and explain behavior and intentions, TPB makes use of components such as perceived behavioral control, attitudes toward behavior, and subjective norm. As stated by Ajzen (1991), a person's attitude toward subjective standards connected to perceived peer or societal roles that support the execution of a certain activity may be determined by looking at the benefits and drawbacks associated with executing that action. a previous study done by Rintala et al. (2021) stated that as attitudes improve, subjective standards become more motivating, and decision-makers inside the company involved in outsourcing or service delivery become more competent, behavioral reasons may better explain why companies choose to outsource their operations.

From the previous researches (Ajzen, 1991; Marchet et al., 2018; Rintala et al., 2021), it is obvious that the application of TPB in the research of intention of logistics outsourcing can make SMEs more understand about how psychological factors (attitude, subjective norm, perceived behavioral control, and trust) of their own drives them to logistics outsourcing that could bring benefits to them.

2.3 Attitude

In TPB, attitude toward behavior is formed under the influence of beliefs about the behavior itself, i.e., that a certain behavior will lead to certain consequences, which are then subjectively evaluated as being they like it or not. These beliefs can be summarized as the notion that a behavior will lead to a particular result (Fishbein & Ajzen, 2011; Rintala et al., 2021).

The component of attitude has been the subject of a significant amount of research in recent years, and it is now seen as a predictor of intents to outsource logistics, particularly in the perspective of SMEs. Based on previous study done by German et al. (2022), The attitude of a business demonstrated to have the most important influence on the behavioral intention of a firm to employ a 3PL provider for outsourcing.

Previous study also showed that an individual's intentions about their actions are significantly influenced by their attitudes (Ong et al., 2021). Moreover, according to the findings of a study conducted by Ding et al. (2022), which examined consumers' intentions regarding the buying of traceable seafood, a more positive attitude is indicative of a more pronounced purchase intention.

As a result, from the findings of previous study (Ding et al., 2022; German et al., 2022; Ong et al., 2021), it is clearly seen that SMEs' positive attitude may be connected with their desire to outsource their logistical tasks while they are deciding whether or not to outsource these services. Hence, researchers had developed a hypothesis that:

H1: There is significant relationship between attitude and logistics outsourcing intention.

2.4 Subjective Norm

Subjective norm relates to whether or not a person feels under societal pressure to act in a particular manner. Subjective norm contemplate a person's understanding of what others expect them to do and their desire to follow these social standards (Dalila et al., 2020). The reflecting aspect of social influence or subjective norm is a trait of values formed from different people's perceptions regarding the objective of individual attitude. When making decisions or carrying out tasks, people act upon or take into consideration the views of caregivers, such as friends, family, and coworkers (Meng & Choi, 2016). People also face social pressures and follow or consider the opinions of significant others when making decisions or carrying out activities (Ajzen & Kruglanski, 2019).

Subjective norm is important component that should be taken into account when outsourcing logistics because they affect how people perceive the social demands of the people who mean to them which is their family, friends, coworkers or others and how motivated they are to accept those pressures (Ham et al., 2015).

In the view of Aslam et al. (2017), subjective norm is one of the most significant predictors that influence behavioral intention. Cao et al. (2022) also proved that when it comes to certain kinds of behavior, a greater degree of subjective norm is often related to more significant behavioral intentions. Moreover, it has been resulted that subjective norm significantly and barely have a beneficial impact on behavioral intention (Roh et al., 2022).

By reviewing the result getting from previous study (Aslam et al., 2017; Cao et al., 2022; Roh et al., 2022), there are a significant relationship between subjective norm and behavioral intention. Therefore, it is obvious that subjective norm of SMEs in Kelantan Malaysia has a strong connection with their intention to logistics outsourcing. In line with this, the hypothesis of this study is:

H2: There is significant relationship between subjective norm and logistics outsourcing intention

2.5 Perceived Behavioral Control

According to TPB, an individual's assessment of his or her own capacity to carry out a certain conduct is referred to as that person's perceived behavioral control (Ajzen, 1991). Control beliefs and perceived power are the two components that go into making up perceived behavioral control. Beliefs about the availability of opportunities or resources that either help or get in the way of the execution of an activity are known as control beliefs (Ajzen & Kruglanski, 2019). However, it has been shown that even with totally neutral attitudes and subjective norm, perceived behavioral control may lead to behavioral intents (Hoeksma et al., 2017). Perceived behavioral control is important when having intention of logistics outsourcing because perceived behavioral control is based on the fact that successful behavior takes time, money, skills, and abilities (Fishbein & Ajzen, 2011). Perceived behavioral control is also a measure of how much a person feels in charge of how he or she acts, even though there may be external and internal limits (Rintala et al., 2021).

Previous study done by Huang et al. (2021) shows that a positive influence on cooperative consuming intentions of using online car-hailing and actions may be achieved via the perceived behavioral control. Study also showed that consumer self-esteem is intimately linked to the perceived behavioral control, and it is believed that high levels of self-esteem either affect or directly result in high levels of intention and behavioral control (Cao et al., 2022). Moreover, according to German et al. (2022), it was shown that perceived behavioral control has a substantial influence on the intention to utilize a Third-Party Logistics provider.

From the results obtained by previous study (Cao et al., 2022; German et al., 2022; Huang et al., 2021), it shows a positive relationship between perceived behavioral control an intention. Hence, it is clearly seen that the intention of logistics outsourcing will affect by perceived behavioral control. On that note, researchers developed a hypothesis for this study:

H3: There is significant relationship between perceived behavioral control and logistics outsourcing intention.

2.6 Trust

Trust is the readiness of one party to be affected by the actions of another party based on the anticipation that the other party will do an action that is essential to the trusting party, regardless of whether the trusting party can watch the action being performed (Luhmann, 2018; Robbins, 2016).

The trust of the SMEs and the confidence in the particular 3PL provider are both taken into account when evaluating a logistics outsourcing agreement. Trust derives from the SMEs conviction that the 3PL provider's activities will benefit it and that it would not unintentionally take any measures that would have the opposite effect (Kalubanga & Namagembe, 2022; Tse et al., 2019).

Trust is an important component for SMEs in having intention of logistics outsourcing because until they have knowledge or competence regarding ethical criteria, trust may play a notable role in boosting the behavioral intentions of SMEs (Bonn et al., 2016).

Previous study done by Mageto et al. (2020) showed that trust in communication, innovation, and collaboration between manufacturing SMEs and logistics service providers is seen as a determinant of the efficacy of logistics outsourcing. Only communication trust has a favorable effect on logistics efficiency. The study's findings aid SME managers in fostering communication and trust in logistics outsourcing partnerships. Study done by Ejdys and Gulc (2020) Also revealed a substantial correlation between trust and the propensity to utilize a 3PL business.

Moreover, previous study (Kalubanga & Namagembe, 2022) was get a result that trust have significant influence on the intention of logistics outsourcing. Therefore, by reviewing the previous study (Ejdys & Gulc, 2020; Kalubanga & Namagembe, 2022; Mageto et al., 2020), it is obvious that trust of SMEs toward 3PL company will influence their logistics outsourcing intention. Therefore, the hypothesis of this study is:

H4: There is significant relationship between trust and logistics outsourcing intention.

2.7 Conceptual Framework

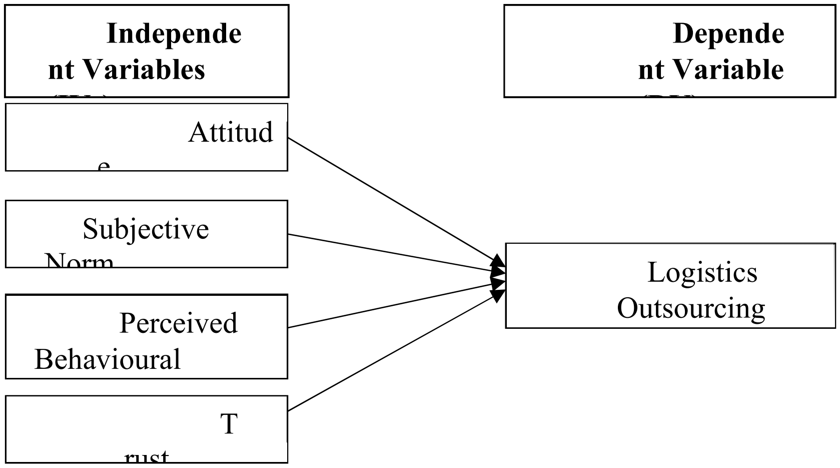


Figure 1: Conceptual Framework of Study

3 Methodology

3.1 Research Design and Sampling Strategy

For this study, the researchers used the cross-sectional research design. According to SME Corporation Malaysia, the number of SMEs established in Kelantan is 46,618 (SME Corporation Malaysia, 2022). In the view of Sekaran and Bougie (2016), the sample size for population of 46,618 (approach 50,000) is 381 respondents. In line with this, only 310 of respondents has completely answered the questionnaire in Google Form where it is not reached the sample size stated by Sekaran and Bougie (2016). This is because Kelantan was faced flood during December, many SMEs might do not have time and not in the mood to fill up the questionnaire due to preparing for flood and flood aftermath. However, 310 respondents were still acceptable to analyze since researchers had also used G-Power version 3.1.9.7 software to determine the minimum sample size which is 129.

3.2 Data collection method

Primary data has been utilized in this study, and the data gathered by an online survey (also known as an online questionnaire) has been created in Google Form that connects to the study's objective. In this study, 5-point Likert scales used for IVs (attitude, subjective norm, perceived behavioral control, and trust) and 7-point Likert scales for DV (logistics outsourcing intention) to reduce biases of respondents. The questionnaire designed in 2 languages which are English and Malay to make non-English speakers also can understand the questionnaire.

Table 1: Summary of Item

Section	Item	Number of items
A	Demographic	6
B	Attitude	4
C	Subjective Norm	4
D	Perceived Behavioral Control	4

E	Trust	4
F	Intention of Logistics Outsourcing	4

To develop the question for the questionnaire, researchers adapted from previous literatures. Section B (attitude) adapted and modified from questionnaire done by (Rintala et al., 2021). Section C (subjective norm) adapted from (Giampietri et al., 2018). Section D (perceived behavioral control) paraphrased from (Rintala et al., 2021). Section E (trust) adapted and modified from (Liu et al., 2021; Raman, 2019) to suit the research title. Finally, section F (logistics outsourcing intention) paraphrased from (Rintala et al., 2021; Solakivi et al., 2011). Structured or closed questions has been posed to the respondents, with instructions for how to respond included in the questionnaire.

4 Data Analysis and Finding

4.1 Reliability Analysis

An online survey was subjected to a pilot test with a group of 30 respondents before the questionnaire was sent out to respondents. The result of Cronbach's Alpha was showed below:

Table 2: Results of Cronbach’s Alpha values of pilot test

Variables	umber of Items	Cronbach's Alpha values	Strength of Association
Logistics Outsourcing Intention	4	0.897	Good
Attitude	4	0.881	Good
Subjective Norm	4	0.776	Acceptable
Perceived Behavioral Control	4	0.786	Acceptable
Trust	4	0.849	Good

Based on table 2, the dependent variable which is logistics outsourcing intention with 4 items shows Cronbach Alpha’s values of 0.897 which is good strength. For dependent variables, the Cronbach Alpha’s values of attitude, and trust with 4 items also show good strength which their Cronbach Alpha’s values is 0.881 and 0.849 while respectively. Another 2 dependent variables, subjective norm and perceived behavioral control with 4 items had Cronbach Alpha’s values of 0.776 and 0.786 respectively which is at acceptable strength. As a result, all the variables show an acceptable and good strength of Cronbach Alpha’s value in this reliability analysis. Therefore, the questionnaire is reliable and shows that respondents are understood the questions well.

4.2 Demographic Profile of Respondent

Among 310 respondents, 163 which is 52.6% is male while 147 which is 47.4% is female. For race, Malay respondents have the highest frequency which is 244 (78.7%). Second is Chinese respondents with frequency 40 (12.9%). Third is Indian respondents with frequency 26 (8.4%). Apart from that, respondents that are 30 years old to 39 years old have the highest frequency which is 133 (42.9%). Second is respondents who are 40 years old to 49 years old with frequency 116 (37.4%). Next is respondents who are 20 years old to 29 years old with frequency 36 (11.6%). Last is respondents who are 50 years old and above with frequency 25 (8.1%). Furthermore, 247 which is 79.7% of respondents had married while 63 which is 20.3% of respondents is single. In line with this, number of respondents with STPM/Matrikulasi/Diploma qualification are 113 which is 36.5%. Number of respondents with SPM and Degree qualification are same, frequency 92 which is 29.7%. 10 respondents have a Master qualification which is 3.2%. There are only 1.0% of respondent owned a PhD qualification which are only 3 respondents. Last, 5.8% which are 18 respondents are involved in manufacturing sector. 94.2% of respondents, which are 292 respondents are involved in service and others sector. These data were illustrated in table 3 below:

Table 3: Distribution of Respondents' Demographic

Demographic Item	Characteristics	Frequency (N=310)	Percentage (%)
Gender	Male	163	52.6
	Female	147	47.4
Race	Malay	244	78.7
	Chinese	40	12.9
	Indian	26	8.4
Age	20 years old to 29 years old	36	11.6
	30 years old to 39 years old	133	42.9
	40 years old to 49 years old	116	37.4
	50 years old and above	25	8.1
Marital Status	Married	247	79.7
	Single	63	20.3
Education Level	SPM	92	29.7
	STPM/Matrikulasi/Diploma	113	36.5
	Degree	92	29.7
	Master	10	3.2
	PhD	3	1.0
SME Sector	Manufacturing	18	5.8
	Service and others	292	94.2

4.3 Descriptive Analysis

Table 4: Descriptive Analysis for all variables

Items	N	Minimum	Maximum	Mean	Std. Deviation (SD)
1. Logistics Outsourcing Intention	310	1.00	7.00	4.9460	1.73931
2. Attitude	310	1.00	5.00	3.7637	1.07957
3. Subjective Norm	310	1.00	5.00	3.7766	1.04214
4. Perceived Behavioral Control	310	1.00	5.00	3.7210	1.08067
5. Trust	310	1.00	5.00	3.8250	1.04288

The descriptive analysis for all variables which is dependent variable (logistics outsourcing intention) and independent variables (attitude, subjective norm, perceived behavioral control, and trust) were recorded in table 4.13. Due to 7 Point Likert Scale was applied on dependent variable, from maximum mean value of 7.00, logistics outsourcing intention gained mean value of 4.9460

(SD=1.73931).

For independent variables which tested with 5 Point Likert Scale, Trust gets the highest mean value which is 3.8250 (SD=1.04288). Subjective norm is the second highest mean value which is 3.7766 (SD=1.04212) followed by attitude with mean value 3.7637 (SD=1.07957). The lowest mean is perceived behavioral control which recorded as 3.7210 (SD=1.08067). Therefore, it can be clearly seen that most respondent agree that those psychological factors (attitude, subjective norm, perceived behavioral control, and trust) play important role in having intention of logistics outsourcing.

4.4 Pearson Correlation

Table 5 shows that for attitude and logistics outsourcing intention the P-value getting from the result is 0.000. The value is less than the significant level of 0.05. Hence, the independent variable (attitude) is significant with logistics outsourcing intention. The Pearson's Correlation value, r between logistics outsourcing intention and attitude is 0.853. According to the strength interval of correlation coefficient, the value from 0.70 to 0.90 is interpret a high positive correlation. This correlation value (r=0.853) shows that there was a high positive correlation between attitude and logistics outsourcing intention.

Next, for subjective norm and logistics outsourcing intention, the P-value getting from the result is 0.000. This significant value is less than the significant level of 0.05. Hence, the independent variable (subjective norm) is significant with logistics outsourcing intention. The Pearson's Correlation value, r between logistics outsourcing intention and subjective norm is 0.856. According to the strength interval of correlation coefficient, the value from 0.70 to 0.90 is interpret a high positive correlation. This correlation value (r=0.856) illustrated that high positive correlation between subjective norm and logistics outsourcing intention was formed.

For perceived behavioral control and logistics outsourcing intention, the P-value getting from the result is 0.000 which is less than the significant level of 0.05. Hence, the independent variable (perceived behavioral control) is significant with logistics outsourcing intention. The Pearson's Correlation value, r between logistics outsourcing intention and perceived behavioral control is 0.872. According to the strength interval of correlation coefficient, the value from 0.70 to 0.90 is interpret a high positive correlation. This correlation value (r=0.872) shows a high positive correlation between perceived behavioral control and logistics outsourcing intention.

Last, for trust and logistics outsourcing intention, the P-value getting from the result is 0.000. The obtained value is less than the significant level of 0.05. Hence, the independent variable (trust) is significant with logistics outsourcing intention. The Pearson's Correlation value, r between logistics outsourcing intention and trust is 0.863. According to the strength interval of correlation coefficient, the value from 0.70 to 0.90 is interpret a high positive correlation. This correlation value (r=0.863) shows that there was a high correlation between trust and logistics outsourcing intention.

Table 5: Pearson's Correlation Coefficient

		Logistics Outsourcing Intention	**Attitude**	**Subjective Norm**	**Perceived Behavioral Control**	**Trust**
Logistics Outsourcing	Pearson Correlation	1	.853**	.856**	.872**	.863**

Intention	Sig. (2-tailed)		.000	.000	.000	.000
	N	310	310	310	310	310
Attitude Correlation	Pearson	.853**	1	.845**	.851**	.851**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	310	310	310	310	310
Subjective Norm	Pearson Correlation	.856**	.845**	1	.882**	.839**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	310	310	310	310	310
Perceived Behavioral Control	Pearson Correlation	.872**	.851**	.882**	1	.836**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	310	310	310	310	310
Trust Correlation	Pearson	.863**	.851**	.839**	.836**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	310	310	310	310	310

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

4.4 Multiple Linear Regression

Table 6: Model Summary

Model R	R Square	Adjusted R Square	Std. Error of the Estimate
.915^{a}	.837	.834	.70774

a. Predictors: (Constant), Trust, Perceived Behavioral Control, Attitude, Subjective Norm

Tale 6 illustrated the model summary of this study. Based on the model summary of regression in SPSS above, 0.837 indicated R-Square value, which means 83.70% of the variation in logistics outsourcing intention can be explained by attitude, subjective norm, perceived behavioral control, and trust.

4.5 ANOVA Analysis

Table 6: ANOVA Table

Model		Sum Squares of	df	Mean Square	F	Sig.
1	Regression	782.008	4	195.502	390.301	.000^{b}
Residual		152.775	305	.501		
	Total	934.782	309			

b. Dependent Variable: Logistics Outsourcing Intention

c. Predictors: (Constant), Trust, Perceived Behavioral Control, Attitude, Subjective Norm

Table 6 shows the ANOVA result obtained from SPSS ver.26 for this study. From table above, the significant value (p-value) is 0.000. Thus, it can be concluded that there is at least one of these 4 independent variables (attitude, subjective norm, perceived behavioral control, and trust) is significant with dependent variable (logistics outsourcing intention).

4.5 Coefficient Analysis

The result if coefficient analysis were displayed in table 7. From table above, the significant value of attitude and perceived behavioral control, and trust are 0.000, which is less than 0.05. The significant value of subjective norm and trust is 0.002, which also less than 0.05. Thus, all the independent variables are significant.

Table 7: Coefficient Analysis

	Unstandardized	Standardized Coefficients		Coefficients		
		B	Std. Error	Beta		
1	(Constant)	-1.047	.159		-6.599	.000
	Attitude	.314	.084	.195	3.750	.000
	Subjective Norm	.288	.092	.172	3.143	.002
	Perceived Behavioral Control	.493	.089	.306	5.535	.000
	Trust	.494	.083	.296	5.937	.000

d. Dependent Variable: Logistics Outsourcing Intention

From the equation model, the equation is show as:

$$Logistics\ outsourcing\ intention$$
$$= -1.047 + 0.314\ (Attitude) + 0.288\ (Subjective\ Norm)$$
$$+ 0.498\ (perveived\ behavioral\ control + 0.494\ (Trust)$$

RQ1: What is the effect of attitude on logistics outsourcing intention in Kelantan, Malaysia?

From the equation, it can be explained that in every unit increase of attitude, logistics outsourcing intention will be increase by 0.314. The regression has shown a positive effect of attitude on logistics outsourcing intention. Therefore, research question 1 was answered.

RQ2: What is the effect of subjective norm on logistics outsourcing intention in Kelantan, Malaysia?

From the equation, it can be explained that in every unit increase of subjective norm, logistics outsourcing intention will be increase by 0.288. The regression has shown a positive effect of subjective norm on logistics outsourcing intention. Therefore, research question 2 was answered.

RQ3: What is the effect of perceived behavioral control on logistics outsourcing intention in Kelantan, Malaysia?

From the equation, it can be explained that in every unit increase of perceived behavioral control, logistics outsourcing intention will be increase by 0.498. The regression has shown a positive effect of perceived behavioral control on logistics outsourcing intention. Therefore, research question 3 was answered.

RQ4: What is the effect of trust on logistics outsourcing intention in Kelantan, Malaysia?

From the equation, it can be explained that in every unit increase of trust, logistics outsourcing intention will be increase by 0.494. The regression has shown a positive effect of perceived behavioral control on logistics outsourcing intention. Therefore, research question 4 was answered.

5 Discussion

Table 8: Discussion of hypothesis

	Hypothesis	Significant level	Significant result
H1	There is significant relationship between attitude and logistics outsourcing intention.	P = 0.000	Accepted
H2	There is significant relationship between subjective norm and logistics outsourcing intention.	P = 0.000	Accepted
H3	There is significant relationship between subjective norm and logistics outsourcing intention.	P = 0.000	Accepted
H4	There is significant relationship between trust and logistics outsourcing intention.	P = 0.000	Accepted

5.1 Hypothesis 1 – Attitude

The significant value from table 8 showed that there is a significant relationship between attitude and logistics outsourcing intention among SMEs in Kelantan, Malaysia ($r=0.853$, $N=310$, $p<0.05$). This indicated that there is a significant and high correlation between attitude and logistics outsourcing intention. Result from previous study done by German et al. (2022) and Akter (2015) also supported that attitude have a positive significant relationship with intention of logistics outsourcing. From here, it is clearly seen that the first hypothesis in this study was accepted.

5.2 Hypothesis 2 – Subjective Norm

The significant value from table 8 showed that there is a significant relationship between subjective norm and logistics outsourcing intention among SMEs in Kelantan, Malaysia ($r=0.856$, $N=310$, $p<0.05$). This indicated that there is a significant and high correlation between subjective norm and logistics outsourcing intention. Result from previous study done by Rintala et al. (2021) and Roh et al. (2022) were also concluded that subjective norm have significant relationship with intention. Thus, the second hypothesis in this study was supported.

5.3 Perceived Behavioral Control

Table 8 also presented that there is a significant relationship between perceived behavioral control and logistics outsourcing intention among SMEs in Kelantan, Malaysia ($r=0.872$, $N=310$, $p<0.05$). This indicated that there is a significant and high correlation between perceived behavioral control and logistics outsourcing intention. Result from previous study done by Cao et al. (2022) and German et al. (2022) were also stated that perceived behavioral have significant relationship with intention. Thus, the third hypothesis in this study was supported and accepted.

5.4 Hypothesis 4 – Trust

From the table 8, it is clearly the relationship between trust and logistics outsourcing intention among SMEs in Kelantan, Malaysia is significant ($r=0.863$, $N=310$, $p<0.05$). This indicated that there is a significant and high correlation between trust and logistics outsourcing intention. Result from previous study done by Mageto et al. (2020) and Ejdys and Gulc (2020) were also supported that trust have significant relationship with intention of logistics outsourcing. Thus, the last hypothesis in this study was supported and accepted.

5.5 Implication of the Study

In recent years, due to the rise of outsourcing services, many large international or local corporations have learned the benefits that outsourcing services can bring to their companies (Langley & Infosys, 2019; Rintala et al., 2021). Through the findings of this study, SMEs in Kelantan, Malaysia could be having a better view about which psychological factors have more impact on their intention to logistics outsourcing and it turns out that logistics outsourcing could bring overall benefits to a company.

In addition to discover the connection between attitude, subjective norm and perceived behavioral control that had been commonly discovered when apply TPB in researches related with intention of logistics outsourcing, researchers had also implemented the element of trust in this study and this study also had proved that trust have significant relationship with logistics outsourcing intention. In line with this, it can greatly help other researchers to have better understanding when used as a reference and done further research based on trust and intention.

This research will also greatly aid logistics service providers. The findings of this research will promote possible added value, attract outsourcing specs ("everyone is doing it!") and impact the contracting party over the other party's willingness to accept outsourcing. It is advisable to invest in the outsourcing relationship since a high trust level of the outsourcing partner leads to a readiness to outsource. If a SME also outsources its core business, the service provider should be knowledgeable in various areas of logistics and provide services that are suited to the demands of the client.

5.6 Recommendations/ Suggestion for Future Research

Since there are some limitations in this study, researchers have recommendations for future research that might be helpful for other researchers.

First of all, researchers would like to suggest that to use bigger sample size which is extending the scope to the whole of Malaysia. Since this research only takes SMEs in Kelantan as scope of study, the logistics providers at other states might hard to get relevant data as reference. By extending the scope to the whole Malaysia, the accuracy and the reliability of study will be improved.

Next, researchers would recommend that to implement more psychological factors when apply TPB in research. When comes to measurement of intention, the three-core component of TPB (attitude, subjective norm, perceived behavioral control) are commonly applied in research. Although researchers had implemented trust as other factors in this research, however, there are many other components can be applied in future study when analyze about logistics outsourcing intention such as reputation.

Furthermore, researchers would like to suggest to future researcher that to use qualitative method such as interview when doing similar research. This is because only quantitative methods were used in this study. As a result, the results cannot be as precise as possible, as some respondents would not answer questionnaires with full dedication. Therefore, the qualitative method can obtain the answer by directly questioning the respondent and obtaining a more accurate and dependable response on the spot.

Last, researchers will suggest that to differentiate the logistical activities in future research. In logistics activities, there are eight major element which are transportation, warehousing, packaging, material handling, order fulfilment, production planning, purchasing and procurement, and customer service. However, researchers only categorized these eight elements as logistical activities when conducting this study. Therefore, by studying these eight activities separately, it will yield more accurate information when comes to logistics outsourcing intention.

5.7 Overall Conclusion of the Study

In line with this, 310 respondents were participated in this research thru online survey which is Google Form. After gathered the data obtained from respondents, descriptive analysis, validity and reliability test, normality test and hypotheses testing has been analyzed and recorded by using SPSS ver.26. Result from the reliability test showed that respondents understood about the questions in the questionnaire. After conducting Pearson Correlation Coefficient analysis, the result showed that all independent variables had significant relationship with dependent variables. Result getting from multiple regression analysis also showed that there is a positive relationship between all independent variables and dependent variables. As a final word, the objectives of this study were achieved, the research question also has been answered. Therefore, researchers hoped that all the data and recommendations from this study can bring benefits to related parties of this study.

6 Acknowledgements

First and foremost, we want to express our heartfelt gratitude to everyone who helped us complete our final year project. We are incredibly grateful to our supervisor, for always assisting us in improving, providing advisors and providing comprehensive supervision for us to accomplish this research project. We learned a lot of new things, and we are grateful to our professor for giving so much information about our research topics as it developed. Following that, we would want to express our gratitude to the University Malaysia Kelantan, particularly the Faculty of Entrepreneurship and Business (FKP), for allowing us to undertake this research in order to complete our studies and graduate as soon as possible.

Furthermore, we would like to thank our group members for their dedication to making this research endeavor a success, no matter how challenging it has been. We would not have been able to accomplish this study assignment on time without their aid. Furthermore, a heartfelt thank you to our adored family for their financial assistance as well as for staying by our side and encouraging us in our studies. Finally, researchers want to thank to all respondents who willing to spend time to fill up the questionnaire.

7 References

Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In *Action control* (pp. 11-39). Springer.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179-211. https://doi.org/https://doi.org/10.1016/0749-5978(91)90020-T

Ajzen, I., & Kruglanski, A. W. (2019). Reasoned action in the service of goal pursuit. *Psychological review*, *126*(5), 774.

Akter, N. (2015). *Modelling intention to use third party logistics: an application of the theory of planned behaviour* RMIT University].

Aslam, W., Ham, M., & Arif, I. (2017). CONSUMER BEHAVIORAL INTENTIONS TOWARDS MOBILE PAYMENT SERVICES: AN EMPIRICAL ANALYSIS IN PAKISTAN [Namjere ponaŠanja potroŠaČa prema uslugama mobilnoga plaĆanja: Empirijsko istraŽivanje u pakistanu]. *Trziste = Market*, *29*(2), 161-176. https://doi.org/https://doi.org/10.22598/mt/2017.29.2.161

Batarlienė, N., & Jarašūnienė, A. (2017). "3PL" Service Improvement Opportunities in Transport Companies. *Procedia Engineering 187*, 67-76.

Bonn, M. A., Cronin Jr, J. J., & Cho, M. (2016). Do environmental sustainable practices of organic wine suppliers affect consumers' behavioral intentions? The moderating role of trust. *Cornell Hospitality Quarterly*, *57*(1), 21-37.

Busse, C., Regelmann, A., Chithambaram, H., & Wagner, S. M. (2017). Managerial perceptions of energy in logistics. *International Journal of Physical Distribution & Logistics Management*, *47*(6), 447-471.

Cao, H., Li, F., Zhao, K., Qian, C., & Xiang, T. (2022). From value perception to behavioural intention: Study of Chinese smallholders' pro-environmental agricultural practices. *Journal of Environmental Management*, *315*, 115179.

Dalila, D., Latif, H., Jaafar, N., Aziz, I., & Afthanorhan, A. (2020). The mediating effect of personal values on the relationships between attitudes, subjective norms, perceived behavioral control and intention to use. *Management Science Letters*, *10*(1), 153-162.

Ding, L., Liu, M., Yang, Y., & Ma, W. (2022). Understanding Chinese consumers' purchase intention towards traceable seafood using an extended Theory of Planned Behavior model. *Marine Policy*, *137*, 104973.

Economic Development Board. (2020). *Logistics and supply chain management*. https://www.edb.gov.sg/en/our-industries/logistics-and-supply-chain-management.html

Ejdys, J., & Gulc, A. (2020). Trust in courier services and its antecedents as a determinant of perceived service quality and future intention to use courier service. *Sustainability*, *12*(21), 9088.

Fishbein, M., & Ajzen, I. (2011). *Predicting and changing behavior: The reasoned action approach*. Psychology press.

German, J. D., Ong, A. K. S., Perwira Redi, A. A. N., & Robas, K. P. E. (2022). Predicting factors affecting the intention to use a 3PL during the COVID-19 pandemic: A machine learning ensemble approach. *Heliyon*, *8*(11), 11-38.

The Impacts of Disposable PP Plastic Food Box on Consumer Buying Behaviour among UMK Students

Mok See Yan, Nurul Alia Maisara Sobri, Shanmugee A/P Kunasaigaran, Muhammad Ramaddan Mohd Rawi & Zaminor Zamzamir@Zamzamin*

Faculty of Entrepreneurship and Business,
Universiti Malaysia Kelantan,
Malaysia

Email: zaminor@umk.edu.my

Abstract:
Packaging is a mantra for encountering a period of immense potential. It continues to be viewed as a crucial factor in purchasing decisions and is also demonstrated as a brand marketing tool that extends beyond the items and may interact with customers both physically and virtually. The research aspiration is to identify what elements of packaging that will influence on buyers' purchasing mode. The study adopted a survey through a quantitative approach by distributing questionnaires to 260 respondents from University Malaysia Kelantan students. The consequence of research reveals that packaging size, packaging materials, and design of wrappers are the factors that significantly influence on the consumer buying behaviour. Business people must produce innovative bundling designs for their items to market. These allow the keeping and catching new and existing consumers, because the packaging has superior influence and also helps in acquiring and retaining new consumers for their new products. This study is focused on Logistics and Distribution bachelor's degree programs with honors (SAL) only. Therefore, the sample may not represent the whole population of students. Furthermore, the study provides recommendations for the future that can further expand the number of respondents and include more programs and public universities to increase accuracy and reliable data.

***Keywords**: Packaging materials, Design of wrappers, Consumer buying behaviour*

1 Introduction

Packaging now serves as an important marketing tool in developing shelf appeal, offering product information, and improving brand awareness, much beyond its primary purpose of protecting the goods. Packaging also enables consumers to make comparisons among a variety of products and affects their buying behaviour since the packaging serves as a differentiation tool (Kwaku & Fan, 2020).Those with distinctive packaging are more appealing to consumers than products that are already on the market. This situation makes it difficult for the business to stand out from the competition in terms of newness and benefits to their end customers. As a result, packaging components are crucial in influencing consumers' purchase intentions and perceptions of food products (Rahman & Johari, 2020). Research on food quality preservation is crucial because it directly relates to the aim of improving people's living standards. Furthermore, due to quality and safety features, there is a rising demand from consumers. The materials used for packaging have a significant impact on these problems. Intelligent packaging has the potential to increase consumer safety, reduce environmental impact, and make packaged products and food companies more appealing (Fang et.al, 2017).

In 2005, the Food and Environmental Hygiene Department collaborated with the Consumer Council on research on the safety of disposable containers. The study found that, if used appropriately, plastic disposable food containers offered by local food businesses, retailers, and school lunch box providers would not pose a food safety risk. The use of plastics for packaging has some advantages, since they are flexible and inexpensive. However, most plastics are of single use which combined with low recycling or reuse ratios, contributes substantially to environmental pollution. The majority of plastics are made from petroleum and deposited in the environment where they cannot dissolve, which causes serious environmental issues. When plastic bags and other types of plastic are disposed of improperly, they end up everywhere, including the oceans, endangering aquatic life, agricultural lands, and the environment as a whole (Weber et.al, 2021). Thus, product packaging appears at a critical point when customers make a purchasing decision (Ampuero & Vila, 2006). In addition, packaging draws attention to a product and influences the consumer purchasing process, making marketing communications through packaging essential for developing products that meet customer needs. It was critical to use packaging as a strategic marketing tool for the entire company, especially in the highly competitive food industry. As a result of increasing market competition in various product settings, food companies have fuelled this interest even further (Wang, 2017).

2 Literature Review

2.1 Introduction

The chapter provides an overview of the data from other researchers who have conducted similar packaging and consumer behaviour research. This chapter presents current research on the subject. Literature reviews were based on secondary sources found in published works including books, theses, journals, conference proceedings, and other publications. The literature review provides insights into theories that represent both the dependent and independent variables. It necessitates a thorough examination of the established theoretical framework as well as the subject matter of the studies. This dissertation was divided into two sections: theoretical and empirical. The theoretical section was related to the impulse buying theory which explain the behaviour of consumers. Besides that, the quantitative research method was used for the empirical portion. This investigation’s data was gathered using a questionnaire. The findings and conclusions of the study were presented at the end.

2.2 Underpinning Theory

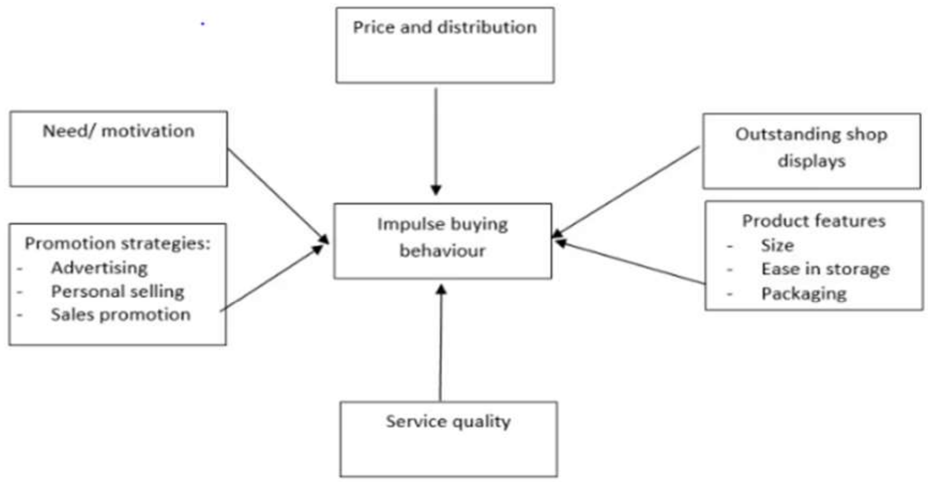


Figure 1: Hawkins Stern's Impulse Theory

In contrast to some of the modern consumer behaviour theories such as Maslow's Need Hierarchy Theory of Motivation (1943) and Engel, Kollat and Blacwell (1968) that mentioned the consumers always make rational and well-planned buying decisions, the Hawkins Stern's impulse theory highlighted the concept of impulse behaviour (Agarwal & Chetty,2019). Impulsive buying has almost no correlation with rational decision making and is affected by external stimuli (Bawono, 2020). In addition, every component of a product such as packaging, features, display of the product, and ease of shopping will influence on the impulse of consumers. There were four categories of impulsive buying which include pure impulse purchases, impulse purchase reminded, suggested impulse purchase, and impulsive purchases that were planned.

1. Pure Impulse Buying
   Pure impulse buying refers to a purchase that is made as a sudden decision without any consideration and calculations by the consumers. Furthermore, pure impulse buying also mentioned that the consumers tend to be emotional, and impulsive and may not initially seek for the products but instead have a strong emotional need.
2. Reminder Impulse Buying
   Reminder impulse buying happens when consumers decide to purchase a product since they have prior knowledge about the product, either from an advertisement or some information the consumers have previously noticed.
3. Suggested Impulse Buying
   Suggested impulse buying happens when a consumer first sees a product and becomes attracted to purchase it.
4. Planned Impulse Buying
   Planned impulse buying occurs when consumers want to buy a product but unsure of its features.

2.3 Consumer buying behaviour

Consumer buying behaviour is a complex and continuously evolving issue which is hard to define (Ahsan & Siddiqui, 2019). Consumer buying behaviour can relate to the individual’s actions for purchasing, using and disposing economical goods and services as well as the decision-making process before buying behaviour. Furthermore, the term consumer behaviour also refers to the actions that consumers display in exploring for, buying, using, evaluating and discard of goods and services that the consumer expect will meet their needs. Besides that, consumer behaviour also related to how consumers make decision to spend their available resources such as time, money and efforts on purchasing goods or service (Kumar & Publication, 2021).. There were various factors impacting consumers’ buying behaviours which included internal, external, and personal factors. The internal factors represent the need, motive attitude, perception and learning of the consumers while external factors refer to the culture, social class, reference groups, economic status and family of the consumer. Additionally, personal factors involve the age, occupation, income and lifestyle of the consumer (Kotler & Keller, 2011)

2.4 Packaging Size

According to Philip Kotler K. L., (2008), the product using ratio increases when the product package is changed and the product size is increased (Smith and Talyor, 2004). The size of the product packaging was determined by the product features and the market that the company was aiming for, as well as the increased consumption of the product (Keller & Georgson, 2009). According to Arun Kumar (2012), the packing size, like the product colors, was also considered the tool of the product (Smith & Taylor, 2004). The availability of numerous sizes of the goods in the market was related to the product's market expansion. The smaller size of the product becomes the purpose of the small family, and the greater size of the product was regarded as a waste of the product by them (Ahmadi, Bahrami & Ahani, 2013). It has also been discovered in a previous study that customer readiness to purchase a product increase if the product is accessible in a smaller size and has a shorter expiration date, indicating that consumers do not appreciate huge product sizes (Rundh, 2009). According to Rundh (2009), smaller households purchase the packs that are in the small level (Raghubir & Krishna, 1999). If the initial product size is large, but the buyer does not want to buy it again. The labeling and size of the goods boost the consumer's confidence and repeat purchase behaviour. According to Vila and Ampuero (2006), larger product packaging was better than smaller packaging and provides better value than tiny value.

2.5 Packaging Materials

According to Smith (2004), some packaging materials must be designed in such a way that they can survive temperatures below zero or high temperatures in a microwave, depending on the product's functionality and consumer needs. One study on food packaging (Hollywood et al., 2013) investigated three packaging materials which were glass, plastic, and cardboard revealed various packaging perceptions about various packaging materials. Many people advocated for the use of glass packing material in food packaging, despite the fact that it was heavy and required washing after use. Second, buyers expressed concerns about cardboard packaging, arguing that it does not keep a product fresh and makes it difficult to see the items, and they likened it to UHT treated food (Hollywood et al., 2013). Participants in that study recommended the usage of plastic containers and agreed that they were superior to cardboard and glass packaging since their screw top closure prevented product leakage (Hollywood et al., 2013). Good packing materials must be utilized to protect the goods from damage. Customers find high-quality materials more appealing than low-quality materials. Consumer perception of packaging materials can influence a product's perceived quality (Fang et.al, 2013). Packaging now serves as an important marketing tool in developing shelf appeal, offering product information, and improving brand. The materials used for packaging have a significant impact on these problems and intelligent packaging has the potential to increase consumer safety and satisfaction.

2.6 Design of Wrappers

The design of the packaging conveys implied meanings about a product that are either positive or negative (Aday & Yener, 2014). According to Limon et al., (2009), packaging was used to identify the product. Play a significant part in enticing customers. In the case of wrapper design, children are most likely more sensitive. As a result, the corporation must develop a wrapper design that appeals to both adults and children. Children exhibit more sensitive behaviour when they purchase a product based on the design of the wrapper. As a result, every company wants to improve its wrapper design approach in order to attract consumers (Limon, Kahle & Orth, 2009). Agariya et al. (2012) discovered that seeing the wrapper design creates an image in the mind of the consumer's beliefs about the product. According to Ahmadi et al., (2013), appealing designs increase consumer interest in the product. The shape of the product was used for carrying and using the goods. Wang (2013) conducted a visual packaging survey and discovered that attitude affects how consumers perceive the quality of food and their brand preferences. If the wrapper design does not appeal to the buyer, the buyer will not buy the goods, regardless of its size, shape, or quality. If the original wrapper design of the purchasing product was changed, the consumer will not attempt to repeat the purchase.

2.7 Hypotheses Statement

The research has several objectives and questions which are related to the consumer buying behaviour among UMK students. There are following hypotheses that are formed for this research:

H1: There is a significant relationship between packaging size and consumer buying behaviour among UMK students.

H2: There is a significant relationship between packaging materials and consumer buying behaviour among UMK students.

H3: There is a significant relationship between the design of wrappers and consumer buying behaviour among UMK students.

2.8 Conceptual Framework

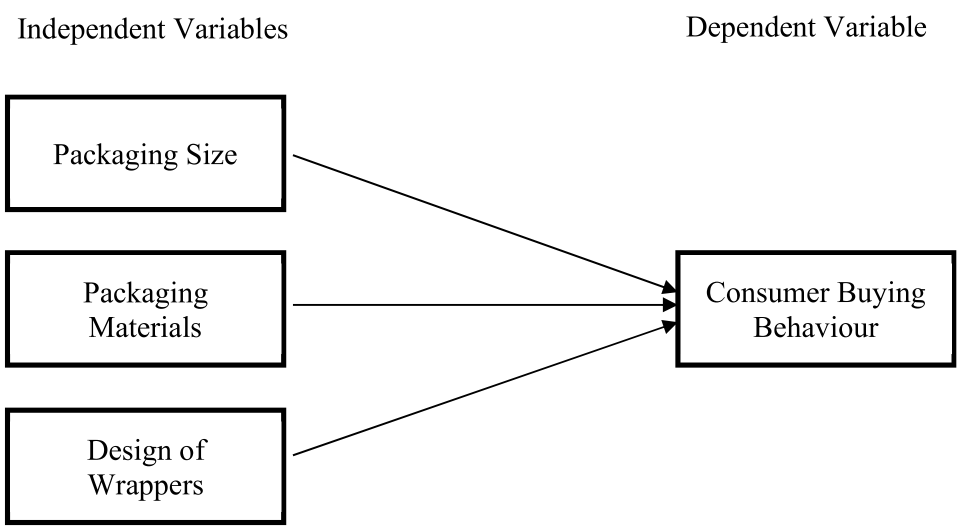


Figure 2: The framework indicates the relationship between Packaging Size, Packaging Materials, Design of Wrappers and Consumer Behaviour among UMK students.

The framework indicates the relationship between the Packaging Size, Packaging Materials, Design of Wrappers and Consumer Buying Behaviour among UMK students in illustrating the

extent to which Packaging Size, Packaging Materials, Design of Wrappers and Consumer Buying among UMK students have a good linkage between them.

3 Methodology

3.1 Research Design

In this study, researcher was using quantitative approach to conduct this study. According to Davies and Hughes (2014), the quantitative approach was employed to find solutions to problems through the use of scientific. The scientific procedures were created to increase the likelihood that the information collected was reliable, unbiased and relevant to the questions presented. Moreover, descriptive analysis was used in this study as well. A questionnaire was designed to gather information from respondents and examine the relationship between independent variables and dependent variable. As a result, a Google Form was created and distributed to the SAL students from UMK in order to obtain data.

3.2 Data Collection Design

Data collection can be defined as the procedure of obtaining and measuring information on variables in an established system in order to address relevant questions and analysis outcomes. A formal data collection process was required and necessary in a study since it plays an important role in guaranteeing the data collected were defined and reliable and that decisions made in the future based on the results in the findings were justified.In this study, the primary data was used by researcher to address research problems. An online survey questionnaire was used to collect data from UMK students.

3.3 Study Population

In this study, SAL (Logistics and Distribution Trade) students from UMK were selected as the study population in this study. This is because SAL students were learning the knowledge regarding logistics and supply chain management which includes warehousing, packaging, transportation, and inventory management. Based on the information provided by the Faculty of Entrepreneurship and Business of UMK, the total number of students from SAL was 792.

3.4 Sample Size

Krejcie & Morgan's table was used in this study to determine the appropriate sample size. As a result, the appropriate sample size of this study was 260 and the questionnaire will distribute randomly to people who were willing to answer the questionnaires.

3.5 Sampling Technique

The researcher used non-probability sampling techniques for this quantitative research based on this research study. Individuals in this non-probability sample were chosen based on non-random criteria, and not every individual has a chance of being included. In these types of research, the aim was to develop an initial understanding of a small or under-research populations. Convenience sampling was a type of non-probability sampling technique in which participants in this research sample are chosen based on their convenience and accessibility to the researcher. This means that the researcher selects a sample from the population closest to hand. This approach is suited to use for Statistical Package (SPSS) software version 25.0 and allows for immediate research outcomes. Questionnaires were created to cover all aspects of the study objectives and research questions. Therefore, this situation can be used as a sampling technique in conducting a study on the impact of Disposable PP Plastic food box packaging on consumer buying behaviour.

3.6 Research Instrument Development

Questionnaires were used as a data collection in this study. This approach was the most compatible for gaining data and information from respondents. Through this method, feedback on aspects of the study can be obtained directly from the respondents. In this study, sources of data will be gathered in questionnaires to investigate the impact of Disposable PP Plastic food box on consumer buying behaviour.

The questionnaire designed in this format serves two purposes. The questionnaire was designed with the objectives of the research conducted to ease the understanding of respondents to answer questions. The second purpose for assisting the respondent with the questionnaire was to limit the length of the questions on the questionnaire. In order to improve the accuracy of the data in the research, the questions in this questionnaire should also focus on the respondents' behaviour. In research, the first section of the questionnaire was also attached to the front page, containing the researcher's identity and information as well as a guarantee of confidentiality. Respondents were also more motivated to complete the questionnaire as a result of this.

The questionnaire was divided into three sections with different measurement scales. Section A discusses nominal scales for answering questions about gender, age, race, and social status. In Section B, ordinal scales were used for the dependent variable of consumer purchasing behaviour. Furthermore, ordinal scales were used in section C, which includes three independent variables: packaging size, packaging materials, and design of wrappers. In this section, respondents were given various statements about their attitudes toward food packaging attributes and asked to rate them on a Likert five-point scale.

Table 3: Overview of Research Instrument

Section	Variables	Author
A	Demographic	
B	Packaging size	Jemima Kalilanji, 2020
	Packaging materials	Anwar Sadat Shimul and Isaac Cheah, 2022
	Design of Wrappers	Sidrah Waheed, Marium Mateen Khan, and Nawaz Ahmad, 2018
C	Consumer buying behaviour	Rauyalakshmi Nittala and Venkata Rajasekhar Moturu, 2021

3.7 Procedure of data analysis

After the data collection procedure was completed using the questioner that was provided to logistics students (SAL) at the University Malaysia Kelantan, the data analysis process began. The Social Sciences Statistical Package (SPSS) software version 25.0 was used to analyze all of the acquired data and get an accurate result. SPSS was a statistical programme created by IBM that is extensively used by researchers and academics all over the world. A descriptive analysis and a reliability test were all part of this study. The descriptive research also revealed the respondent's demographics, such as mean, median, and mode. This statistical application performs comparison and correlational statistical tests in the context of univariate, bivariate, and multivariate analysis for both parametric and non-parametric statistical methods. The analyses were completed in four stages. Therefore, the types of data analysis methods that will be used in this study include reliability analysis, descriptive analysis and Pearson correlation analysis.

4 Finding and Discussion

4.1 Demographic Profile of Respondents

Table 2: Descriptive of Demographic Profile

Category	Details	Frequency	Percentage (%)
Gender	Male	112	43.1
	Female	148	56.9
Age	19-21 years old	43	16.5
	22-24 years old	184	70.8
	25 years old and above	33	12.7
Race	Malay	153	58.8
	Chinese	61	23.5
	Indian	44	16.9
	Iban	2	0.8

According to Table 2, there were 148 out of 260 respondents were female while 112 respondents were male. In term of percentage, 56.9% of respondents were female and 43.1% of respondents were male. Moreover, there were 70.8% of respondents were aged between 22 to 24 years old with the frequency of 184. In addition, there were16.5% of respondents were aged between 19 to 21 years old which means there were 43 out of 260 respondents were aged between 19 to 21 years old. Besides that, 12.7% of respondents were 25 years old and above with the frequency of 33. Meanwhile, there were 153 respondents were Malay with the percentage of 58.8%. Additionally, 61 out of 260 respondents were Chinese (23.5%) and 44 respondents were Indian (16.9%). Moreover, there were 0.8% of respondents were Iban with the frequency of 2.

4.2 Reliability Analysis

Table 3: Reliability Analysis

Variables	Cronbach's Alpha	No of Items	Internal Consistency
Dependent Variable			
Consumer Buying Behaviour	0.884	4	Good
Independent Variables			
Packaging Size	0.881	5	Excellent
Packaging Materials	0.916	5	Excellent
Design of Wrappers	0.866	4	Excellent

Table above showed the Cronbach's Alpha regarding the questions of dependent variable and independent variables that have been collected after conducting a survey to the respondents. The result of the dependent variable for the actual reliability test, which is consumer buying behaviour, has shown a Cronbach's Alpha reading value of 0.884 with good internal consistency. Next, the results of the independent variable showed only 1 variable with excellent internal consistency which was packaging materials with 0.916. The other result of the independent variables which were packaging size and design of wrappers showed with good internal consistency readings with 0.881 and 0.866. It was concluded that every questionnaire question displayed was at the good and excellent internal consistency.

4.3 Pearson Correlation

Table 4: Pearson Correlation Result

Correlations					
		Packaging Size	**Packaging Materials**	**Design of Wrappers**	**Consumer Buying Behaviour**
Packaging Size	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	260			
Packaging Materials	Pearson Correlation	.718**	1		
	Sig. (2-tailed)	.000			
	N	260	260		
Design of Wrappers	Pearson Correlation	.707**	.803**	1	
	Sig. (2-tailed)	.000	.000		
	N	260	260	260	
Consumer Buying Behaviour	Pearson Correlation	**.679****	**.762****	**.761****	1
	Sig. (2-tailed)	**.000**	**.000**	**.000**	
	N	260	260	260	260
**. Correlation is significant at the 0.01 level (2-tailed).					

According to Table 4, independent variables such as packaging size, packaging materials and design of wrappers have a significant correlation with dependent variable which was consumer buying behaviour, at level 0.01 (2-tailed). According to the Pearson correlation value, packaging size scored 0.679, packaging materials scored 0.762 and design of wrappers scored 0.761. Thus, packaging materials had the strongest significant relationship with consumer buying behaviour, followed by design of wrappers and packaging size. As a result, there was a high correlation and significant relationship between packaging size, packaging materials and design of wrappers towards consumer buying behaviour.

5 Discussion

The study focused on examining the impacts of disposable PP plastic food boxes on consumer buying behaviour among UMK students. The findings discovered that all three variables: packaging sizes, packaging materials, and design of wrappers have a significant relationship with consumer buying behaviour. The finding also proved that all these three packaging elements were the determinants of consumer buying behaviour. Among these three determinants, the packaging materials obtained the strongest significant relationship with consumer buying behaviour with βeta value at 0.762. The finding was supported by Shah (2013). Good packaging materials must be utilized to protect the goods from damage. Customers find high-quality materials more appealing than low-quality materials. Consumer perception of packaging materials can influence a product's perceived quality.

Moreover, according to Smith (2004), some packaging materials must be designed in such a way that they can survive temperatures below zero or high temperatures in a microwave, depending on the product's functionality and consumer needs. One study on food packaging (Hollywood et al., 2013) investigated three packaging materials which were glass, plastic, and cardboard revealed various packaging perceptions about various packaging materials. Many people advocated for the use of glass packing material in food packaging, despite the fact that it was heavy and required washing after use. Second, buyers expressed concerns about cardboard packaging, arguing that it does not keep a product fresh and makes it difficult to see the items, and they likened it to UHT treated food (Hollywood et al., 2013). Participants in that study recommended the usage of plastic containers and agreed that they were superior to cardboard and glass packaging since their screw top closure prevented product leakage.

6 Conclusion and Recommendation

The various types of product packaging strategies impact on purchase behaviour of customers. Packaging is viewed as essential to fulfill the basic need of consumers, and it should always be one step forward to consumer necessities and competitors. The aim of this study is to investigate the impacts of disposable PP plastic food boxes on consumer buying behaviour among UMK students through the analysis results and the finding indicated that all the independent variables (Packaging Size, Packaging Materials, and Design of Wrappers) that used in this researcher had the positive and significant relationship with consumer buying behaviour. Hence, the study will help existing manufacturers to look for opportunities to differentiate their products from others by packaging.

Recommendations are studies that will be done by future researchers. They will add new independent variables and use other methods to do their research. The researchers can expand their study by adding more sample sizes, they can also expand the number of respondents who come from different programs and from other universities as well to increase accuracy and reliable data.

7 Acknowledgement

The success and completion of the final year project required a great deal of direction and assistance from a large number of people, and we were extremely fortunate to receive it all at the same time as we completed our project work. We owe everything we've accomplished to their guidance and assistance, and we'll never forget to thank them.

First and foremost, we would like to express our deepest gratitude to our research supervisor, for her assistance and guidance in ensuring that we completed our project on time. Despite her hectic schedule and the fact that she also had to guide other students, we are grateful to him for providing such excellent support and guidance.

Furthermore, we would like to express our heartfelt gratitude to each and every member of the group. During the final year of project preparation, every member of our group collaborated effectively and provided complete assistance. Finally, we would be remiss in not mentioning our parents', families', close friends', and others' collaboration, encouragement, constructive suggestions, and unwavering support for the project's completion from beginning to end.

8 References

Aday, M. S., & Yener, U. (2014). Understanding the buying behaviour of young consumers regarding packaging attributes and labels. *International Journal of Consumer Studies*, *38*(4), 385-393.

Agariya, A. K., Johari, A., Sharma, H. K., Chandraul, U., & Singh, D. (2012). The role of packaging in brand communication. *International Journal of Scientific & Engineering Research*, *3*(2), 1-13.

Agarwal, A., & Chetty, P. (2019). *Use of Hawkins Stern's impulse buying theory (1962) in online shopping*.

Ahmadi, G., Bahrami, H. R., & Ahani, M. (2013). An investigation of visual components of packaging on food consumer behavior. *Business and Economic Research*, *3*(2), 1.

Ahsan Ansari, M. U., & Siddiqui, D. A. (2019). Packaging features and consumer buying behavior towards packaged food items. *Ansari, MUA and Siddiqui, DA (2019). Packaging Features and Consumer Buying Behavior towards Packaged Food Items. Global Scientific Journal*, *7*(3), 1050-1073.

Ampuero, O., & Vila, N. (2006). Consumer perceptions of product packaging. *Journal of consumer marketing*.

Bawono, S. (2020). *Marketing Strategy For Hotel Business: The Secret Of Improving Hotel Marketing Performance in the Tourism Industry*. BookRix.

Davies, M. B., & Hughes, N. (2014). *Doing a Successful Research Project: Using Qualitative or Quantitative Methods*. Bloomsbury Publishing. https://books.google.com.my/books?id=6fJGEAAAQBAJ

Fang, Z., Zhao, Y., Warner, R. D., & Johnson, S. K. (2017). Active and intelligent packaging in meat industry. *Trends in Food Science & Technology*, *61*, 60-71.

Hollywood, L., Wells, L., Armstrong, G., & Farley, H. (2013). Thinking outside the carton: attitudes towards milk packaging. *British Food Journal*.

KALILANJI, J. (2020). *THE EFFECTS OF PACKAGING ATTRIBUTES ON CONSUMER BUYING BEHAVIOR OF HOUSEHOLD PRODUCTS: A CASE STUDY OF HOUSEHOLD DETERGENTS*

Keller, K. L., Aperia, T., & Georgson, M. (2009). Choosing brand elements to build brand equity. *Strategic Brand Management. 3rd ed. Delhi: Dorling Kindersley*, 187-196.

Kotler, P., & Keller, K. (2011). *Marketing management 14th edition*. prentice Hall.

Kumar, A., Gupta, S., & Publications, S. (2021). *Fundamentals of Buying Behaviour - SBPD Publications*. SBPD Publications. https://books.google.com.my/books?id=VcBHEAAAQBAJ

Kumar, P. (2022). *Trends on consumer buying behaviour*. Anjuman Prakashan. https://books.google.com.my/books?id=CJxrEAAAQBAJ

Kwaku, A. R., & Fan, Q. (2020). Effect of good product design and packaging on market value and the performance of agricultural products in the Ghanaian market. *Open Access Library Journal*, *7*(9), 1-14.

Limon, Y., Kahle, L. R., & Orth, U. R. (2009). Package Design as a Communications Vehicle in Cross-Cultural Values Shopping. *Journal of International Marketing*, *17*(1), 30-57. https://doi.org/10.1509/jimk.17.1.30

Matos, F., de Fátima Ferreiro, M., Rosa, Á., & Salavisa, I. (2021). 16th European Conference on Innovation and Entrepreneurship Vol 2.

Nittala, R., & Moturu, V. R. (2021). Role of pro-environmental post-purchase behaviour in green consumer behaviour. *Vilakshan-XIMB Journal of Management*.

Ong, M. H. A., & Puteh, F. (2017). Quantitative data analysis: Choosing between SPSS, PLS, and AMOS in social science research. *International Interdisciplinary Journal of Scientific Research*, *3*(1), 14-25.

Raghubir, P., & Krishna, A. (1999). Vital dimensions in volume perception: Can the eye fool the stomach? *Journal of Marketing research*, *36*(3), 313-326.

Rahman, P. N. A. A., Harun, R., & Johari, N. R. (2020). The Effect Of Packaging Design Elements On Youth Purchase Intention Of Junk Food. *JBMP (Jurnal Bisnis, Manajemen Dan Perbankan)*, *6*(1), 25-38.

Rundh, B. (2009). Packaging design: creating competitive advantage with product packaging. *British Food Journal*, *111*(9), 988-1002.

Shah, S., Ahmed, A., & Ahmad, N. (2013). Role of packaging in consumer buying behavior. *International Review of Basic and Applied Sciences*, *1*(2), 35-41.

Shimul, A. S., & Cheah, I. (2022). Consumers' preference for eco-friendly packaged products: pride vs guilt appeal. *Marketing Intelligence & Planning*(ahead-of-print).

Silayoi, P., & Speece, M. (2004). Packaging and purchase decisions: An exploratory study on the impact of involvement level and time pressure. *British Food Journal*.

Smith, P. R., & Taylor, J. (2004). *Marketing communications: an integrated approach*. Kogan Page Publishers.

Waheed, S., Khan, M. M., & Ahmad, N. (2018). Product packaging and consumer purchase intentions. *Market Forces*, *13*(2).

Wang, E. S. (2013). The influence of visual packaging design on perceived food product quality, value, and brand preference. *International Journal of Retail & Distribution Management*.

Wang, E. S.-T. (2017). Different effects of utilitarian and hedonic benefits of retail food packaging on perceived product quality and purchase intention. *Journal of food products marketing*, *23*(3), 239-250.

Weber Macena, M., Carvalho, R., Cruz-Lopes, L. P., & Guiné, R. P. (2021). Plastic food packaging: perceptions and attitudes of Portuguese consumers about environmental impact and recycling. *Sustainability*, *13*(17), 9953.

Yakkaldevi, A. (2021). *Research Methodology*. Lulu Publication.

Factors that Influence the Acceptance Drone Usage in Logistics Services

Nurazila Suhaila Razali, Rajes A/P Sabapathiraju, Ahmad Mu'iz Muhammad, Shabirah Norasmawi & Rooshihan Merican Abdul Rahim Merican*

Faculty of Entrepreneurship and Business,
Universiti Malaysia Kelantan,
Malaysia

Email: roshihan@umk.edu.my

Abstract:
Unmanned aerial vehicle (UAV), also referred to as a drone, had gained popularity in both military and non-military areas. Although their commercial used was now very modest, it was projected that it would increase steadily over time, particularly for last-mile delivery. Therefore, to advance knowledge, business, and managerial practiced, a deeper understanding of consumers' willingness to accepted the most recent technological applications was required. This studied specifically aims to looked into the factors that influence how drone usage in logistics services was accepted. Theory was used as a basis of development this study was the technology acceptance model theory was used in the investigation (TAM). It examines the interaction between factors affecting consumer acceptance in the Kuala Lumpur area and perceptions of perceived risk, perceived eased of used, and social influence. This study was using a quantitative methodology to collect the data. Statistical Package for the Social Sciences (SPSS) was used to analyse to gather the data and the result of questionnaire.

***Keywords**: drone, logistic services, technology acceptance model, consumer acceptance, perceived ease to use, perceived of risks, social influence*

1 Introduction

A drone, in its simplest form, was a flying robot that may been remotely controlled or flew autonomously used software-controlled flight planned in its embedded systems in conjunction with onboard sensors and a global positioning system (GPS) (Earls, 2021). Drones had shown have been advantageous for the agricultural sector as well as giving farmers several techniques to improved their farms. Drones made it simpler to did field surveys, seed over fields, track livestock, and estimate agricultural production while also saving agriculture workers' important time. In accord with Urwin (2022), drones were also used for outer space, wildlife, and historical conservation, in medicine and for photography. Based on Joerss et al (2016), drone delivery may be able to meet customers' expectations in terms of speed, flexibility, security, and cost. Consumers that care about the environment will find drone delivery appealing because it is more ecologically friendly than vehicle delivery (Rose, 2013). Consumers are concerned about drone delivery about criminals' propensity to use military technology improperly.

According to Wu, Y; Dai, H.N.; Wang, H.; Choo, K.K.R. (2021) approach, the main problem of drone usage was that consumers saw the risk of delivering goods via drones being remotely controlled by computers, they were vulnerable to cyber-attacks.

Consumer reactions to drone delivery showed that they resisted changed and the used of new technology because of their strong belief that traditional systems were safer. However, the credibility of a particular brand and consumer trusted in it influence the acceptance and used of drones. Drones can easily be used to invade people's physical privacy. This is a very serious problem that drones can cross geographical boundaries (Bonetto M., Korshunov P., Ramponi G., Ebrahimi T, 2015). Based on Choe, J.Y.; Kim, J.J.; Hwang, J, (2021), delivery risk also reflects people's concerns about not getting a package delivered for various reasons, such as an accident, damage, or theft of the drone carrying the package. In addition, it is believed that drones may malfunction, make inaccurate deliveries, or not find a place to land in a residence. Finally, the delivery drones would flew above people, creating a risk for them. Thus, the expected large number of drones would created fear among the public of being hit by these drones. People might also had misconceptions about the purpose of drones, believing them have been from a terrorist group or a hostile nation. Such perceptions could created new conflicts or fuel existing ones.

Hence, this study aims to achieve the following objectives:

1. To study the relationship between perceived ease to use and consumer acceptance.
2. To study the relationship between perceived risks and consumer acceptance.
3. To study the relationship between social influence and consumer acceptance.

2 Literature Review

2.1 Consumer Acceptance Factor

Consumer acceptance is pivotal for the market success of new services. Consumer acceptance will influence in innovation of service. Without consumer acceptance it will not be work successfully in any innovation (Felch et al., 2019). A significant line of inquiry that emerges from the investigation is consumers' acceptance of the technology's features, including perceived security, perceived cost, perceived risk, and trust. The important aspect that involved in consumer’s acceptance of technology- based innovations which concerns users’ personal traits, such as skills and abilities. Self-efficacy and behavioral control emerge as elements that can impact customers' decisions to utilize a certain technology. Self-efficacy is the consumer's perception of his or her ability to perform specific behaviors, and it is tightly tied to behavioral control (Shin 2009). Behavioral control has been defined as human control over specific action or environment (Ajzen 2002). It relates to an individual's perception of his or her ability to accomplish a particular behavior.

According to Mehrabian and Russell's (1974) approach, all emotional responses to physical and social surroundings can be represented by three dimensions of affect which is pleasure, arousal, and dominance (PAD). The authors hypothesized that any emotional state may be conceptualized as a position on these three dimensions for example, pleasure, arousal, and dominance adequately represent all of the numerous emotional responses of individuals to their environments. These three components comprise a person's emotions, which in turn affect his or her actions and behaviors (Kulviwat et al., 2007). Lastly, according to the previous study (Chen et al., 2022)., the time it takes for people to accept a new technology or service are varies. Based on theory Rogers' Innovation Diffusion

(1962), it originated in the field of communication, where it was used to describe the spread of an innovation throughout a community or social system. As a result of this propagation, portions of a social system adopt a new concept, behavior, or innovation. The key to convincing a person to adopt a new idea, activity, or product is for them to perceive it as new or distinct.

2.2 Perceived Ease to Use

Perceived ease of use reiterates a fundamental principle of TAM, according to which people have a strong propensity to accept new technologies when they find them to be simple to use (e.g., Dwivedi et al. 2019, Legris et al. 2003, Tarhini et al 2015). Perceived ease of use, according to Indarsin and Ali (2017), is the degree to which a person believes that using technology will lessen excessive effort. People will use an information system if they believe it is easy to use (Hartono, 2010). According to a previous study (Goon Tuck Lee, 2004), interface characteristics and individual differences are the main determinants of perceived ease to use. Interface characteristics refers to the interaction between the system and the users. Interface characteristics were discovered to be important predictors of perceived ease to use (Hong, Thong and Tam, 2002). It has been established that one of the most significant variables influencing technological acceptability is individual differences.

There are three indicators that are used to assess perceived ease to use, which is perception of convenience, perception of compatibility and perception complexity. These three indicators are modifications of earlier studies (Leon, 2018). According to Roy et al. (2018), convenience is the perception of time and effort saved during the consumption of a good or service, as well as the availability of time, place, acquisition, and execution. Modern technology, including drones, have made portability and quick accessibility possible. Liu and Tai (2016) examined how consumers' views of convenience and openness to experimenting with new technology related to one another. Then, the perception of compatibility. Compatibility is consumer perception of how well innovations meet their wants and preferences. (Kang et al., 2015). According to previous research, compatibility and consumers' adoption of new technology are positively correlated (Min, So and Jeong, 2019). The third is, the perception of complexity. Complexity is the perceived challenge faced by end users in understanding and implementing technological breakthroughs (Lou and Li, 2017). Experience is one of the best measures of how usable a technology is thought to be (Abdullah et al., 2016). In conclusion, when people see technology as being easy to use, they adopt it with greater competence and confidence (self-efficacy).

2.3 Perceived Risk

There are many studies on perceived risk in the previous literature, some of which have been published. Peter and Ryan (1976, cited in Lee 2009) defined perceived risk as the expected loss, and Featherman and Pavlou (2003) defined perceived risk as an attempt to achieve a desired goal it can defined as the potential loss of. Perceived risk has been used in a systematic way to try to explain and analyze consumer behavior in the face of new technologies. As reported by Matthew et al (2021) due to ambiguity and lack of trust, consumers have a new perception of technology-induced risks to products and services. Three main risks when delivering goods using drones including performance risk, delivery risk and privacy risk (Mathew, A.O. Jha, A.N. Lingappa, A.K. Sinha, P, 2021). Performance risk can be defined as the likelihood that a product will not meet its design criteria (Grewal, Gotlieb, & Marmorstein, 1994). Performance risk reflecting the consumer's concern about the losses incurred.

The risk consumers perceive if their purchases are not delivered to their address can be defined as 'delivery risk' (Lopez-Nicolas and Molina-Castillo, 2008). Delivery risk also reflects people's concerns that their packages will not be delivered for a variety of reasons, including accident, damage or theft of cargo-carrying drones(Choe, J.Y, Kim, J.J, Hwang, J.2021. Lastly is privacy risk can be defined as the disclosure or dissemination of sensitive information beyond the consumer's control, or loss of privacy (Featherman and Pavlou, 2003). Delivery of online orders by drone carries risks such as invasion of home privacy by malicious individuals (Soffronoff et al. 2016). Privacy risks relate to how much people value the confidentiality of their information and directly influence technology adoption. This risk is related to the feeling of anxiety individuals experience when asked to provide personal information such as credit card numbers, addresses, and phone numbers (Hwang, J. Choe, J.Y. 2019). In conclusion, the result obtained by previous study showed that performance risk has a significant correlation with attitude towards drone delivery, which is the strongest relationship in the model (Yoo et al., 2018), found that in a developed country, performance risks and privacy risk were significant predictors of attitude towards drone.

2.4 Social Influence

According to (Roguska, 2021) Social influence is any alteration in behavior, emotion, or thought that another person causes, even if that other person is just envisioned, anticipated, or indicated. It also encompasses the interpersonal processes that result in modifications to behavior, emotion, or thought. It concerns, in essence, how people alter their opinions. Minority influence and majority influence (compliance) are examples of social influence. (Taylor, 2022). A larger group can have an impact on a single person or small group through majority influence. As psychology concentrates on the individual, the majority of social influence studies in psychology deal with majority influence (Maness, 2020). An individual or smaller group influencing a bigger group is known as minority influence.

Besides that, the three steps Kelman identifies for social influence are internalization, identification, and obedience. Any of these three events could happen when a group puts pressure on a person (Francis Ltd., 2022). The three types represent a spectrum of how much a person psychologically and behaviorally resembles a group. At the lowest level, an individual is completely cut off from a group, and at the highest level, they are fully united with a group (Kelly, 2021). Compliance is the social influence that has the least power. Identification is what this is, and it's the medium level of social impact (Kaur, 2022). The individual might not share all of the group's beliefs or modes of thought, even if they alter portions of their conduct in public and private (Lim, 2022). Internalization is a form of conformity that is extremely excessive. In this instance, the individual has verbally and non-verbally fully embraced the group's expectations. This alteration exists permanently, even when the group is not present. Internalization fundamentally results in new behavior.

Unquestionably, the emergence of new and emerging technologies has significant effects on the economy, society, and individuals. It is our use of technology, not the technology itself, that shapes our perception and, in turn, how we act. As a result, drones are becoming more and more significant in society, technology, and science. They have created brand-new, original applications and service platforms with a market focus, which has impacted the society views this technology and the related business model.

2.5 Research Framework

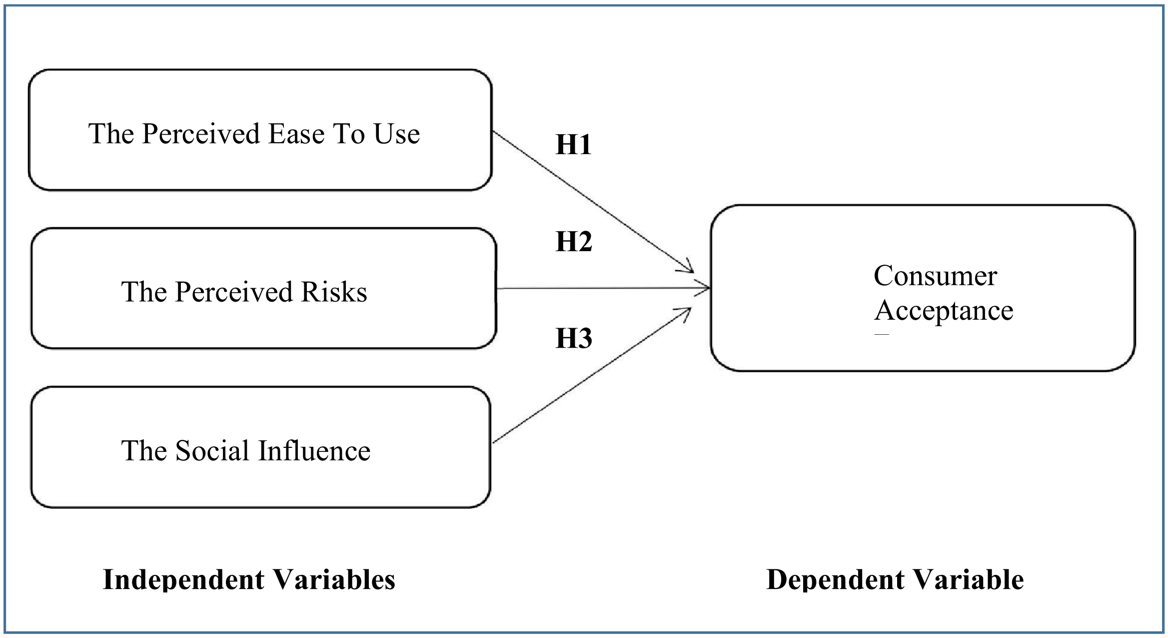


Figure 2.1: Research Theoretical Framework

Figure 2.1 shows the conceptual framework of this study related to Factors That Influence the Acceptance of Drone Usage in Logistics Services. The relationship between 3 independent variables (IV) the perceived ease to use, the perceived risks, and the social influence with the dependent variable (DV) which is consumer acceptance factors will be discussed.

Three hypotheses of this research had been developed to study the relationship between the dependent variable and the independent variables:

H1: There is a significant relationship between perceived ease to use and consumer acceptance factors.

H2: There is a significant relationship between perceived risks and consumer acceptance factors.

H3: There is a significant relationship between social influence and consumer acceptance factors.

3 Research Methodology

In conducting this researched, the researcher had used the quantitative method as the empirical assessment consists of numerical measurement and analysis. In addition, this studied used descriptive analysis to surveyed questionnaire that had been conducted based on objectives of the studied. The primary data was collected through online questionnaires. The total respondents of this study were 384 that will be analyse on the table Krejcie and Morgan (1970). In the meantime, the questionnaire for this study consists of five sections. All the sections of this questionnaire from Section B through Section E use a 5-point Likert scale (1=strongly disagree until 5=strongly agree). Using descriptive analysis, the demographic data of the research were analyzed. Researchers can use descriptive analysis to make raw data. According to George and Mallery's (2016), Cronbach's Alpha Coefficient Range rules of thumb value of 0.4 or below was deemed unsatisfactory, while a value of more than 0.7 is typically considered to be acceptable. In addition, the normality test determines whether a sample is regularly distributed or not, depending on its significance value. Kolmogorov-Smirnov will be used, whereas Shapiro-Wilk will be used if the sample size was fewer than 50. If the significant value or p-value was less than 0.05, it showed normal and significant data. Pearson Correlation Coefficients have been used by the researchers to identify the significant relationship between the dependent variable (Consumer Acceptance Factors among Kuala Lumpur citizens) and independent variables (Perceived ease to use, Perceived risks and social influence).

4 Result and Discussion

4.1 Demographic Profile of Respondent

Table 4.1 : Frequency Table of Demographic Profile of Respondents

Respondent profile	Classification	Frequency N = 384	Percentage (%)
Gender	Male	169	44.0
	Female	215	56.0
Age	19 Years Old and Below	42	10.9
	20 - 29 Years Old	260	67.7
	30 - 39 Years Old	48	12.5
	40 - 49 Years Old	22	5.7
	50 - 59 Years Old	11	2.9
	60 Years Old and Above	1	0.3
Academic Qualification	SPM	55	14.3
	STPM/Diploma	80	20.8
	Degree	197	51.3
	Postgraduate (Master/PHD)	41	10.7
	Others	11	2.9
Races	Malay	270	70.3
	Chinese	18	4.7
	Indian	93	24.2
		3	0.8

	Others		
Occupation	Government Sector	56	14.6
	Private Sector	77	20.1
	Self - Employed	62	16.1
	Student	178	46.4
	Not Working	11	2.9
Monthly Income	Below RM1000	174	45.3
	RM1000 - RM1999	37	9.6
	RM2000 - RM2999	67	17.4
	RM3000 - RM3999	46	12.0
	RM4000 and Above	60	15.6
"How many times per month do you shop online?"	More Than 10 Times	105	27.3
	6 - 10 Times	74	19.3
	1-5 Times	183	47.7
"Do You Have Access to Reliable and Timely Transportation?"	Yes	298	77.6
	No	86	22.4
"Have You Ever Heard the Noise Levels of Drones?"	Yes	251	65.4
	No	133	34.6
"Have You Ever Been in Close Proximity to a Flying Drone?"	Yes	232	60.4
	No	152	39.6

Table above shows the demographic profile of the respondents, which is gender, age, academic qualification, races, occupation, monthly income, and the others 4 general questions among the 384 participants in this study. In this survey, female respondents filled out the questionnaire with a frequency of 56.0% or 215 respondents, while male respondents filled out the remaining 44.0%, or 169 respondents. Then, the level of age 20-29 years old make up the majority of respondents (67.7%, or 260 respondents). In terms of academic qualification, majority with 51.3% or 197 respondents are those who responded to the survey had degree-level qualifications. As much as 70.3% or a frequency of 270 consisted of the Malay race. This study was made up by students with the majority of survey respondents with 46.4% or 178 frequency. For monthly income, the frequency of 174 or 45.3% of those who responded to the survey having a monthly income of below RM1000. The table also shows the majority with 47.7% or frequency at 183 respondents is only 1-5 times shop online per month. Then, There is 77.6% or the frequency at 298 respondents' response "Yes" to the question of "do you have access to reliable and timely transportation". The percentage and frequency of the respondents' responded to the questions "have you ever heard the noise levels of drones?" is 65.4% (N=251) responded "Yes". Lastly, From 384 respondents, there is 60.4% (N=232) responded "Yes".

4.2 Univariate Analysis

Table 4.2 : Descriptive Statistic For Dependent Variable (DV) and Independent Variables (IV)

Variables	N	Mean	Std. Deviation
DV	384	3.6896	1.03873
The Perceived Ease to Use	384	3.7260	1.07268
Perceived Risk	384	4.0156	.91049
Social Influence	384	3.5823	1.14554
Valid N (listwise)	384		

Table 4.2 shows the number of respondents, mean, standard deviation of the dependent variable (DV) and independent variables (IV). According to the result, the mean score for dependent variable of consumer acceptance factor is 3.6896, with the standard deviation of 1.03873. Then, for independent variables (perceived ease to use, perceived risks and social influence), the results indicate that the highest mean was scored by Perceived Risks which is at 4.0156 with the lowest standard deviation at 0.91049. Meanwhile, the independent variables of Perceived Ease to Use achieved a mean score at 3.7260 with the standard deviation at 1.07268. However, the lowest mean was scored by Social Influence which is at 3.5823 with a high standard deviation at 1.14554.

4.3 Cronbach's Alpha Realibity Analysis

4.3.1 Pilot Test

Table 4.3: Reliability coefficient alpha From Overall Reliability (Pilot Test)

Variables	Number of Items	Cronbach's Alpha
Consumer acceptance factors	5	0.832
Perceived ease to use	5	0.884
Perceived risk	5	0.939
Social influence	5	0.954
Overall variables	20	0.953

The illustrations of overall consistency (pilot test) for the dependent and independent variables were shown in Table 4.3 above. According to the Cronbach's alpha coefficient's general thumb rule, the overall reliability's Cronbach's alpha is 0.953, which is considered to be respectable. The outcome of this study was good and trustworthy. The fact that the variables' Cronbach's alpha charge above 0.7 demonstrated the questionnaires' excellent reliability and allowed the study to move forward. Additionally, this indicates that the questionnaires have been approved for this study and that the responded clearly understood the questions that were asked.

4.3.2 Actual Reliability Test

Table 4.4 : Cronbach's Alpha Actual Reliability Test

Variables	Cronbach's Alpha	No of Items	Internal Consistency

Dependent Variable			
Consumer Acceptance Factor	0.834	5	Good
Independent Variables			
Perceived Ease to Use	0.961	5	Excellent
Perceived Risks	0.941	5	Excellent
Social Influence	0.968	5	Excellent

Table 4.4 is the Cronbach's Alpha Actual Reliability Test regarding the questions of dependent variable and independent variables that have been collected after conducting a survey to the respondents. A total of 384 respondents were obtained in showing factors that influence the drone usage in logistics services. In this study, the dependent variable is consumer acceptance factor and the independent variables are perceived ease of use, perceived risks and social influence. Each variable is presented with 5 questions in the questionnaire conducted. Therefore, the result of the Dependent Variable for the actual reliability test, which is the consumer acceptance factor, has shown a Cronbach's Alpha reading value of 0.834 with good internal consistency. Next, the results of the Independent Variable showed excellent internal consistency readings with 0.961, 0.941 and 0.968. It was concluded that every questionnaire question displayed was at the good and excellent internal consistency. Overall of the Cronbach's Alpha were more than 0.8 as preferred on a reference from "Chong, 2018), it states that Cronbach's Alpha range above 0.8 means there us 80% consistency in the score and is considered good.

4.4 Normality Test

Table 4.5:Normality Analysis for Independent Variables and Dependent Variable

Dependent Variable	Independent Variables	Kolmogorov-Smirnov			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Customer Acceptance Factor	The Perceived Ease to Use	.387	85	.000	.671	85	.000
	The Perceived Risk	.238	111	.000	.748	111	.000
	Social Influence	.387	80	.000	.659	80	.000

Table 4.5 shows the normality test for dependent variable (Consumer satisfaction) and independent variable (reliability, affordability, safety, and security). Apart from that, Kolmogorov-Smirnov was being used in this study because of more than 50 respondents. Moreover, it can see that significance value was .000 which is less than 0.05. As the result, it was considered as a normal data and significant.

4.5 Pearson Correlation

4.5.1 Pearson Correlation Result

Table 4.6 : The Pearson Correlation Result

	Customer Acceptance Factor	The Perceived Ease to Use	The Perceived Risk	Social Influence

Customer Acceptance Factor	Pearson Correlation	1	.848**	.418**	.762**
	Sig. (2-tailed)		.000	.000	.000
	N	384	384	384	384
The Perceived Ease to Use	Pearson Correlation	.848**	1	.440**	.846**
	Sig. (2-tailed)	.000		.000	.000
	N	384	384	384	384
The Perceived Risk	Pearson Correlation	.418**	.440**	1	.396**
	Sig. (2-tailed)	.000	.000		.000
	N	384	384	384	384
Social Influence	Pearson Correlation	.762**	.846**	.396**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	384	384	384	384

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

Based on the table 4.6 above, the correlation of significant is 0.01 level which is mean that there are less than one in a hundred chances can be wrong to test hypothesis. It showed that the relationship of three independent variables and dependent variable were significant. The highest correlation is 0.848 which is perceived ease to use and following with the second highest correlation is social influence with significant 0.762. Lastly, the small correlation that researchers received is 0.418 which is perceived risk. Even though, the small correlation is perceived risk, these three independent variables are Pearson because the significant is more than 0.05.

4.6 Hypothesis Testing

Table 4.7 : Summary for Hypothesis Testing

Hypothesis		Pearson Rank correlation results	
H1	There is a significant relationship between the perceived ease to use and consumer acceptance factor in Kuala Lumpur.	$r = 0.848$, $p < 0.01$	supported
H2	There is a significant relationship between the perceived risk and consumer acceptance factor in Kuala Lumpur.	$r = 0.418$, $p < 0.01$	Supported
H3	There is a significant relationship between social influence and consumer acceptance factor in Kuala Lumpur.	$r = 0.762$, $p < 0.01$	Supported

Based on table 4.7, the hypothesis on significant relationship between the factors (the perceived ease to use, perceived risk and social influence) influencing consumer acceptance factor in Kuala Lumpur, Malaysia were tested using Pearson's Rank Correlation Coefficient. All the hypotheses were accepted at 0.01 significant levels.

5 Discussion and Conclusion

5.1 Discussion

5.1.1 Perceived Ease to Use

The Pearson Correlation Coefficient for perceived ease to use in Table 4.6 shows a p-value of 0.01, which is smaller than alpha value (0.05) and r= 0.848 that indicating a high positive correlation between perceived ease of use and the consumer acceptance factor. It agrees with a previous study that identified perceived ease to use as one of the key characteristics of the suggested paradigm. A more general perception of their use as being less difficult would affect the preparedness of the adoption of drones for delivery, which would explain about consumers' preferences and the acceptance of drone usage in logistic services (Yoo, W. Yu, E. Jung, J. (2018). Additionally, the researchers think that Kuala Lumpur residents should be more receptive if they think that drone delivery is a simple method for receiving items and is easier to use.

5.1.2 Perceived Risk

The Pearson Correlation Coefficient of perceived risk has shown that the p-value of that factor is 0.01 which is less than the alpha value (0.05) while the p-value r= 0.418 indicating a low positive positive correlation between perceived risk and the consumer acceptance factors. The above statements are supported by referrers Given the anxiety and stress states that can be caused by high risk exposure (Martins, Oliveira, and Popovič 2014), it is important to examine the ultimate impact on attitudes and acceptance of drone use. In addition, customers may be concerned about the risks of drone delivery services and potential logistical obstacles. Normally established postal and delivery services are responsible for property damaged or stolen during the distribution process.

5.1.3 Social Influence

Based on the table findings of the result 4.6, the Pearson Correlation Coefficient value of this factor showed the p-value of 0.762 which is greater than the alpha value (0.05). This proved that social influence has a positive relationship and significant influence with the consumer acceptance factors among Kuala Lumpur citizens. The findings of previous studies state that it was discovered that social influence has a significant impact on behavioral views about drone delivery. This result is not unexpected given that people's attitudes about novel technologies, such as drones, are known to be significantly influenced by their assumptions 49 about these technologies (Ho & Tsai, 2022). Along with the foregoing, this discovery strengthens the case for the significance of social motivation in the adoption of drone technology. Consumers' assessment scores for social drones are affected by their control type, demonstrating how human connection cues would affect satisfaction in a social drone environment (Shapira & Cauchard, 2022). Hence, the findings of this study match with the past study. So, the researchers observe that Kuala Lumpur citizens are influence with people around them. Researchers consider that social influence are one of the factors that influence the acceptance of drone usage in logistics service.

5.2 Limitation of the Study

Almost every study has some limitations, so researchers must make some concessions before considering any types of generalizations. Almost every study has some limitations, so researchers must make some concessions before considering any kind of generalization. This chapter will mention every component involved in conducting this study, which is from research design, data collection methods, study population, sample size, sampling techniques, research instrument development, measurement of the variables and data analysis procedure. This research in conducted using quantitative method as the empirical assessment consists of numerical measurement and analysis. However, in the future the author may employ both quantitative and qualitative research methods.

5.3 Recommendation & Suggestion for Future Research

Some suggestions are offered for future generations of researchers. The potential researcher can get a head start on improving the local context by concentrating their research on a certain location of Malaysia. This will allow the researcher to better understand the local environment. People from various states in Malaysia will bring their own unique cultures and points of view to the table. Researchers in the future will be able to learn more about the level of consumer acceptance of drone delivery services. Aside from that, the researcher can assess the amount of willingness of consumers who want to make use of drone delivery services in the area that is being researched. Then, the future researchers allot more time for the process of data collection.

5.4 Conclusion

Usage in logistics services among Kuala Lumpur citizens. Perceived ease to use, perceived risk and social influence was chosen to be a factor that are influencing the consumer acceptance factor. There were 384 questionnaires that have been collected from the targeted respondents. From the 384 questionnaires, 100% (N = 384) questionnaires that were valid with complete data. Those independent and dependent variables were analyzed by Pearson Correlation Coefficient to determine the relationship between dependent variable and independent variables to identify the factors influencing the acceptance of drone usage in logistics services among Kuala Lumpur citizens. From the findings of Pearson's Correlation Coefficient, this study revealed that perceived ease to use, perceived risk and social influence does have a connection with the consumer acceptance factors among Kuala Lumpur citizens.

6 References

Akhloufi, M. A., Arola, S., & Bonnet, A. (2019). Drones Chasing Drones: Reinforcement Learning and Deep Search Area Proposal. Drones, 3(3), 58.

Başar, D. (2020). https://dergipark.org.tr/en/download/article-file/1028049. Journal of Eurasian Inquiries / Avrasya İncelemeleri Dergisi, 9(1).

Cai, L., Yuen, K. F., Xie, D., Fang, M., & Wang, X. (2021). Consumer's usage of logistics technologies: integration of habit into the unified theory of acceptance and use of technology. Technology in Society, 67, 101789.

Chen, C., Leon, S., & Ractham, P. (2022). Will customers adopt last-mile drone delivery services? An analysis of drone delivery in the emerging market economy. Cogent Business & Management, 9(1), 2074340.

Choe, J. Y., Kim, J. J., & Hwang, J. (2021). Perceived risks from drone food delivery services before and after COVID-19. *Int. J. Contemp. Hosp. Manag*, *33*, 1276–1296.

Featherman, M. S., & Pavlou, P. A. (2003). Predecting e-services adoption:a perceived risk facets perspective. *International journal of human-computer studies*, *59*(4), 451-474.

Felch, V., Karl, D., Asdecker, B., Niedermaier, A., & Sucky, E. (2019).

Reconfiguration of the last mile: consumer acceptance of alternative delivery concepts. In Logistics management (pp. 157-171). Springer.

Fysh, M., & Bindemann, M. (2018). Person Identification from Drones by Humans: Insights from Cognitive Psychology. Drones, 2(4), 32.

Hafiez;PURNOMO Hosam Alden;SOFYANI Afrizal;RIYADH TAHAR, W. E. (2020, January 1). Perceived Ease of Use, Perceived Usefulness, Perceived Security and Intention to Use E-Filing: The Role of Technology Readiness - The Journal of Asian Finance, Economics and Business | Korea Science.

Retrieved November 26, 2022.

Hwang, J., & Choe, J. Y. J. (2019). Exploring perceived risk in building successful drone food delivery services. *Int. J. Contemp. Hosp. Manag*, *31*, 3249–3269.

Hwang, J., & Kim, H. (2019). Consequences of a green image of drone food delivery services: The moderating role of gender and age. Business Strategy and the Environment, 28(5), 872-884.

Hwang, J., Kim, D., & Kim, J. J. (2020). How to form behavioral intentions in the field of drone food delivery services: The moderating role of the COVID-19 outbreak. International Journal of Environmental Research and Public Health, 17(23), 9117.

Hwang, J., Kim, H., Kim, J. J., & Kim, I. (2021). Investigation of perceived risks and their outcome variables in the context of robotic J. Travel Tour. Mar, 38(263– 281).

Hwang, J., Kim, W., & Kim, J. J. (2020). Application of the value-belief-norm model to environmentally friendly drone food delivery services: The moderating role of product involvement. *Int. J. Contemp. Hosp. Manag*, *32*, 1775–1794.

Kim, J. J., Kim, I., & Hwang, J. (2021). A change of perceived innovativeness for contactless food delivery services using drones after the outbreak of COVID-

19. *Int. J. Hosp. Manag*, *93*, 102758. Kolesnikov, A., & Yashin, A. (2001).

Kulviwat, S., Bruner II, G. C., Kumar, A., Nasco, S. A., & Clark, T. (2007). Toward a unified theory of consumer acceptance technology. Psychology & Marketing, 24(12), 1059-1084.

Lee, M.-C. (2009). Factors influencing the adoption of internet banking: An integration of TAM and TPB with perceived risk and perceived benefit. *Electron. Commer. Res. Appl*, *8*(3), 130-141.

Leon, S., Chen, C., & Ratcliffe, A. (2021). Consumers’ perceptions of last mile drone delivery. *Int. J. Logist. Res. Appl*.

Lokhande, A. P., Shaikh, A. N., & Patil, O. S. (2018). Drones in Production, Supply Chain and Logistics. *Int. Res. J. Eng. Technol. (IRJET)*, *5*, 2179–2182.

Lopez-Nicolas, & C., M.-C. (2008). Customer knowledge management and E_commerce: the role of customer perceived risk. *Int. J. Inf. Manag*, *28*(2), 102–113.

Shin, D. H. (2009). An empirical investigation of a modified technology acceptance model of IPTV. Behaviour & Information Technology, 28(4), 361-372.

Soffronoff, J., Piscioneri, P., & Weaver, A. (2016). Public perception of drone delivery in the United States (RARC-WP-17-001). *Postal Service Office of Inspector General*.

Wu, Y., Dai, H. N., Wang, H., & Choo, K. K. R. (2021). Blockchain-based privacy preservation for 5g-enabled drone communications. *35*, 50–56.

Yoo, W., Yu, E., & Jung, J. (2018). Drone delivery: Factors affecting the public's attitude and intention to adopt. *Telematic. Inf*, *35*(6), 1687–1700.

The Transformation of Technology in the Supply Chain Management and Logistic Industry

e ISBN 978-629-7555-12-6

9 786297 555126