THE FACTORS OF AI-BASED CHATBOT IN THE RETAIL SECTOR ON PURCHASE INTENTION AMONG CONSUMERS IN MALAYSIA

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APPROVAL

"I hereby declare that I had read and gone through this thesis, and it is adequate in terms of scope and quality which fulfill the requirements for the awards Bachelor of Technology Management (Technology Innovation) with Honours"

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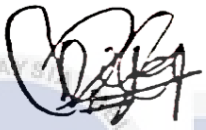
DECLARATION OF ORIGINAL WORK

I hereby declare that this thesis with the title "**The Factors of AI-Based Chatbot in the Retail Sector on Purchase Intention among Consumers in Malaysia"** is the result of my own research except as cited in the references.



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DEDICATION

I would want to express my gratitude to my family and friends, who were always encouraging and supportive as I worked on the research. In addition, my supervisor, Dr. Nor Ratna Binti Masrom, and panel, Ts. Dr. Nurulizwa Binti Abdul Rashid supervised my research and my coursemate assisted me in completing the research path.

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ABSTRAK

Memandangkan perkembangan baharu telah membenarkan pembangunan kaedah baharu untuk berkomunikasi dengan pelanggan dengan pantas, kecerdasan buatan (AI) telah menjadi lebih meluas dalam perniagaan perkhidmatan. Salah satunya ialah penciptaan chatbot berkuasa AI untuk penjagaan pelanggan dalam talian. Penyelidikan ini direka bentuk untuk menganalisis kesan chatbot berasaskan AI dalam sektor runcit terhadap niat pembelian dalam kalangan pengguna di Malaysia. Objektif kajian ini adalah untuk menganalisis hubungan yang signifikan antara kesan ciri chatbot berasaskan AI dan niat membeli pengguna runcit di Malaysia, untuk mengkaji faktor chatbot berasaskan AI yang mempengaruhi akan mempengaruhi niat membeli pengguna runcit di Malaysia, dan untuk mengesahkan faktor paling dominan chatbot berasaskan AI pada niat pembelian pengguna runcit di Malaysia. Pembolehubah bebas dalam rangka kajian ini adalah kesan chatbot berasaskan AI, manakala pembolehubah bersandar ialah niat membeli. Metodologi yang digunakan oleh pengkaji dalam penyelidikan ini adalah kaedah kuantitatif dan pengkaji mengambil sampel seramai 220 orang responden yang merupakan pembeli runcit Malaysia menggunakan chatbot berasaskan AI untuk mendapatkan data. Bagi analisis data, penyelidik menggunakan Analisis Deskriptif, Analisis Korelasi Pearson, dan Analisis Regresi Linear Berganda untuk menganalisis data. Penyelidikan ini boleh digunakan sebagai platform untuk mengkaji secara mendalam kesan sikap terhadap chatbot berasaskan AI terhadap niat membeli dalam kalangan pengguna di Malaysia.

Kata kunci: Chatbot berasaskan AI, Niat Membeli, Sikap Dirasai Kemudahan Penggunaan, Dirasai Kebergunaan, pembeli runcit Malaysia

ABSTRACT

As new developments have quickly permitted the development of new methods for communicating with customers, artificial intelligence (AI) has become even more pervasive in the service business. One of these is the creation of AI-powered chatbots for online customer care. This research was designed to analyze the effect of AI-based chatbots in the retail sector on purchase intention among consumers in Malaysia. The objective of this study was to analyze the significant relationship between the effect of AI-based chatbot features and grocery consumer purchase intention in Malaysia, to examine the factors of AI-based chatbots that influence will affect grocery consumer purchase intentions in Malaysia, and to verify the most dominant factors of AI-based chatbots on grocery consumer purchase intention in Malaysia. The independent variable in the framework of this research was the factors of the AI-based chatbot, while the dependent variable is purchasing intention. The methodology used by the researcher in this research is a quantitative method and the researcher took a sample of 220 respondents who are Malaysian grocery shoppers using AI-based chatbots to obtain data. For data analysis, researchers used Descriptive Analysis, Pearson Correlation analysis, and Multiple Linear Regression Analysis to analyze the data. This research can be used as a platform to examine in-depth the factors of attitudes toward AI-based chatbots on purchase intention among consumers in Malaysia.

Keywords: AI-based chatbot, Purchase Intention, Attitude, Perceived Ease of Use, Perceived Usefulness, Malaysian grocery shoppers

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LIST OF ABBREVIATION

Abbreviations	Meanings
AI	Artificial Intelligence
GDP	Gross Domestic Product
IBM	International Business Machines
NLP	Natural Language Processing
SPSS	Statistical Package Social Sciences
TAM	Technology Acceptance Model
IQ	Intelligence Quotient
EQ	Emotional Quotient
PU	Perceived Usefulness
PEU	Perceived Ease of Use
A	Attitude
PUI	Purchase Intention
TRA	Theory of Reasoned Action
BLA	Business Level Agreement
DM	Direct Messages
MCO	Movement Control Order

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Malaysia, a Southeast Asian country that is rapidly rising in lockstep with the rest of the region, has long viewed foreign direct investment as a source of prosperity (Nor Khalidah Abu & Rosmimah Mohd Roslin, 2008). Asia's burgeoning role as one of the world's fastest-growing retail penetration and expansion will keep the region at the forefront of global economic progress (Mohd-Ramly & Omar, 2017). For a fun shopping adventure. As a result, merchants must employ a combination of Industry technologies, such as robotics, cloud, and augmented reality, to meet the needs of their customers. As a result, the retail industry has become more modernized, and retail sectors have emerged (Sakrabani et al., 2019). To put it another way, retailing is the sale of goods and services to end-users by individuals or businesses. The supply chain is made up of retailers. A retailer buys vast amounts of commodities or products from manufacturers or wholesalers, then sells smaller amounts to customers at a gain (Vishal, 2014). Malaysia's retail industry has a low level of acceptance of information technology use in its operations (Bakri et al 2015). The retail business contributed the most to Malaysia's Gross Domestic Product (GDP) in FY2017, accounting for 44.8 percent, according to the Malaysian Department of Statistics (Sakrabani et al., 2019).

In the retail industry, AI can be helpful in a number of different ways, including predicting what customers will want, automating shop operations, engaging customers, personalizing products for customers, and optimizing prices. AI has already led to a 50% improvement in efficiency in the assortment, a 20% reduction in stock,

and a 30% boost in online sales for shops that are employing AI solutions (Bughin et al., 2017). AI is projected to bring about significant changes to both marketing strategies and customer habits, including chatbots (Davenport et al., 2020). The ability of artificial intelligence to overcome some of the computationally intensive, intellectual, and possibly even creative limitations of humans opens up new application domains within education and marketing, healthcare, finance, and manufacturing, with subsequent impacts on productivity and performance (Y.K. Dwivedi, et al., 2019). According to IBM (2019), the applications of AI-based advanced technology and automation in the retail industry include branding and the recruitment of new customers, sales forecasting, personalization and fealty, production planning, enhancing merchandising, labeling and product placement, boosting efficiency in service and customer engagement, and more.

It is anticipated that the use of chatbots powered by AI would significantly affect the connection between businesses and their customers due to the potential of chatbot to boost the comfort of customers when carrying out desired actions (Dawar, Bendle, 2018). The AI-based chatbot is a type of computer program that simulates human communication through the use of capabilities related to natural language; chatbots are frequently used as digital assistants on the internet (Fryer et al., 2019). As a result of the fact that this advancement in retailing offers customers a novel purchasing experience, it is necessary to investigate not only the technology but also the perspectives of customers regarding it. (Bleier et al., 2020). AI-based chatbot are pieces of software powered by artificial intelligence (AI) that, with the assistance of natural language processing (NLP), are able to connect with actual people (Watchravesringkan & Myin, 2021). The usage of artificial intelligence chatbot in the retail market is anticipated to expand from $2.6 billion in 2019 to $22 billion in 2023, according to a recent analysis (Tracy, 2019). If the usage of chatbots can have an effect on the level of pleasure a company's customers feel, then it is just as vital to understanding how those customers feel about the use of AI-based chatbot (Mun, Kittichai, 2020). The interaction between AI-based chatbot, including the intervention of purchase intentions and customer attitudes, was the primary focus of this research. In addition to this, it investigated how the ease of use and usefulness of an AI-based chatbot influences the connection that is mediated.

1.2 Problem Statement

AI technology can enhance the interactions not only among customers, products, or services, but also in interactive environments, and it can match demands quickly. AI-based chatbots, content recommendation systems, and consumer feature recognition have become artificial agents for AI marketing activities (Yin, J., Qiu, X, 2021). Equipped with AI, chatbots play a vital role in facilitating engagement because of their conversational, data-driven, and predictive nature (Sands et al., Chen et al., 2021). As a result, in order to choose the most effective method of deploying AI-based technologies, including AI-based chatbots, business executives and company stakeholders must expand their awareness of customer responses to the adoption of these technologies. As a result, businesses will be able to uncover ways to better how customers react to AI-based chatbots within their enterprises and increase their usefulness and efficacy.

Users' views toward technical devices are influenced by their perceived convenience, which influences their propensity to utilize those items (Gümüş & Çark, 2021). Previous research has revealed that when new technology is deployed in the retail sector, a variety of factors influence customers' views toward it and inclinations to utilize it, including perceived ease of use and perceived usefulness. Unless the utilization of a chatbot has an effect on customer happiness, it is indeed crucial to know how customers feel about AI-based chatbots (Watchravesringkan & Myin 2021). There were also requests to determine whether or not the attitudes held by customers who communicate with AI-based chatbots in real-time boost consumer experience and fulfill expectations (Xuan Hung Nguyena, Hai Ly Tranb, Hue Anh Phanb, and Thi Thu Hien Phanc, 2020). Whenever it comes to the development of AI chatbots in retail, perceived simplicity of use and perceived usefulness may be key elements in determining customer behavior, adoption, and evaluation of AI-based chatbots. (Mon Thu Myin and Kittichai (Tu) Watchravesringkan, 2020).

Hence, the purpose of this research was to see how AI-based chatbots affected Malaysian consumers' purchasing intentions. The research looked at how perceived ease of use, usefulness, and attitudes toward AI-based chatbots influenced consumer sentiments. The assumption is that the perceived ease of use, usefulness, and attitudes toward AI-based chatbots increases the purchase intentions as well as the convenience

and optimism of consumers during AI-based chatbot interactions. Eventually, the plan was to give retail stakeholders in Malaysia a greater comprehension of buyer attitudes toward AI-based chatbots, as well as to assist them in gaining a greater understanding of the connections that enhance the implementation of AI-based chatbots that substitute skilled workers whilst also preserving and enhancing consumer buying behaviors.

1.3 Research Questions and Objectives

Normally, during the transaction or procedure seeking details information, there are major interactions between the staff and the consumers, usually with cashiers or customer care staff. The utilization of technology in customer services, such as AI-based chatbot technology, lessens interactions between people in a shop, particularly among staff and consumers. These technologies also could enhance customer service quality by delivering quick replies to queries or difficulties of consumers, rendering this service readily accessible all the time, and assisting customers throughout the purchase process, resulting in increased sales conversion and income. Nevertheless, integrating the latest technology may provide purchasers with ease, which may impact their ability to utilize it. Thus, the advent of innovative technical solutions by AI-based chatbots minimizes the amount of communication necessary between customers and staff of a company.

The objective of this research is to figure out an understanding of how the perceived ease of use, usefulness, and attitude toward using AI-based chatbot services influences the relationship with purchase intentions. Its goal is to see how varying levels of perceived ease of use, usefulness, and attitudes influence the customer's experience of AI-based chatbot services by purchase intentions. As an outcome, the following research questions have been proposed.

1. What are the factors towards AI-based chatbots that will affect grocery consumer purchase intentions in Malaysia?

2. What are the significant relationships between the effect of AI-based chatbot features and consumer grocery purchase intentions in Malaysia?

3. What is the most dominant factor of AI-based chatbots that influences grocery consumer purchase intentions in Malaysia?

The research's objective was to investigate the factors of AI-based chatbots in the retail sector on purchase intention among consumers in Malaysia. The following are the research objectives:

1. To examine the factors of AI-based chatbots that influence will affect grocery consumer purchase intentions in Malaysia.

2. To analyze the significant relationship between the effect of AI-based chatbot features and grocery consumer purchase intention in Malaysia.

3. To verify the most dominant factors of AI-based chatbots on grocery consumer purchase intention in Malaysia.

1.4 Significance Of Research

For emerging AI technologies to be effectively implemented in the marketing industry, it is necessary to have a thorough understanding of customer sentiments towards the technologies (Prentice C, Weaven S and Wong l, 2020). The strategic objectives of retail settings in any civilization are to create pleasant attitudes about the retailer and, as a result, to expand the number of consumers, which will lead to a rise in buying intent (Shafique Ur Rehman, Anam Bhatti, Rapiah Mohamed and Hazeline Ayoup, 2019). It was the first research of its kind in Malaysia on consumer views

concerning AI-based chatbots. This research is significant because of its practical and theoretical contributions. According to the findings, AI-based chatbots provide shoppers with both practical and emotional benefits. The study also looked into the interaction between AI-based chatbots and attitudes, which influences their purchase intent. It is indeed beneficial to understand if there are any moderating elements that could hinder the success of AI-based chatbots as this information can help businesses design mitigation methods.

To obtain a representative sample of the research population, the research utilized experimental randomly selected data collecting. Consumers' sentiments toward AI-based chatbots were measured using scales that can be utilized in effective promotional research to examine customers' experiences. This is one of the first studies to look at how the perceived ease of use and usefulness possibilities of AI-based chatbots influences consumer purchase intentions. This study considers AI-based chatbots to be a substantial benefit to the consumer experience and investigates their link to consumer purchase intentions based on perceived ease of use and usefulness. This research will benefit academics and business practitioners by expanding the literature on technology adoption and facilitation, as well as assisting businesses in determining whether they need to build strategies to address customer concerns. As a result of this research, marketers will be able to be more successful in getting consumers to embrace these technologies and use them to drive increased buy intentions. Customers' perceptions toward AI-based chatbots in Malaysia were investigated in this study. Acknowledging these attitudes can aid efforts to increase company profitability by providing the most efficient purchasing environment for customers, as well as assist companies in developing strategies for mitigating unpleasant experiences as AI-based chatbots are implemented, thereby enhancing the retail shopping experience.

1.5 Methodology

The research was conducted during the Covid-19 endemic, necessitating the use of digital methods to ensure validity and dependability. This research was conducted in two different trials using random sampling. IBM SPSS simple regression was utilized to examine the relationship between AI-based chatbot and purchase intentions, whereas using PROCESS macro in SPSS (Model 1, 10,000 bootstrapped samples; Hayes, 2018) was selected to conduct the moderation analysis utilizing perceived ease of use and perceived usefulness.

1.6 Definition of Key Terms Used in the Thesis

The AI-based chatbot is a term used to describe technologies that let customers or website viewers communicate with a business chat program that replies to client inquiries in real-time and context-relevant information through the use of artificially intelligent bots and in which no direct employee input is required for any of the operations (Zumstein and DHundertmark S, 2018)

Perceived ease of use refers to the customers' perception of the level of positive influence that can help them be free without difficulties when purchasing goods or services or interacting with the AI-based chatbot (Wicaksono & Maharani 2020)

Perceived usefulness refers to the customers' perception of the extent of positive influence person or organization that believes in a system that can facilitate their work when making purchases of goods or services or interacting with the AI-based chatbot (Adi Wicaksono and Anita Maharani, 2020)

Attitude refers to a person's established way of thinking or feeling, (Yaakop et al., 2021), and "human beings have an evaluation method for the effects of doing a certain conduct" (Kasilingam 2020). Aside from that, the term attitude toward the implementation of AI refers to preferences on intentions to embrace AI services, which

may include positive feelings, negative feelings, or anxiety (Andrews, Ward & Yoon 2021).

Purchase Intent indicates the likelihood of customers making buying decisions with the business by AI-based chatbot online or outside of it during a real-time contact in an e-commerce context (Yen & Chiang 2021).

1.7 Thesis outline

There are six chapters that make up this thesis's organization. The first chapter focuses on the goals of the study as well as the relevant research words, settings, targets, difficulties, and questions. The second chapter presents an in-depth literature assessment, as well as a discussion of the TAM model and research hypotheses. The third chapter explains the technique and tactics that were utilized in order to gather the data and construct the measures, and also the analytical procedure and the approval process for ethics. In the fourth chapter, an analysis of the data along with quantitative assessments of their accuracy, the use of SPSS software to examine the correlations amongst some of the research variables, and the implementation of the mediating effect analysis to test the research hypotheses are presented. The fifth chapter contains a discussion of the results of the research, specifically focusing on the extent to which the discoveries supported the study hypotheses, as well as the accomplishments of the research in terms of practical, procedural, and conceptual aspects. The limitations of the research, some ideas for further study, and some concluding thoughts are presented in the final chapter.

1.8 Summary

In conclusion, the research presented in this chapter supplements the background information presented previously, which links AI-based chatbot to the concept of purchase intent in Malaysia. In addition to that, there is a justification given for carrying out this research. In moreover, three research questions along with their corresponding objectives have been outlined in this chapter. The objective of this study is to explore the effect that AI-based chatbot have had in the retail sector, if any, on consumers' intentions to make purchases in Malaysia. The conduct of this study is hindered in a number of ways by factors such as the restricted amount of time available, the restricted number of respondents, and the limited honesty of respondents. The significance of this study lies in the fact that it offers information regarding the factors that AI-based chatbots have on consumers' intentions to make purchases in Malaysia. It will also help businesses realize the effects that lead to a greater understanding of buyer attitudes toward AI-based chatbots. Additionally, it will assist these businesses in gaining a deeper understanding of the relationship with buyer intentions, which improves the implementation of AI-based chatbots in Malaysia.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Retailers frequently embrace new technology because of its shown advantages in terms of enhanced consumer insights and quality of service, as well as the ability to overcome challenging situations like the Covid-19 pandemic (Kopalle, Kumar & Subramaniam 2020). In most cases, marketing professionals are eager to implement new technology if it has the potential to give demonstrated benefits in the form of enhanced service quality and increased customer happiness (Ivan Martins De Andrade and Cleonir Tumelero, 2021). AI has been used extensively by forward-thinking businesses in order to maintain their competitive edge and strengthen their relationship with regular customers (Pillai, Sivathanu & Dwivedi 2020). As a consequence of this, research into the present advancement of digital technology in marketing has been moving at a rapid rate. Researchers have been looking at how artificial technology seems able to sustain and handle client needs (Van Esch & Stewart Black, 2021). Customers will have access to a new shopping environment made possible by this technology. This experience will be distinguished by the emergence of digital tools such as services that give convenient, personalized, and one-of-a-kind customer help (Chung et al. 2020). On the other hand, research has only very lately been positioned

at the confluence of digital transformation and artificial intelligence, particularly in reaction to consumer reactions to AI-based online platforms (Yablonsky 2020).

The application of technology in a retail business that especially makes this service readily accessible all the time improves the overall shopping experience for customers by making the process of purchasing goods both quicker and more efficient, which in turn leads to an increase in the store's revenue (Scott Schanke, Gordon Burtch, and Gautam Ray, 2020). The shopping experience for customers is now stress-free for the vast majority of goods. This is due to the fact that AI-based chatbot offer a different layer of endorsement to the service quality dimension by ensuring that personalized service is capable to satisfy customer needs anytime and anywhere. Nevertheless, the human agent in the shopping experience still plays a pivotal role in the majority of purchase intentions (Minjee Chung, Eunju Ko, Heerim Joung and Sang Jin Kim, 2018).

The potential of artificial intelligence (AI) chatbots to determine the future of retail is the primary topic of discussion in this research. This includes the influence that AI-based chatbot could have on the attitudes and intentions of consumers shopping in retail. In order to build the proposed model and hypotheses, this chapter conducts a literature study on existing research in the fields of chatbots, the TAM model, consumer behavior, and intention to purchase.

2.2 Definition Of AI-Based Chatbot

The word "chatbot" is a hybrid that combines the words "chatting" and "robot," and it is most frequently used to refer to electronic chats or text messages. A chatbot is a type of communication software that is capable of storing acceptable responses to inquiries on a server, creating models that constantly build proper replies through dialogues with consumers, controlling exceptions, and providing accurate responses (Hwang & Kim 2021). Either of these technical tools, described as a chatbot, appears to be a route to the automation of various tasks that were previously conducted by

human staff or entrepreneurs, gaining cost savings and producing a high level of satisfaction with clients and stakeholders in the process (Illescas-Manzano et al. 2021). Moreover, Chatbots powered by artificial intelligence (AI) are designed to engage in multi-turn discussions based on natural language comprehension, multimodal intelligence like textual, audio, or graphics, voice recognition, problem-solving, compassionate interaction systems, and machine learning (Chen et al. 2022).

According to Crystal T. Lee, Ling-Yen Pan, and Sara H. Hsieh (2021), AI-based chatbot are equipped with both the intelligence quotient (IQ) and the emotional quotient (EQ) capabilities. AI-based chatbots are designed to retrieve information in a more effective, accessible, relevant, and up-to-date manner. This capacity falls under IQ. IQ capabilities that are based on machine learning, information retrieval, and active and adaptive learning make it possible to provide instant feedback and both active and passive services. Research has been done before and has demonstrated that AI-based chatbot are capable of providing active customer service. This can include things like collecting data from users' previous questions, preferences, and purchase behaviour, assessing product attributes and user reviews; and providing personalized recommendations, notifications, and more adaptable customer support (Kim, Giroux & Lee 2021). Then, AI-based chatbots are aiming to construct empathic conversation systems that are modeled after human-to-human interaction in order to improve their EQ capabilities (Lee, Pan & Hsieh 2021). Therefore, it is more important to get an answer to the following questions as to whether or not users who have begun utilizing AI-based chatbot systems will continue to do so in the future and under what circumstances they will do so. In point of fact, exploratory research to explore the factors that influences customers' inclinations to retain using AI-based chatbot systems has remained restricted. This is particularly the case for AI-based chatbot operations in the retail industry.

2.3 Evolution Of AI-Based Chatbot

In 1966 the year that saw the construction of the very first ELIZA chatbot. ELIZA operated in a manner resembling that of a psychotherapist by returning the user's sentences in the form of questions. (Bennion et al. 2020). ELIZA was an important step forward in artificial intelligence because it changed the human-machine connection from one that was entirely robotic and rational to one that was more social. This had a big impact on the way chatbots moved at mimicking human behavior. (Costa 2018). According to Heung-yeung Shum, Xiao-dong He, and Di Li (2018), the personality-equipped chatbot known as PARRY, which was developed in the 1970s, was an upgrade over ELIZA. In summary, PARRY is thought to be a chatbot with limited capabilities, particularly with regard to its knowledge of the language and its capacity to communicate feelings. In addition to this, it has a slow response time, and it is unable to learn from previous conversations (Zemčík 2019). The development of Jabberwacky around 1988 marked the beginning of AI's application in the field of chatbots. Previously, AI had only been utilized in video games. CleverScript is a language that is based on spreadsheets, and it enabled the development of chatbots. Jabberwacky was built in CleverScript and was using contextual pattern recognition to answer depending on past chats (Mittal et al. 2016).

From their research by Shanshan Yang and Chris Evans, 2019, the advancement of chatbots powered by artificial intelligence took an additional step forward with the invention of intelligent personal voice assistants. These assistants, who can be built into mobile phones or custom home speakers, can understand voice commands, talk in digital voices, and conduct work such as tracking IoT technology, calendar, and emails (Villegas-Ch, Arias-Navarrete & Palacios-Pacheco 2020). In the face of Industry 4.0, leveraging modern information and computer technologies, such as Artificial Intelligence Technology. Using interactive inquiries, these chatbots efficiently connect with any human(Yang & Evans 2019). Recently, there has been a significant increase in the number of cloud-based chatting bot systems that have been made accessible for the development and advancement of the chatbot industry (Aishwarya Gupta, Divya Hathwar, and Anupama Vijayakumar, 2020). Social media networks enabled programmers to develop chatbots for their business or service,

allowing customers to complete particular daily lives within their mobile applications. Finally, AI-based chatbots embraced a broad range of applications, leading to great excellence in the field of AI mostly in the development of artificial helpers called Chabot. (Nazir et al. 2019). This was the very first computer to ever achieve the status of "greatest human computer." The basic intelligence of ALICE is built upon this Artificial Intelligence Markup Language (AIML), which enables programmers to define the constituent parts of the chatbot's knowledge base. This makes it possible for ALICE to perform pattern matching using a straightforward algorithm (Sharma, Goyal & Malik 2017). It wasn't until 2001 that chatbots like SmarterChild were created and made accessible by AOL Instant Messenger. The following stage was the development of digital versions of personal assistants such as Apple Siri, Microsoft Cortana, Amazon Alexa, (Ask, Facemire & Hogan 2016) Google Assistant, and IBM Watson. (Srivastava S and Prabhakar T,2020)

2.4 Grocery Retail Sector

In the past few decades, there has been an increase in the level of competition in the retail industry, and grocery major retailers now form a considerable portion of the market. In point of fact, the modern retail sector is responsible for somewhere between 70 and 90 percent of the total sales of groceries in developed nations (Euromonitor, 2015). In addition, the intense competition is growing more complicated as a result of the proliferation of other shop types, such as superstores, dollar stores, and grocery stores, which are meeting the needs of their own client bases. In addition, the proliferation of new online platforms is beginning to wean consumers off of their reliance on conventional retail establishments (Goić, Levenier & Montoya 2021). According to Vijayan et al., 2014, retailers have the ability to successfully apply sustainability practices all the way up the supply chain as well as all the way down. They are widely acknowledged as change agents who are responsible for integrating sustainability into supply chains. Therefore, it is of the utmost importance to have a solid understanding of sustainability as it is now applied in this sector. Despite this, the grocery retail industry in Malaysia is highly fragmented, with supply shops accounting for 56% of the industry, followed by hypermarkets and supermarkets with

43%, and convenience stores accounting for 1%. There is a strong argument that the grocery retail industry is one of the most significant components of most people's day-to-day life. This is related to the nature of the industry, which is to ensure the availability of the day-to-day necessities of commodities such as retail goods and commodities to the community, which are vital to human life. The reason for this nature of the sector is as follows, as a direct consequence of this, merchants have opened up chain stores in a variety of locations across a variety of towns, countries, and continents. Retailers have turned to information and communication technologies (ICTs) like commerce to facilitate the buying and selling of their wares in order to satisfy the growing demand that customers have placed on them and to gain a competitive advantage. This is done in an effort to satisfy customers' expectations that they will continue to meet or exceed their expectations in the future (Johnson & Iyamu, 2019).

The practice of retailing in the 21st century is markedly distinct from the practice of retailing in the 20th century. The grocery retail industry is a good example of how things are changing because of the rapid movement in consumer behavior. The epidemic caused by COVID-19 has had a huge impact on society as well as the economy. Consumer behavior has remained to be conditioned by particular situations notwithstanding the gradual easing of lockdowns and stay-at-home directives (Accenture 2020). As a result, customers favour shopping experiences that are streamlined, straightforward, and, given the prevalence of infectious diseases, contactless. Consumers have the ability to shop for any and all imaginable products 24 hours a day, seven days a week from the comfort of their own homes or offices thanks to the advent of internet shopping. One instance of this new kind of consumption is the rise in popularity of ordering food over the internet, which may be attributed to factors such as the rise in telecommuting jobs and increased social distance (Heins, C. 2022). Consumers have started to demand more easy shopping experiences as a consequence of the potential afforded by internet shopping platforms, which enable customers to buy for items at any time from anywhere in the world. This has led to an increase in the demand for more convenient shopping. On the other hand, the convenience that is offered by general store ideas cannot be guaranteed to be available at all times due to factors such as rules governing store closing times. Retailers are constantly innovating (Birkin, Clarke & Clarke 2017) and implementing new technology solutions to offer customers better accessibility via a variety of channels

and to satisfy demands linked to the trend toward convenient and efficient shopping. The current preference for shopping that is technologically facilitated, combined with increasing competition, conceptions of greater market saturation, and tighter planning legislation, have inspired retailers to ensure development (Dwivedi et al. 2021). One solution is referred to as the so-called AI customer service concept, which has gained notoriety and incorporates shopping options that are always accessible to customers. These options have either advanced or replaced the conventional service forms, which has rendered personal grocery retail shopping unnecessary. However, customers prefer solutions that involve pure contactless shopping like in Malaysia at Lotus(Tesco) and Mydin (AiChat,2020)

2.5 TAM Model Definition

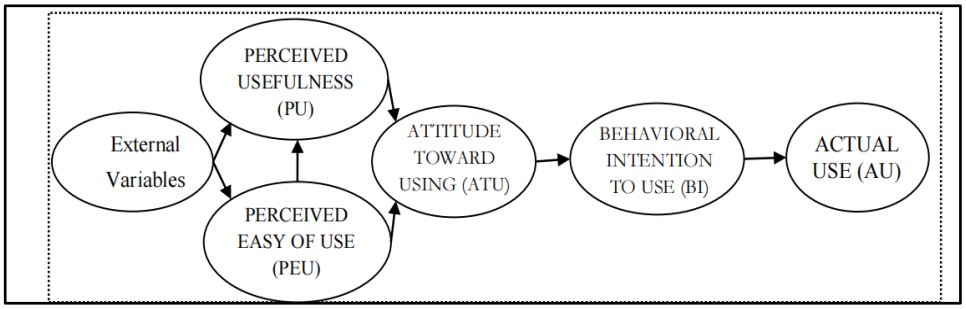
A Technology Acceptance Model (TAM) is a framework that details the elements that influence the use of technology as well as the intent to utilize it. These variables include those that are external, those that are mediating, and those that are outcomes, and some of them have developed also as TAM has really been evolved extensively (Scherer & Teo 2019). There are quite a lot of different hypotheses that have been established to describe a user's purpose to utilize a certain piece of technology or information system. The Technology Acceptance Model developed by Davis in 1989 is only one example of a theory that has received a great deal of attention in academic research (Hamid et al. 2016). The initial concept for the TAM was composed of five different ideas which are actual usage, behavioral intention of using, attitude toward using of AI-based chatbot, perceived utility, and perceived ease of use. In accordance with Davis's suggestion, the connections between these structures are depicted in Figure 1 (F. José Racero, Salvador Bueno, and M. Dolores Gallego.,2020). Following Davis has highlighted throughout the technology acceptance model (TAM) that not at all individual adjusts to innovation depending on a combination of factors. TAM is a stable and effective theoretical framework for users' adoption and utilization of technology, and it has been frequently utilized to identify how a person adopts innovation. The model proposes that "attitude" is a significant determinant in forecasting users' intentions to adopt a technological breakthrough, and it derives

"perceived utility" and "perceived ease of use" as predictors of "behaviors".(Song, Ruan & Jeon 2021).

According to Dwi Suhartanto, David Dean, Tuan Ahmad Tuan Ismail, and Ratna Sundari (2020), TAM is still the most widely applied to analyze a user's acceptance and use of technology since it obtains great support from past research on the adoption of various types of technology, like technology-based services. This makes TAM the most effective method. The term "perceived usefulness" (PU) was specified as the degree to which an individual feels that using a specific method could boost personal performance or it is the degree to which the individual believes that using a technology boosts personal performance. The extent to which an individual perceives that employing a specific system requires no effort on their behalf is referred to as the perceived ease of use (PEU), and it can be defined as "PEU." Previous studies have shown that users are more willing to employ the latest technology if they have the impression that it is simple to operate. (Ronny Scherer and Timothy Teo,2019). TAM is utilized to investigate and measure the variables that influence selections on whether or not an individual adopts the AI-based chatbot. The TAM model, which was derived from psychological theory, indicates that purchasing behavior is based on a person's beliefs, attitudes, intentions, and the relationship between those factors and the behavior of the user (Harryanto, Muchran & Ahmar 2018). This model's goal is to describe the primary variables of user behavior that contribute to the acceptance of technology among AI-based chatbot users. Explain in greater detail how consumers in Malaysia would respond to AI-based chatbots powered by artificial intelligence that possessed particular characteristics that had the potential to influence their intent to buy.

Figure 2.1 Technology Acceptance Model (TAM) basic proposal

(Source: Racero et al., 2020)



2.5.1 Perceived Usefulness

According to Davis, the term "perceived usefulness" (PU) refers to the belief that a person or organization has in a process that can make their work easier. If an individual or organization does not trust that the system can assist them in performing their work in any way, then they have no purpose for using the system (Salim et al., 2021). As per Umair Cheema, Muhammad Rizwan, Rizwan Jalal, Faiza Durrani, and Nawal Sohail (2013), perceived usefulness (PU) encompasses a number of different aspects, including but not limited to the following producing job much easier, enhancing efficiency, increasing work quality, increasing work performance, and assisting in obtaining promotions, extra benefits, and other rewards.

2.5.2 Perceived Ease of Use

The term "perceived ease of use," or PEU, refers to a person's or a company's trust in a process that can assist an individual in becoming independent from a work (Hamid et al. 2016). According to Dung Minh Nguyen, Yen-Ting Helena Chiu, and Huy Duc Le (2021), PEU can be characterized by a number of distinguishing

characteristics, including the ability to be accessible at any time and from any location, the swiftness of its responses, the quality and clarity of its displays and interfaces, and so on. Then, one's perception of the effectiveness of privacy and ethics policies (PEU) is a significant aspect that determines their desire to use technology platforms (Wicaksono & Maharani 2020).

2.5.3 Attitude

According to James E. Andrews, Heather Ward, and JungWon Yoon (2021), an attitude is a predisposition to react to an event in a positive or negative way regarding plans to embrace an AI. Opinions held by an individual, whether favorable or unfavorable, regarding the performance of the conduct that is the focus of attention (2020) .Previous research on people's attitudes toward AI-based chatbots found that attitude was a significant predictor of people's intentions to engage in particular behaviors within the shopping experience (Watchravesringkan & Myin 2021) .It has been discovered that attitude is the most important aspect that has a significant impact on a person's intention to behave in a certain way during the shopping experience (Prakosa & Sumantika 2021). According to TRA (Theory of Reasoned Action) and TAM, an individual's belief regarding the outcomes of their actions has a substantial impact on how they feel about continuing to behave in a particular way (Kasilingam 2020) .In view of the discoveries of those investigations, we came up with the theory that will be discussed below.

2.5.4 Purchase Intention

"The extent to which a buyer is willing to acquire goods through a retail website" is one definition of what might be viewed as "purchasing intents" from the standpoint of shopping online (Muhammad Dharma Tuah Putra Nasution Yossie Rossanty and Ku Halim Ku Ariffin Nurliyana Izzati Binti Mohd Zaini, 2019). The fact that a person continues to engage in particular behaviors is a measure of the probability that they will support the execution of the acts. Within the context of the consumer decision-making process, attitudes toward particular behaviors have the potential to serve as direct predictors of intentions to carry out actions. This ability is grounded in the idea of reason action (Sarkar, Khare & Sadachar 2020) . This has been demonstrated in a variety of research, although there has been data demonstrating how significant it is whenever one is shopping for any kind of product. According to Azizul Yadi Yaakop, Hafifiz Muhammad Hafeez, Malik Muhammad Faisal, Muhammad Munir, Majid Ali (2021), conducted research that provided empirical evidence to support the hypothesis that when a consumer develops a positive view regarding counterfeit goods, their purchasing intention regarding counterfeits likewise simultaneously increases. As a consequence of this, the intention to purchase and any positive attitude that may be linked with them play an important role in marketing, and this is true irrespective of the kind of goods that is being sold.

Therefore, in the context of this research, purchase intentions are seen as the consumer's readiness to buy a product or service from the company if they have a requirement for that particular product. In addition, offline purchase intentions are not taken into account; only internet shopping intentions are considered. This is due to the fact that AI-based chatbot programs are commonly utilized in conjunction with online shops in order to assist in immediately resolving concerns or hesitancies so that a business can immediately drive deals on its online website. Hence, taking this into perspective, aspirations to acquire only via the internet are taken into account.

2.6 Development of Hypothesis

The latter study's hypotheses were developed with the help of a number of variables, including the perceived ease of use, perceived usefulness and attitude towards AI-based chatbot as the independent variable, and purchase intentions as the dependent variable. Specifically, the perceived ease of use and perceived usefulness of AI-based chatbots were used as the independent variable. Numerous studies have been conducted to investigate the impact that newly developed technology has on the behavioral intentions of consumers as well as the ways in which the perceived ease of use and usefulness of a product can have an effect on a variety of other characteristics including customer loyalty.

2.6.1 The Connection Between Perceived Ease of Use And Purchase Intention

According to Mon Thu Myin and Kittichai (Tu) Watchravesringkan (2020). when someone finds a piece of technology easy to work with, they have a positive perception of its ease of use. Perceptions of how simple something is to use can have a significant impact on a company's brand image as well as the consumer's desire to make a purchase. That is because believed that ease of use has a big impact on intent, difficult automated operations should be prevented so that consumers can feel at ease and prepared to be using the service (Anouze & Alamro 2020). Additionally, in the retail industry, purchase intentions are affected by the convenience of a product or service (Thilina 2021). Engaged retail consumers will profit from accessibility and quickness, hence the convenience of buying online or offline will influence purchasing intentions (Lyu, Lim & Choi 2019).

[H1]: Perceived ease of use has a positive effect on purchase intention toward AI-based chatbot

2.6.2 The Connection Between Perceived Usefulness and Purchase Intention

One of the advantages that come with using technology is the perceived usefulness that it provides. The intention of a technology's users to make use of that technology has an effect on the efficiency of those users, and that desire is affected by the perceived impression of the technology's usability and simplicity of use (Tahar et al. 2020). The normative beliefs and impressions of use have a considerable and positive effect on the intentions of potential buyers (Hussain, Li & Li 2021). According to Dung Minh Nguyen, Yen-Ting Helena Chiu, and Huy Duc Le (2021), when a user's intention to use a product is affected by factors such as perceived risk, perceived usefulness, perceived ease of use, and social influence, the user's level of pleasure will be impacted by both validation and use. According to the BLA, simply growing the network of users who make use of technological services is not sufficient to introduce it. However, prospective customers need to gain trust in the technology before they can buy it. Ensure that the system is not only user-friendly but also runs safely and discreetly (Anghel et al. 2020)

[H2]: Perceived usefulness has a positive effect on purchase intention toward AI-based chatbot

2.6.3 The Connection Between Attitude and Intention To Buy

Research done in the past have established a connection between customer sentiments and the application of technology. The technological acceptance model is currently one of the most widely held hypotheses regarding this topic (Harryanto et al. 2018). Both perceived usefulness and ease of use while adopting a new technology are two factors that have a substantial influence on customers' views about the new technology and raise their inclination to use it (Cheema et al. 2013). In a similar vein, as per the theory of planned behavior, the sentiments of customers regarding AI-based

chatbots influence their intent to make a purchase (Lo Presti, Maggiore & Marino 2021) According to this point of view, trust is the precursor of an attitude, hence, when consumers perceived the apparent ease of use of AI-based chatbots, the intent to make purchases are increased.

However, past research has shown that innovation capability can have a major effect on purchasing intentions once the new technology is implemented in the United States (Pillai et al. 2020). Additionally, the findings of two previous research indicate that a devoted client base has a negative influence on the inclination to employ chatbot technology (Nguyen et al., 2020; Jenneboer et al., 2022). According to Mon Thu Myin and Kittichai (Tu) Watchravesringkan (2020), confirmed that having an attitude about AI-based chatbot services contributes to having behavioural intentions toward using such services in the context of the AI-based chatbot services. This suggests that whenever a consumer has a favorable attitude regarding AI-based chatbots, they seem to be more inclined to have a desire to utilize it without worrying about it causing them any anxiety or stress when purchasing anything.

[H5]: Attitude toward the AI-based chatbot will have a strong impact on purchase intention

2.7 Theoretical Framework

The Behavioral Reasoning Theory is the primary topic of the study conducted by the researcher. Figure 2 depicts a potential layout for the research project. This framework was derived from (Watchravesringkan & Myin 2021). The title is examining the drivers and barriers of Intention to use AI chatbot to purchase apparel online is being investigated by this framework. In addition, attitudes concerning AI chatbots have an effect on people's intentions to utilize them, as demonstrated in the framework down below.

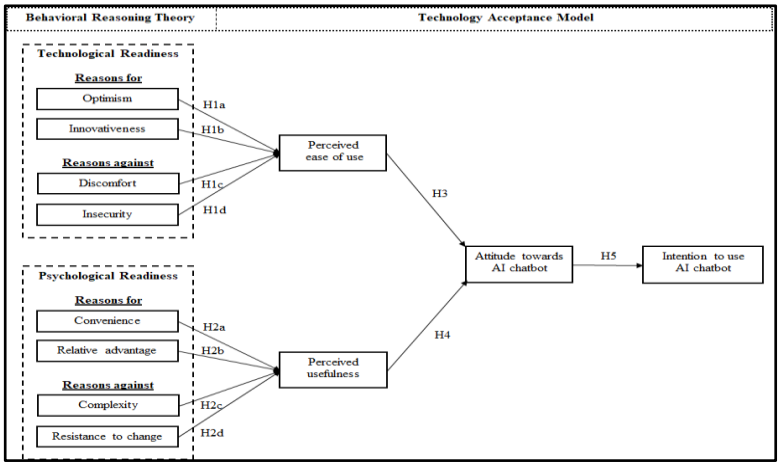


Figure 2.2 Theoretical Framework of the research.

(Source: Watchravesringkan & Myin, 2021)

2.8 Conceptual Framework

The construction of the conceptual framework was informed by a comprehensive examination of the existing literature on customer attitudes as well as pertinent anthropological, historical, and commercial notions (Kitsios & Kamariotou 2019). According to Esch P, Cui Y and Jain S (2021), the purchasing experience in the perspective of AI-enabled businesses is a new customer experience, therefore, its usefulness has yet to be evaluated. The vast majority of customers in the United States make their purchases through digital relational sales, despite the fact that this type of shopping can be hampered by a number of obstacles, including the inability to easily choose among available products and services (Lo Presti et al. 2021). At the moment, AI-based chatbot technologies are already being utilized in Vietnam for the purpose of maintaining service quality and optimizing operational efficiency with Facebook chatbots (Nguyen et al. 2020). Multiple studies have come to the conclusion that the contemporary retail business is in need of further research and transformation in order to improve the quality of the shopping experiences it provides for its clients and the ease with which it can facilitate customer care requests (Guha et al. 2021a). This growth could be accomplished by the introduction of cutting-edge technology in the

retailing industry, such as the use of chatbots powered by artificial intelligence (AI), like Google Assistant (Srivastava & Prabhakar 2020). One of the primary emphases of this research is the idea of the shopping journey. Figure 3 shows the conceptual framework of the research The purpose of this research aimed to investigate the influence that chatbots powered by AI have on consumer intent to make a purchase. Existing research about the acceptability of technology and even the desire for innovations that makes the purchasing experience faster and more convenient was used as the basis for the adoption of an AI-enabled system. An AI-based chatbot's perceived ease of use, perceived usefulness, attitudes, and purchasing intentions were each factored into the analysis.

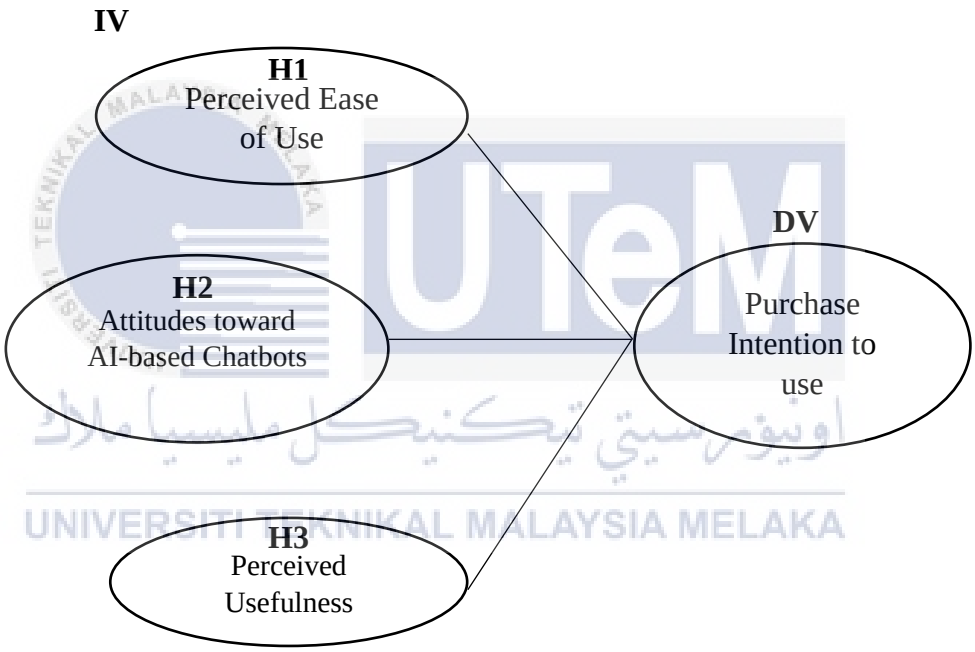


Figure 2.3 Conceptual Framework

2.9 Summary

Retail is undergoing a transformation as a result of artificial intelligence (AI), and because customers are becoming more open to adopting new technologies, this presents retailers with a fantastic opportunity to incorporate AI technology into their

establishments, thereby increasing customer satisfaction and developing a novel shopping environment for people who have not yet become purchasers (Guha et al. 2021b). Customers' views and behavioral intentions with regard to the utilization of cutting-edge technology and devices are influenced by a variety of factors (Gümüş & Çark 2021). According to Juan-Pedro Cabrera-Sánchez, Iviane Ramos-de-Luna, Elena Carvajal-Trujillo and Ángel F. Villarejo-Ramos (2020), the key component that influences both attitudes as well as behavioral intentions of customers with regard to adopting technologies for the purpose of acquiring items and services is hedonic motivation. Similarly, characteristics also including perceived usefulness, ease of use, and personal characteristics are all factors that affect the attitude and behavioral intentions of customers when it comes to employing AI technologies (Kaczorowska-Spychalska 2019). In addition, the integration use AI technologies and gadgets enable retail businesses to provide better and more convenient services to customers, as well as to ensure that customers will have a more delightful and easy experience while they are shopping (Moore, Bulmer & Elms 2022).

The influence of AI-based chatbot in the retail sector on purchase intention among customers in Malaysia is the subject of the literature studies that are being covered in this study topic, which is titled "The Factors of AI-based chatbot in the Retail Sector." In this chapter, the researchers investigated the definition of AI-based chatbot, the evolution of AI-based chatbot, the TAM model- definition with all the elements, the connection of perceived used and attitude, the connection of perceived usefulness and attitude, and the connection of attitude and intention to buy, which is all based on research that was done in the past. The researcher obtained the examined conceptual framework from Racero et al., 2020, but adapted it to fit the relevant variables, which included three independent variables and one dependent variable. The three variables that are considered independent in this study are perceived ease of use and perceived usefulness, and attitude towards AI-based chatbot with the variable that is considered dependent being a purchase intention. In the conclusion, the researchers made some hypothesis testing in order to evaluate the connection between the independent variables and the dependent variable.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter contains an overview of the research methodology of the research in relation to the quantitative study design and its explanation, data collection and sampling techniques of respondents, the design of the instrument for data collection (open questionnaires), and procedures that researchers implemented in order to conduct this research and evaluate the data that was collected as a result of the study.

In followings the findings of Kassu Jilcha Sileyew (2021), a quantitative study design was implemented and used to collect data from Malaysian participants on the four factors which are perceived utility, perceived ease of use, attitude, and purchase intentions during the span of three independent trials. The first study investigated the link between perceived ease of use and attitude, the second study investigated the connection between perceived usefulness and attitude, and the third investigation investigated the connection between attitude and the intention to purchase. For the purpose of providing answers to the research questions, the outcomes were evaluated using the statistical program developed by IBM called SPSS.

3.2 Research Design

The primary methodology consisted of a true-experimental study design involving Malaysian consumers grocery shoppers respondents. The researcher decided to utilize this methodology because it possesses both reliability and validity and the capability to control for the elements that are impacting their findings. Each member of the experimental group as well as the control sample was chosen at random (Formplus 2021). In addition, Ma et al., 2021 suggest that in order to limit risks to the study's internal validity, it is helpful to have a sampling that is homogenous with regard to non-theoretical elements such as occupation and geographical location. Both groups maintained their controls for statistical regression and the mean at the same level, using the level of the variables that were measured. The fact that researchers are currently conducting studies in Malaysia makes it more difficult to collect data in smaller regions, to carry out the required surveys and interviews, and to create challenges for data acquisition as well as pilot testing.

In addition, the Covid-19 outbreak makes it more difficult to collect data. Instead of conducting in-person interviews, the researcher made use of online questionnaires. This was done to establish the study's validity and reliability, as well as to confirm the interactive effect that AI-based chatbots have on purchase intent. This method is justified on the basis of Muhammad Usman Noor (2020), which the researchers discovered that online quantitative data collection techniques are consistent with the results from conventional ways, and in some cases facilitate positive performance due to higher variability of participants from online channels. This justification is based on the fact that the researchers discovered that online quantitative data collection techniques are consistent with traditional methods. In their statistical study of consumer purchase intentions, Lee Jing Ru, Tan Owee Kowang, Choi Sang Long, Fong Sook Fun, and Goh Chin Fei (2021) all made use of SPSS, which demonstrates the feasibility of the software as a trustworthy statistical analysis tool. This helped to establish validity and dependability, as well as confirmed the interaction effects of an AI-based chatbot, attitudes, and buying intentions.

3.2.1 Descriptive Research

The objective of descriptive research is to provide an accurate description of a research problem. In descriptive research, participants collect data to address the research hypothesis of the study or to respond to questions regarding the status of the subject of the research. Participants also make an effort to obtain in-depth information and data about the thing under investigation by providing detailed information and data. When it comes to a particular population or population subgroup, the goal of descriptive research is, in obviously, to describe, as well as to explain or validate some type of hypothesis or objective, see also descriptive research purpose. The objective of descriptive research questions is to merely describe the variables that are being measured (Sahin & Mete, 2021). The researcher decided to utilize a questionnaire as the approach for carrying out their descriptive research. Respondents provided their feedback in the form of surveys, ballots, or questionnaires for the research survey. Due to the fact that this survey method may be implemented either online or offline, it is the method of choice when doing descriptive research having larger samples. In addition, the descriptive study may be able to help highlight areas in which additional research is required as well as correlations between factors that need further exploration.

3.3 Methodology Choice

The study's findings can be backed up by one of four distinct types of research procedures. All of those are descriptive, quantitative, qualitative, and quasi (Taguchi 2018). The researchers have decided to examine the factors that AI-based chatbots have on consumers' intentions to make a purchase using the quantitative research approach. The researchers relied on the quantitative approach in order to conduct this thesis research. When a researcher has to evaluate a problem, they will employ this method, which provides answers to inquiries such as "what," "how many," and "how

often." Calculations in mathematics, algorithm development, and statistical research typically make use of this kind of data (Mellinger & Hanson 2021). As a consequence of this, the validity of quantitative data may be checked and evaluated through the use of mathematical methods because of the nature of the data itself. A quantitative strategy that makes use of a quantitative approach is what the researcher involved in this investigation considers to be the most effective way to gather information for the study. In addition, quantitative approaches might be utilized to investigate the connection between the factors of AI-based chatbots in retail on consumers' intentions to make a purchase in Malaysia. The researcher will make use of a questionnaire in order to acquire the necessary data.

3.3.1 Quantitative Research

For the aim of this research, a quantitative research approach was adhered to for the entirety of both investigations, and structured questionnaires were used to collect data. The authors Mohajan and Haradhan (2020) provide an explanation of the benefits of quantitative studies by focusing on the fact that it makes use of statistical data as a tool that both saves resources and reduces the amount of time spent on research. In addition, generalization can be accomplished by the collecting of data and its subsequent analysis by focusing primarily on the specifics of the data, such as figures and statistics. This not only makes the data more valuable for researchers, but it also makes the study conclusions more useful for people who will actually utilize them. As a result, the capacity to generate results that are both fairer and statistically reliable is one of the benefits of using a quantitative research method. In addition, quantitative research is the method of gathering and interpreting numerical data. It is possible to utilize it to find patterns and averages, create forecasts, assess incidental relationships, and generalize results to bigger groups (Mellinger & Hanson 2021).

The researcher intends to make use of quantitative research in order to investigate the connection between the effect of AI-Chatbots in the retail sector and

the purchase intention of consumers in Malaysia. This basic data will be gathered by the researcher through the use of a reliable questionnaire in order to establish that somehow this research project is entirely quantitative.

3.4 Data Source

The processes of collecting data were geared toward the collection of the necessary information in order to achieve the objectives. Included in this study were secondary and primary data collectors that concentrated on quantitative data. There are two distinct categories of information and data sources that need to be processed, and these are primary data sources and secondary data sources (Cerar, Nell & Reiche 2021). In this research, the researcher will examine both of the information sources, and the approach of using questionnaires to gather data for the purpose of analysis in order to gain primary data will be utilized.

In the context of scientific inquiry, "data collecting" refers to the act of accumulating, evaluating, and analyzing specific understandings through the use of conventional authenticating procedures. On the basis of the data that has been collected, a researcher is able to make a judgment about the hypothesis (Syeda Ayeman Mazhar, Rubi Anjum, Ammar Ibne Anwar, and Abdul Aziz Khan, 2021). According to Bhat A (2019), regardless of the matter being researched, the first and most significant phase in the research process is almost always the collection of data.

3.4.1 Primary Data

According to Syeda Ayeman Mazhar, Rubi Anjum, Ammar Ibne Anwar, and Abdul Aziz Khan (2021), the phrase "primary data" refers to information that was gathered for the first collected by the researcher and is authentic and up to date. Primary data are found with the help of descriptive research and surveys (like survey methods or census surveys), and they can be gathered through observation or clear interaction with respondents for one way or another. In experimental research, the primary data are gathered while the experiments are being done. But primary data are gathered with the help of descriptive research and surveys. Primary data collection can also be very expensive because the research has to be done by the organisation or company itself. This means that resources like money and people have to be used. Surveys, observations, physical tests, postal questionnaires, questionnaires filled out and sent by data collectors, interviews conducted, telephonic conversations, focus groups, and case studies are some of the ways that can be used to collect the data (Surbhi S, 2020).

The data for this research might be collected by sending out questionnaires to every respondent one at a time utilizing the online questionnaire method. The creation of an online questionnaire is possible through the use of a Likert scale with five items. On a scale similar to the Likert one, responses ranged from 1 (strongly disagree) to 5 (strongly agree), with 1 representing "strongly disagree" and 5 representing "strongly agree."

3.4.2 Secondary Data

Secondary data are defined as any data that has already been gathered and processed statistically by a third party in the past. These data were gathered in the past by someone else (Mazhar, S. A., Anjum, R., Anwar, A. I., & Khan, A. A. (2021). It is

possible that secondary data will not measure up to the quality of primary data. However, it is still useful in situations where the researcher is unable to obtain preliminary findings, and secondary information can assist the researcher in obtaining the knowledge that is required (Cao et al. 2020).

According to Surbhi S (2020), the term "secondary data" refers to information that has already been gathered and recorded by a party other than the user for a reason that is unrelated to the research problem that is now being investigated. It is the widely available form of data acquired from a variety of sources including censuses, government publications, organizational records of the firm, reports, books, published papers, and websites. The researcher conducted the analysis of the data that related to the subject of the research by reading a variety of papers and journals. Secondary data were gathered by the researcher using the Google Scholar website and various library databases, including Mendeley, Science Direct, Springer, and Elsevier. This was done in order to accomplish the goals of the research.

3.5 Location of Research

Malaysia is a developing country located in southern Asia that is situated on the Malay Peninsula and is close to Borneo Island. As a consequence of this, Malaysia was selected as the location for the research due to the fact that the retail industry has been one of the most significant contributors to the economic growth (Asila Jalil, 2022), and because it is currently impossible to cross outside of one's home country as a result of the Covid-19 outbreak. The location will be exclusive to the grocery retail industry in Malaysia, which makes use of AI-based chatbots as a service upon consumers' intentions to make a purchase especially supermarkets in Malaysia.

3.6 Time Horizon

According to M. Flores Vizcaya-Moreno and Rosa M. Pérez-Cañaveras (2020), cross-sectional research is a sort of empirical study that involves examining data about a population at a given point in time. This type of study is also known as a "time series" study. The time scale refers to the amount of time necessary to carry out all of the research. Research that is cross-sectional and research that is longitudinal both have different temporal boundaries (Valero-Moreno et al. 2021). This research will be carried out by the researcher with the help of a cross-sectional defined as the expected to a restricted amount of time allocated for data processing and the requirement to finish the research in a reasonable timeframe. The questionnaire would be sent out to responders between October and December of the year 2022. The inquiry will be ended in January 2023, and the findings of the data collection will be revealed in February 2023.

3.7 Sampling Design

According to Syed Muhammad Sajjad Kabir (2016), the term "sampling design" refers to the plans and processes that must be followed in order to choose specimens from the target population, as well as the estimate technique formula that must be used in order to compute the sample statistics. Those statistics are really the estimates that have been used to deduce the parameters of the population. Because of this, there are two distinct types of sampling methods which are sim sampling, which involves a random selection, and non-probability sampling, which involves a selection process that is not random. In probability sampling, the researcher selects a set of participants at random from the larger population. This gives the researcher the capacity to draw strong statistical conclusions about the entire population. There are also a total of four primary varieties of probability samples, which are referred to as simple random sampling, systematic sampling, stratified sampling, and cluster

sampling respectively. In non-probability sampling, the selection of subjects is not done at random but rather considers facilities or other factors that make it simpler for such a researcher to obtain (Taherdoost 2018). Purposive sampling was the primary focus of the present investigation. In this method, respondents are selected by the researcher based on their perception or purpose that the respondents possess desired qualities and are capable of providing the necessary information (Loru 2020)

3.7.1 Sampling Population

According to Jan Honegr, Daniel Jun, Kamil Kuca, and Petra Maresova (2020), a survey's target population is the full set of units whereby the study findings are going to be used to reach conclusions about the population's characteristics. The results of the research are intended to be generalized to a certain demographic, which is defined by the target group. According to Statista Research Development (2022), a website named Vase.ai did a survey of the population of Malaysian consumers and found that 40% of those who answered said they bought their groceries from a local store or grocer during the COVID-19 epidemic. Malaysia put out the Movement Control Order (MCO) on March 18 to stop the spread of COVID-19. This meant that people could only move around to do things like grocery shopping that were necessary. It also limited how much further individuals were able to do these things. With the help of AI-based chatbots, businesses can streamline their interactions with customers and provide prompt responses at all times. The people in Malaysia who shop at retail establishments are the focus of this study's demographic. The persons who utilize AI-based chatbot services in Malaysia are the primary focus of the sampling frame. AI-based chatbots have been integrated into the grocery retail sector in Malaysia, giving shoppers a better overall experience at stores such as Lotus(Tesco) Malaysia and Mydin Malaysia, which are both based in Malaysia (AiChat, 2021)

3.7.2 Sampling Plan

In a sample plan, the measurements that will be taken, when they will be taken, upon which material, and how they will be taken are all specified (Fujino et al. 2021). It is important that sampling plans be designed in such a manner that the information that is generated contains a sample that is representative of the parameters that are of interest and that it is possible to obtain answers to all of the goals' questions (Kabir 2016). The researcher also claimed that the design of the sample for this research is through computations, charts, and explanations for each data received.

It was necessary to have a high number of participants in order to get an accurate reading of the opinions of Malaysian consumers, more specifically, each customer who participated was required to utilize an AI-based chatbot, and the total number of participants was intended to comprise 220 people. The subjects who agreed to participate in the research ranged in age from 18 up to and including nearly 45 years of age. The sample consisted of both male and female participants. Participants from the surrounding area were chosen to participate in the research in order to guarantee that the findings are relevant to the group of shoppers that the research was conducted.

3.7.3 Sample Size

In research, a "sample" refers to a representative cross-section of a larger population that serves as a basis for generalizations or inferences about the population that was the primary focus of the investigation (Rose Loru,2020). According to Syed Muhammad Sajjad Kabir's (2020) research, the computation of the sample size is mostly dependent on the sort of sampling design that is utilized. In spite of this, estimations for the anticipated sample characteristics (such as the mean, proportion, or total), the intended level of assurance, as well as the level of precision need to be carefully described in advance for each and every sampling design. The declaration of

the precision that is wanted could be made by indicating the amount of margin for error that is acceptable in the estimations that are produced. The research was carried out by participants who satisfied the requirements of the study design.

The findings of the research led to the conclusion that the population of interest for this study should be Malaysian consumers who buy groceries using AI-powered chatbots. Hinkin (1995) stated that now the population could not be precisely defined, but that the investigation of research may provide a solution to this question. A research's sample size is determined by the sample-to-item ratio, which takes into account the total number of items included in the investigation. The ratio should not be lower than five to one at any point (Gorsuch, 1983; Hatcher, 1994; Suhr, 2006). For illustration's sake, a study containing 30 items (questions) will need a total of 150 participants. There has also been discussion of that it should not be less than a 5-to-1 ratio (Costello & Osborne, 2005). Researchers who are having trouble expected to meet the above requirement limited by the small sample size can relate to Barrett and Kline (1981), who contended that the sample-to-item proportion has less to do with factor stability. Despite the fact that a higher sample-to-item ratio is preferable, this argument can help researchers who are having trouble meeting the above criterion. Due to the fact that this investigation includes a total of 28 questions, the optimal size of the sample is between 50 and 150 respondents, with the ratio being 5-to-1. However, Alreck & Settle (1995) also emphasized that an adequate sample size of 30-500 respondents is sufficient to obtain the greatest and most accurate outcomes and results. As a consequence of this, and in agreement with the statement made by Memon et al., 2020. The sample size for this research is 220 copies of questionnaires, and they will be distributed to the selected respondents who are consumers who use AI-based chatbots in the process of shopping for groceries using Google Forms as the distribution medium.

3.7.4 Sampling Techniques

The method of sampling refers to the process of picking a sample from within a particular population. There are many various methods of sampling, including simple random sampling, systematic sampling, cluster sampling, purposeful sampling, quota sampling, and stratified sampling (Taherdoost 2018). In addition, another method of sampling is known as simple random sampling, and it involves assigning a number to each individual in the population. Then, with the assistance of a table of random numbers, a certain portion of the sample is selected at random. However, there is a possibility that the final sample will exclude some smaller subgroups, despite the ease with which it can be implemented. Still, a straightforward random sample was found to be the most appropriate method, which not only makes it easier to use but also ensures that the results are an accurate picture of the wider population (Kabir 2016). As the method of sampling, the researcher will be employing probability sampling in the course of this investigation. The questions were constructed utilizing Google Form, which makes it simple for the researcher to complete them and collect information from those who respond to the survey in the end. The questionnaires will be made available to the survey participants who are the aim of the research through social media networking sites such as Instagram, Whatsapp, Telegram, Email, or direct messages (DM), as well as other platforms via links that have been set up the questionnaires. This will allow the respondents to easily access the questionnaires whenever and wherever they choose.

3.8 Pilot Test

Performing a pilot study helps researchers decide whether or not their initial hypothesis is correct, whether or not they should continue with the project, and, if so, how to proceed. However, there is a distinct feature of the design of a pilot study: it is

conducted on a smaller scale than a major or thorough investigation. In other terms, the pilot study is essential for improving both the quality and the efficacy of the major study that will be carried out (In 2017). Pilot studies are said to play a significant part in the process of intervention development and evaluation, as stated by Thabane et al., (2019). Furthermore, the sample size requirement is something that is still not clear about pilot and feasibility research. There is no agreement, but recommendations range from at least 10–12 per collective to 60–75 per collective, depending on the main goal of the research. The main goal is to estimate average values and variability so that larger studies can be planned in the future. This size is manageable for most prior researchers to do in a single centre, and it still gives them valuable first information (Lewis et al. 2021).

In particular, they assist toward a better understanding of the factors of intervention as well as the conditions under which it is applicable and transferable. Therefore, evidence-based decisions on the design and execution of main research could be made easier with the help of pilot studies. It is possible that the pilot test will disclose problems and flaws in the questionnaire. If this happens, the questionnaire can be modified before it is given to respondents. For the purpose of developing the definitive survey questionnaire, the pilot test should collect information and feedback from respondents. As a result of the time constraints, at least ten people have been seeking to participate in the pilot test.

3.9 Questionnaire Design

In these types of research, questionnaires are a typical type of research instrument that is used to collect a variety of information from respondents. As a consequence of this, the utilization of a questionnaire that has been thoughtfully developed is absolutely necessary for establishing the quality and scientific value of any research endeavor that is survey-based. In order to ensure that pertinent questions and elements are considered in a manner that reflects certain structures to be measured

in research, the design of a questionnaire requires prior planning (Yusoff, Arifin & Hadie 2021).

After the questionnaire has really been created, the next important step is to validate the questionnaire in order to guarantee that the replies and results will be of high quality. The purpose of this research is to collect data, and in order to do so, a questionnaire will be distributed to customers in Malaysia who utilize AI-based chatbots in retail stores. The researcher will be the one to create the questionnaire in order to evaluate the effect that AI-based chatbot have had on consumers' intentions to make purchases in the retail sector in Malaysia. There are five distinct sections included in the format of the questionnaire that was used for the survey. The questionnaire is broken down into four distinct components. The initial part of the survey inquired about the respondent's demographic profile, including their gender, age, educational qualification, work status, and level of familiarity with AI-based chatbots. The primary objective of the first part was to ascertain the overall characteristics of those who responded to the survey. The perceived ease of use of AI-based chatbots is the topic of the second half of this research. The third part of the questionnaire inquired about respondents' perspectives on the perceived usefulness of AI-based chatbots. The attitude of perspective on AI-based chatbots was the primary topic of discussion in the fourth part. The final part covers the purchase intention of consumers toward AI-based chatbots in the retail sector in Malaysia.

3.10 Operationalization Construct

Table 3.1 Operationalization of Construct

Operationalization Construct	No of Items	Scale of Measurement
Perceived Ease of Use (PEU)	5	Likert Scale (1-5)
Perceived Usefulness (PU)	5	Likert Scale (1-5)
Attitude toward AI-based chatbot (A)	5	Likert Scale (1-5)
Purchase Intentions (PUI)	5	Likert Scale (1-5)

Table 3.2 Likert Scale from 1 to 5

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

3.10.1 Variables

Table 3.3 The Variables

Label	Items	Source
PEU	**Perceived Ease of Use**	
1	I believe using AI-based chatbot service applications is easy.	Watchravesringkan & Myin (2021)
2	Shopping using an AI-based chatbot does not require great mental effort	

3	I believe an AI-based chatbot service can help me solve problems faster.	Wicaksono & Maharani, (2020)
4	I think I will be able to shop using an AI-based chatbot independently without the help of an expert.	
5	I think using an AI-based chatbot service application is clear and understandable	

Label	**Items**	**Source**
PU	**Perceived Usefulness**	
1	An AI-based chatbot will be helpful while shopping	Salim et al., (2021) Anghel et al., (2020)
2	I can improve the shopping experience process with an AI-based chatbot service application.	
3	Using an AI-based chatbot for shopping will enhance my effectiveness.	
4	Using an AI-based chatbot can save me waiting time.	
5	In my opinion, an AI-based chatbot could be useful in providing answers to some basic queries.	

Label	**Items**	**Source**
A	**Attitude toward AI-based chatbot**	
1	The use of AI-based chatbots during the COVID-19 endemic is an interesting idea.	Cheema et al., (2013) Kasilingam, (2020)
2	I have a favorable attitude toward the shopping experience with AI-based chatbot	
3	I like using AI-based chatbots for shopping.	

4	Using an AI-based chatbot for shopping would be pleasant.	
5	I believe the use of AI-based chatbot services is a trend during the COVID-19 endemic.	

Label	Items	Source
PUI	**Purchase Intention**	
1	Now I intend to use an AI-based chatbot to shop and procure products.	Thilina, (2021) Ashfaq et al., (2019)
2	I want all stores to be offered AI-based chatbots during COVID-19 and beyond.	
3	I am willing to recommend others to use AI-based chatbot	
4	I think it will be worth it for me to use an AI-based chatbot in shopping.	
5	I am interested in continuing to use an AI-based chatbot.	

3.11 Reliability

According to Mohajan, (2020) says that reliability is established by determining the appropriate sample size, which enables one to make conclusions with both precision and accuracy. A measurement's dependability is a measure of how consistently measured values are produced throughout time and among the instrument's many parts and components and how free they are of bias whether error-free they are. The data's consistency and stability have both been evaluated as part of the investigation of their reliability. When conducting an investigation into the study's

dependability, the researcher was responsible for determining the accuracy and consistency of the method of measurement. There are many different definitions and methods for determining reliability, however, the concept tends to become consistent in certain contexts (Jilcha Sileyew 2020).

Cronbach's alpha is used to determine the dependability of the data. The value of Cronbach's alpha indicates the degree to which a group of things can be considered to have a close relationship with one another. It is generally accepted as a measure of the trustworthiness of scales. A majority of the time, Cronbach's alpha value is used as the basis for determining how reliable internal consistency is (Ru et al. 2021). According to Mat Nawi et al. (2020), in the majority of research settings, "acceptable" dependability coefficient values start at 0.70 and go up from there.

Table 3.4 Alpha Coefficient Range

(Source: Mat Nawi et al., 2020)

Alpha Coefficient Range	Interpretation
< 0.6	Poor
0.6 to < 0.7	Moderate
0.7 to < 0.8	Good
0.8 to < 0.9	Very Good
0.9 >	Excellent

3.12 Validity

The quantitative evaluation criteria consist of validity, reliability, and generalization all rolled into one package. The validity of the findings is validated if they come from a randomization sample and there is assurance that conflicts of interest

have been minimized. A sufficient number of samples are used to determine the reliability of research so that results can be formed with both precision and accuracy (Mohajan 2020). According to Mallah et al., (2020), since of this, the design of questionnaires is a vital part of research because it can have an effect on the validity and reliability of the information that is gathered. In order to prevent inaccurate responses from being prompted or to acquire data in the future, the design of the questionnaire needs to be abstract. Throughout the duration of this research, we have done everything in our power to keep the research's validity and dependability intact.

3.13 Data Analysis Method

The term "data analysis" refers to the act of "cleaning," "transforming," and "modeling" data in order to "find useful information for the purpose of making business decisions." The goal of data analysis is just to glean actionable insights from collected information and then base one's decision-making on those insights (Jhonshon 2021). The data were processed and evaluated for the purpose of discussion after they were acquired from various sources. For the purpose of data analysis, suitable computer programs were utilized (David,2020). Excel and SPSS are two of the computer programs that were utilized in the process of analyzing descriptive data to determine the level of effectiveness that the AI-based chatbot user had on purchase intention in Malaysia. In addition to this, SPSS is able to comprehend a substantial volume of data, which simplifies the process of information collection and organization by providing a variety of administrative effects internal to the system. For instance, SPSS will make use of its frequent monitoring to check whether or not the information that was gathered is valid, correct, and consistent. When carrying out the poll, it will also evaluate rumors and suppositions. The methods of analysis include descriptive analysis, exploratory factor analysis, correlation coefficient, and multiple regression.

3.13.1 Pearson Correlation Coefficient

In this research, the quality of the relationship between the independent variables and the dependent variable is measured using Pearson's Correlation Coefficient (r). In other words, the Pearson's Correlation Coefficient would be applied to assess the strength of the connection between the independent variables (the factors of consumers using AI-based chatbots on perceived ease of use and perceived usefulness) and the dependent variable (purchase intention) in order to determine whether or not the correlation is significant.

The Pearson correlation coefficient is a tool utilized in the field of statistics for the purpose of determining the degree to which two variables are linearly related to one another. The value of this statistic falls somewhere in the range of -1 to 1. Since the numerical value is 1, this indicates that the straight-line equation may be used to describe two variables, and also that the two variables are positively connected with one another. A coefficient value of -1 indicates that the two variables can still be described by a linear equation, but even that their correlation is inverse (Yang et al. 2021). In addition, numerous methods have been proposed to translate the correlation coefficient into connection adjectives such as "weak," "moderate," and "strong" (see Table 2 for an example). Because of their arbitrary nature and lack of consistency, these cutoff points should be applied with caution. Most academics agree that a correlation coefficient of 0.1 or less indicates a weak association, while a correlation coefficient of 0.9 or more indicates only a very strong relationship. However, the interpretation of values in the middle is still up for debate. For instance, depending on the particular rule of thumb that is utilized, a correlation coefficient of 0.50 might either be understood as indicating a "good" or "moderate" degree of correlation. A correlation value of 0.10 is supposedly indicative of a "weak" link, whereas a correlation coefficient of 0.69 is supposedly indicative of a "moderate" association. This claim is extremely arbitrary (Schober & Schwarte 2018).

Table 3.5 Conventional Approach to Interpreting a Correlation Coefficient

Source: (Schober & Schwarte 2018)

Absolute Magnitude of the Observed Correlation Coefficient	**Interpretation**
0.00–0.10	Negligible correlation
0.10–0.39	Weak correlation
0.40–0.69	Moderate correlation
0.70–0.89	Strong correlation
0.90–1.00	Very strong correlation

3.13.2 Descriptive Analysis

The objective of characterizing a phenomenon and articulating how we feel about something is the focus of descriptive analysis. It makes an effort to investigate the circumstances in order to articulate the standard. Whether the objective is to identify and define patterns and variance in communities, develop new measures of theoretical benefits, or describe samples for the research purpose of identifying causal impact, description plays a significant part in the scientific process in general as well as in education field of research (Loeb et al. 2017). The purpose of the descriptive analysis is to not only describe the current state of affairs, but also pave the path for the discovery of previously unknown information. To begin, information about products, people, individuals, activities, and circumstances must be gathered, then, the information must be organised, tabulated, depicted, and described. This sort of research design is primarily directed by one or so more research questions, rather than a structured research hypothesis, and is the most common type of research design (Baha 2016). The descriptive-analysis tools were used in this research to establish the demographics of the targeted respondents in terms of both frequency and percentage,

as stated by Mat Nawi et al., (2020). To put it another way, descriptive analysis can also be used to compile data and organize it into distinct groups within the population. In this particular investigation, the researcher chose to focus on a variety of demographic aspects, including age, gender, and educational background. In order to better comprehend the sample or the community that the researcher obtains through the survey method, the researcher will also utilize percentages.

3.13.3 Multiple Linear Regression Analysis

An approximation of the associations between such a quantitative result and one or more quantitative element variables, also known as regression coefficients, predictors, or independent variables, can be found through the use of regression, which is a statistical technique. The statistical technique of multiple regression analysis is employed extensively throughout the field. It is important to keep in mind that linear in the parameters is what is meant when discussing linear regression analysis (Babaq Maqani, 2014). An approximation of the associations between such a quantitative result and one or more quantitative element variables, also known as regression coefficients, predictors, or independent variables, can be found through the use of regression, which is a statistical technique. The statistical technique of multiple linear regression analysis is employed extensively throughout the field. It is important to keep in mind that linear in the parameters is what is meant when discussing linear regression analysis. According to Batabyal (2014), in order to successfully create a statistical model, multiple linear regression, abbreviated as MLR, has been successfully used by a number of authors. The model can be represented in its most basic form by expressing the value of a dependent variable (y) as a linear function of a series of independent variables (x1...xn), along with a related error:

$$y = \beta 0 + \beta 1\ x1 + \beta 2\ x2 + \beta 3\ x3 + \varepsilon$$

Table 3.6 Equation of Multiple Linear Regression

(Source: Batabyal, 2014)

Where:

Y	dependent variable (Purchase Intention)
β0	the y-intercept, regression constant
β1	the slope coefficient for the first independent variable (Perceived Ease of Use)
β2	the slope coefficient for the second independent variable (Attitude)
β3	the slope coefficient for the third independent variable (Perceived Usefulness)
ε	the error, regression residual

3.14 Summary

In this chapter 3, the researcher laid out the procedure that would be followed to gather data and information about the variables that were being studied. It consists of a look at the methods that were employed to explain the research questions. Quantitative methods will be utilized by the researcher for the purpose of this research endeavor. For the purpose of this research, both sources of data were utilized. The survey strategy, as well as the questionnaire, was developed in order to collect responses for this research. In order to collect responses from people who have used AI-based chatbots in retail stores, a digital questionnaire in the form of a Google Form will be distributed and deployed. The researcher chose Malaysia as the location for the

investigation since there are a significant number of retail stores present in both of these places. In this research, the researcher will do pilot testing in addition to performing a cross-sectional sample design. The researcher will assess the data by applying Descriptive Analysis, Multiple Regression Analysis, and Pearson's Correlation in the section devoted to data analysis. This evaluation will be carried out with the assistance of the Statistical Package for the Social Sciences (SPSS). In the section on the analysis of the data, the coefficient will then be described. That can have an assurance that the numerous methods that will be applied to confirm the dependability of this research project will be trustworthy.

CHAPTER 4

DATA ANALYSIS

4.1 Introduction

This chapter shows what the research found and how the results were analyzed. The goal of this study is to discover how AI-based chatbots in retail in Malaysia affect people's intentions to purchase. As was explained in the first chapter, the aims of this research were to examine the impact of perceived ease of use on consumers' intentions to buy an AI-based chatbot, the effect of perceived usefulness on consumers' intentions to buy an AI-based chatbot, and the effect of attitudes toward AI-based chatbots on consumers' intentions to buy an AI-based chatbot. Every one of these objectives will be met, and the answers from those who took the survey will show positive results.

A quantitative method of research was utilized to search at the data that had been collected by giving online questionnaires to Malaysian grocery shoppers. Before getting the full set of data, the researchers made a pilot test with 15 people. This review took more than a month to finish, and it also had to go through pilot testing. The purpose of this research is to assist the researcher figure out if there is a meaningful link between the independent variables and the dependent variables. In the initial part of this chapter, we look at the demographics of the respondents and how they were chosen. In the second part of this chapter, we look at the data we collected about how AI-based chatbots in the retail sector in Malaysia affect people's plans to buy. This is how the person who did this research received info from a total of 220 people. Also, all 220 of the answers will be looked at with SPSS Version 26. In this chapter, the researcher will discuss regarding the descriptive analysis, the reliability analysis and

validity test, the regression analysis, the Pearson correlation analysis, as well as the hypothesis test.

4.2 Pilot Study Results

Researchers mostly use pilot testing methods to see how reliable questionnaires seem to be. In a pilot study, the researcher gathered information from 15 people. Also, if needed, the questionnaire will be upgraded based on the findings of the pilot test. In Table 4.1, a summary of how the case was handled shows that 15 respondents have reliable data and that all data have really been processed with no missing data.

Table 4.1: Case Processing Summary of Pilot Test

(Source from SPSS output)

Case Processing Summary			
		N	%
Cases	Valid	15	100.0
	Excluded[a]	0	.0
	Total	15	100.0
a. Listwise deletion based on all variables in the procedure.			

Table 4.2 shows the Cronbach Alpha for the reliability of pilot test results. Cronbach's Alpha says that a value below 0.6 is not reliable as well as poor, whereas a value above 0.7 is deemed acceptable. Table 3.0 shows that each variable has a decent dependability value. This pilot test evaluated 20 questions. Perceived Ease of Use (PEU), which is an independent variable, has a Cronbach's Alpha value of 0.812

with 5 items, while Perceived Usefulness (PU) has a value of 0.766. Cronbach alpha, which had five items, and Attitude towards AI-based chatbot (A), which also had five items, were 0.770. Cronbach's alpha is 0.958 for the dependent variable, Purchase Intention (PUI), which has 5 items.

Table 4.2: Pilot Test Reliability Statistic

Variables	Cronbach's Alpha	No of items
IV1: Perceived Ease of Use (PEU)	0.812	5
IV2: Perceived Usefulness (PU)	0.766	5
IV3: Attitude towards AI-based chatbot (A)	0.770	5
DV: Purchase Intention (PUI)	0.958	5

4.3 Descriptive Statistics of Demographic

The sample for this study consists of 250 respondents, with a valid data of 220 (30 responses were excluded due to the responses having either more than 10 percent of unanswered items or the same answer to all questions). According to Marvin Lee & C. Melanie Schuele (2012) defines demographics as data about the individuals in a study, like their age, gender, level of education, and ranking. This research of demographic characteristics included gender, age, race, employment status, awareness of AI-based chatbot technology, type of items, name of a grocery store, and frequency of using AI-based chatbot.

4.3.1 Profiling of Gender

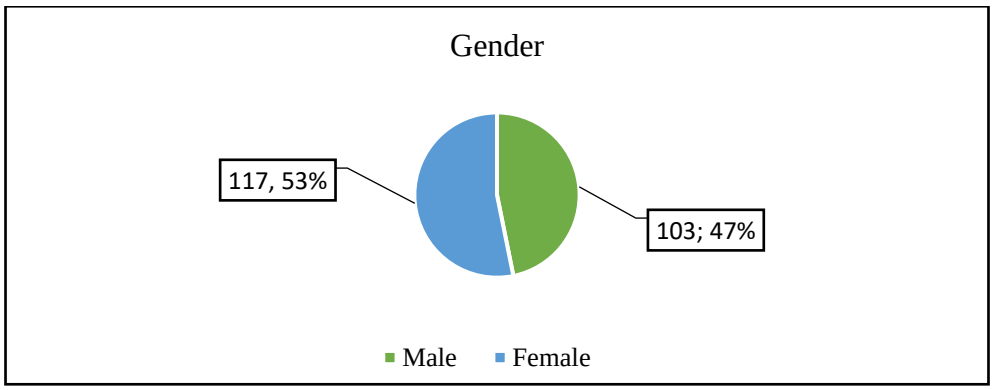


Figure 4.1: Profiling of Gender

The survey was distributed to about 250 people, and 220 of them filled it out. This means that 88% of the people who were asked filled out the survey. Figure 4.1 shows information about the gender of the respondents. The results show that 47% (n=103) of the respondents were male and 53% (n=117) were female.

4.3.2 Profiling of Age

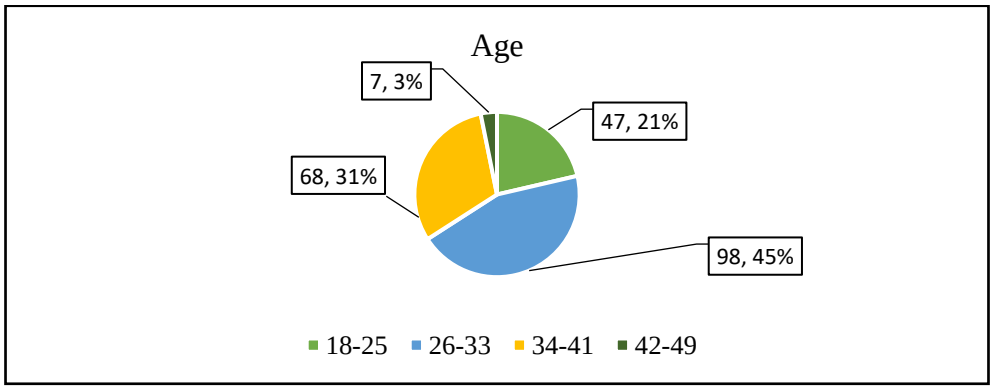


Figure 4.2: Profiling of Age

Figure 4.2 illustrates that the ages of the individuals who responded to the survey were put into four groups: 18–25, 26–33, 34–41, and 42–49 and older. Most

people who answered the survey were between the ages of 18 and 25 years old, were of 47(21%) out of 220 respondents. It is then followed by the age group of 26-33 years old with a total of 98 respondents (45%). After that, 68 (31%) of the respondents who replied were between the ages of 34 and 41 years old. While the age group with the fewest people who filled out the questionnaire was 42–49 years old and older, with only 7 (3%) people in that group.

4.3.3 Profiling of Races

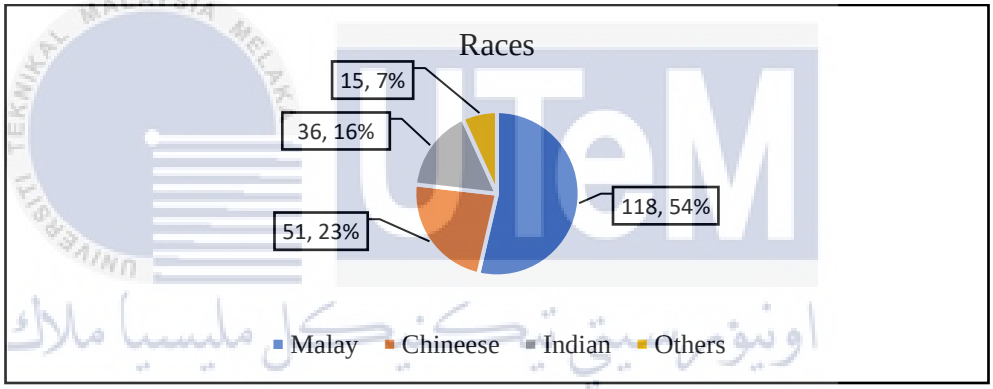


Figure 4.3: Profiling of Races

Figure 4.3 depicts the races of the respondents who filled out this survey. Based on the above pie chart, 54% (n=118) of the respondents were Malay and 23% (n=51) were Chinese. Indians made up 16% (n=36) of the people who took part in this survey. Malaysia had people of many different races, like Sarawakian and Sabahan, who answered the survey with 7% (n=15).

4.3.4 Profiling of Employment Status

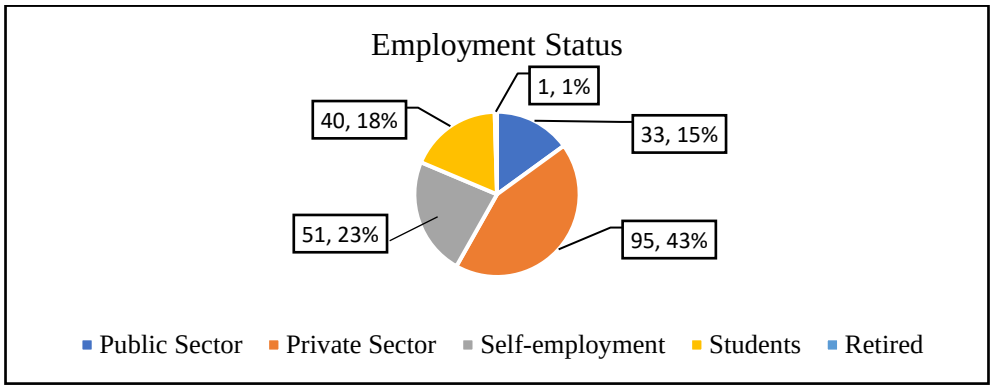


Figure 4.4: Profiling of Employment Status

In Figure 4.4, the respondents' employment status is displayed. Based on the data, most of the respondents work in the Public Sector which is a total of 33 (15%). Then, among the total 220 respondents, there were 95 (44%) respondents worked in Private Sector, followed by 51 (23%) respondents who were as self-employed. Besides, there were 40 (18%) respondents who as students while there was only one respondent (1%) from the survey who is already retired.

4.3.5 Awareness of AI-based chatbot technology

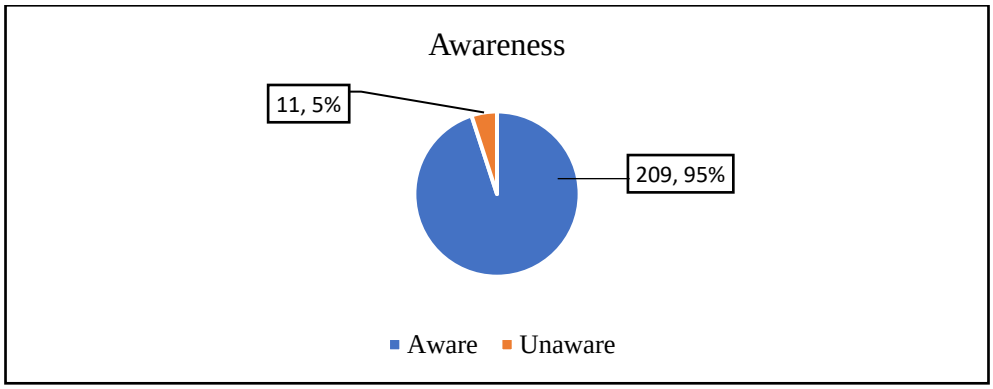


Figure 4.5: Awareness of AI-based chatbot technology

Figure 4.5 refers to the awareness of AI-based chatbot technology of respondents from a total of 220 grocery shoppers. The results show that most of the people who answered the survey knew about the AI-based chatbot. Of the 220 people who answered the survey, 209 (98%) knew about the AI-based chatbot, while only 11 (5%).

4.3.6 Type of items

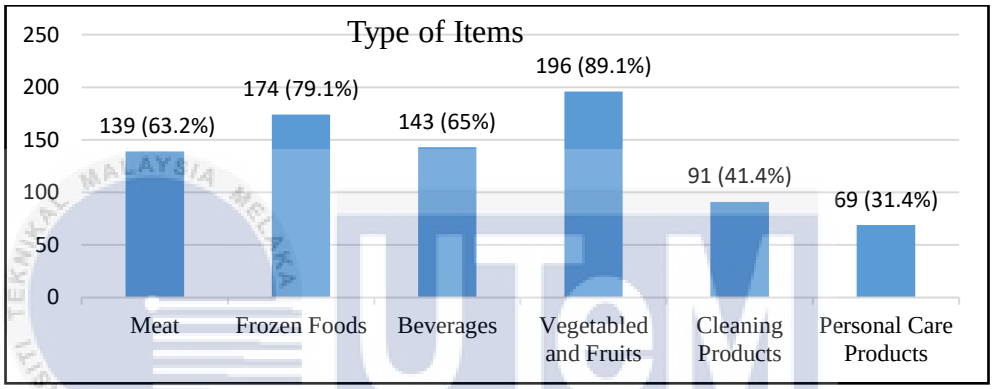


Figure 4.6: Type of items

Figure 4.6 portray the multiple responses by respondents regarding the type of items they during grocery shopping. Based on the figure above, there was a variety of types of items which are meat, frozen foods, beverages, vegetables and fruits, cleaning products, and personal care products. The highest responses to the survey were about vegetables and fruit, were a total of 196 (89.1%) respondents who bought during grocery shopping. Whereas there were 174 (79.1%) respondents answered that they select frozen food items during grocery shopping. Then, it is followed by 143 (65%) respondents for beverage items. Other than that, there were 139 (63.2%) were choose meat items during grocery shopping. Then when it came to cleaning products, 91 (41.4%) of the respondents were. While only 69 (31.4%) of respondents chose the personal care product, which was the least popular choice.

4.3.7 Name of a grocery store

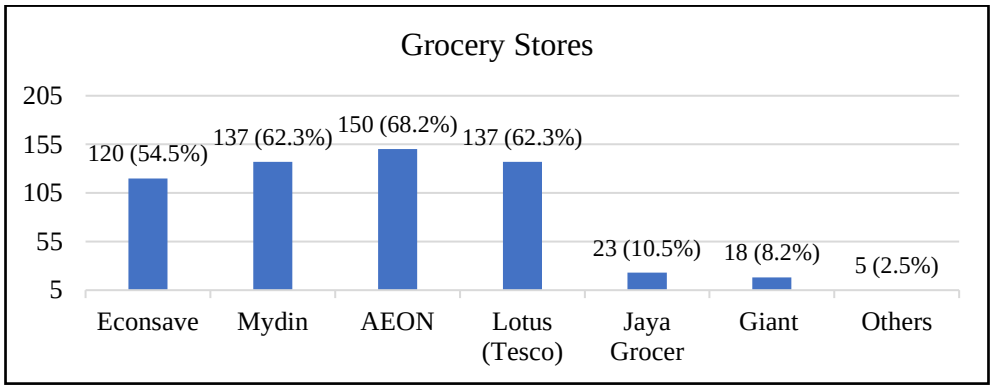


Figure 4.7: Name of a grocery store

Figure 4.7 depicts the multiple responses by respondents regarding the name of a grocery store used to go to. According to the figure above, there are numerous grocery stores such as Econsave, Mydin, AEON, Lotus (Tesco), Jaya Grocer, Giant, and others. The lowest responses to the survey preferred another store (Target, NSK mart, Big Ten) were a total of 5 (2.5%) respondents. Furthermore, there were 137 (62.3%) respondents answered that they choose Mydin and Lotus (Tesco). Then, followed by the Econsave with a total of 120 (54.5%) respondents. Other than that, there were 23 (10.5%) were pick Jaya Grocer as their most-liked grocery store while Giant with a total of 18 (8.2%) respondents. Meanwhile, AEON with the highest number of people who go for with a total of 150 (68.2%) respondents.

4.3.8 Frequency of using AI-based chatbot

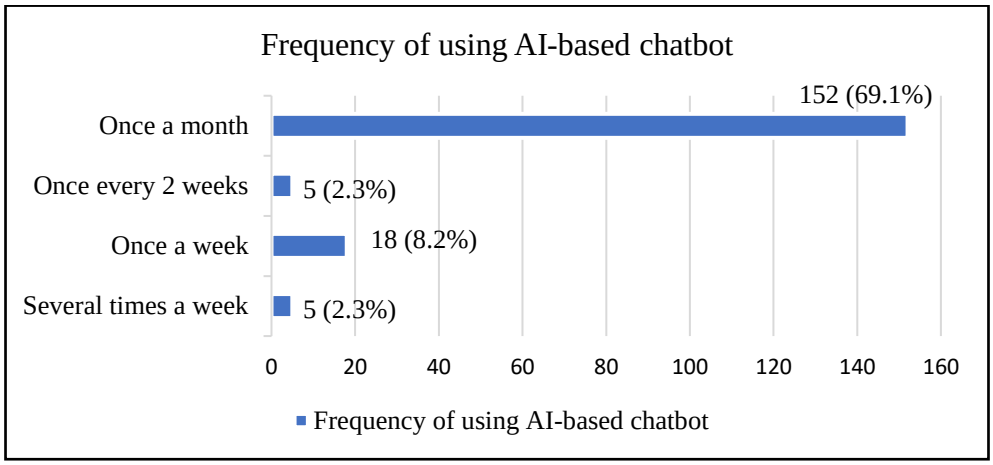


Figure 4.8: Frequency of using AI-based chatbots.

Based on the figure above, indicated how frequently the respondents use AI-based chatbots during grocery shopping. The result revealed that a total of 152 (69.1%) respondents will use AI-based chatbots once a month while 18 (8.2%) out of the total 220 respondents order food online once a week. Besides, follows by 5 (2.3%) respondents will use an AI-based chatbot once every two weeks and several times a week to buy grocery items during shopping.

4.4 Mean Score Analysis for Variables

The mean score analysis was utilized to figure out what certain difficulties were like and learn more about them. The results will be precise findings for all variables, such as Perceived Ease of Use (PEU), Perceived Usefulness (PU), Attitude (A), and Purchase Intention (PUI), that were used in the research of the variables that affect consumers using an AI-based chatbot to buy groceries while shopping in the grocery retail sector. The data will be figured out by using the minimum, maximum, mean, and standard deviation. Aside from that, the researcher evaluates a total of 20 research-related items using a 5-point Likert Scale.

4.4.1 Perceived Ease of Use (PEU)

Table 4.3: Descriptive Statistics for Perceived Ease of Use (PEU)

Independent Variables		N	Minimum (Min)	Maximum (Max)	Mean	Std. Deviation
PEU 1	I believe using AI-based chatbot service applications is easy	220	3	5	4.44	.590
PEU 2	Shopping using an AI-based chatbot does not require great mental effort	220	2	5	3.97	.851
PEU 3	I believe an AI-based chatbot service can help me solve problems faster.	220	2	5	4.45	.657
PEU 4	I think I will be able to shop using an AI-based chatbot independently	220	2	5	4.10	.808
PEU 5	I think using an AI-based chatbot service application is clear and understandable	220	2	5	4.57	.626

Table 4.3 shows describe the descriptive statistics of the independent variable which is Perceived Ease of Use (PEU). It demonstrates that the minimum and

maximum ratings for each item on the scale are 2 and 5, respectively. According to the table, the results show that the highest mean value is 4.57 with the item "I think using an AI-based chatbot service application is clear and understandable" and its standard deviation value is 0.626. It shows that the application of an AI-based chatbot will affect people's purchase intention. Next, the item "I believe using AI-based chatbot service applications is easy" showed a mean value of 4.44, and the standard deviation was 0.590. Besides, the item "I believe an AI-based chatbot service can help me solve problems faster" had a mean value of 4.45 and a standard deviation of 0.657 while the item "I think I will be able to shop using an AI-based chatbot independently" with the mean value of 4.10 and standard deviation of 0.808. At last, the lowest mean value is 3.97 from the item "Shopping using an AI-based chatbot does not require great mental effort" and its standard deviation value is 0.851.

4.4.2 Perceived Usefulness (PU)

Table 4.4: Descriptive Statistics for Perceived Usefulness (PU)

Independent Variables		N	Minimum (Min)	Maximum (Max)	Mean	Std. Deviation
PU 1	An AI-based chatbot will be helpful while shopping	220	3	5	4.37	.586
PU 2	I can improve the shopping experience process with an AI-based chatbot	220	1	5	4.33	.723

	service application.					
PU 3	Using an A-based chatbot for shopping will enhance my effectiveness.	220	2	5	4.05	.815
PU 4	Using an AI-based chatbot can save me waiting time.	220	2	5	4.67	.551
PU 5	In my opinion, AI-based chatbot could be useful in providing answers to some basic queries.	220	2	5	4.25	.802

Table 4.4 refers to the descriptive statistics of Perceived Usefulness (PU). From the table, it shows the scale of minimum rating for each item is 1 while the scale of maximum rating is 5. The results revealed that the item “The menu provides a good description of the food being offered” scored the highest mean value is 4.67 and its standard deviation value is 0.551. This proved that the reliability of usefulness provided is high and most of the respondents agree about it. Next, the item “An AI-based chatbot will be helpful while shopping” had a mean value of 4.37 with a standard deviation of 0.586 while the item “I can improve the shopping experience process with an AI-based chatbot service application” had a mean value of 4.33 with a standard

deviation of 0.723. The item “In my opinion, AI-based chatbot could be useful in providing answers to some basic queries” showed a mean value of 4.25 and a standard deviation of 0.802. Lastly, the item of “Using an A-based chatbot for shopping will enhance my effectiveness.” had the least mean value which was 4.05 with a standard deviation of 0.815.

4.4.3 Attitude toward AI-based chatbot (A)

Table 4.5: Descriptive Statistics for Attitude (A)

Independent Variables		N	Minimum (Min)	Maximum (Max)	Mean	Std. Deviation
A 1	The use of AI-based chatbots during the COVID 19 endemic is an interesting idea.	220	2	5	4.75	.477
A 2	I have a favorable attitude toward the shopping experience with AI-based chatbot	220	2	5	4.28	.717

A 3	I like using AI-based chatbots for shopping.	220	2	5	4.20	.725
A 4	Using an AI-based chatbot for shopping would be pleasant	220	2	5	4.47	.637
A 5	I believe the use of AI-based chatbot. services are a trend during the COVID 19 endemics	220	3	5	4.75	.502

Table 4.5 demonstrates the descriptive statistics of Attitude (A). As referred to in the table, the rating with a minimum scale is 2 while the rating with a maximum scale is 5. The results obtained indicate that the two items with different standard deviation which is “The use of AI-based chatbots during the COVID-19 endemic are an interesting idea” and “I believe the use of AI-based chatbot services is a trend during the COVID-19 endemic” has the highest mean value of 4.45 while the standard deviation value of 0.477 and 0.502. This shows that most of the respondents are having good expectations of AI-based chatbots. Next, the second highest mean value is with the item “Using an AI-based chatbot for shopping would be pleasant” where the mean value was 4.47 and a standard deviation value of 0.637. Moreover, the item “I have a favorable attitude toward the shopping experience with AI-based chatbot” had a mean value of 4.28 with a standard deviation value of 0.71. The least mean value is on the item “I like using AI-based chatbots for shopping” where the mean value was 4.20 with a standard deviation of 0.725.

4.4.4 Purchase Intention (PUI)

Table 4.6: Descriptive Statistics for Purchase Intention (PUI)

Dependent Variables		**N**	**Minimum (Min)**	**Maximum (Max)**	**Mean**	**Std. Deviation**
PUI 1	Now I intend to use an AI-based chatbot to shop and procure products.	220	3	5	4.41	.594
PUI 2	I want all stores to be offered AI-based chatbots during COVID 19 and beyond.	220	3	5	4.35	.635
PUI 3	I am willing to recommend others to use AI-based chatbot	220	3	5	4.38	.695
PUI 4	I think it will be worth it for	220	3	5	4.40	.637

	me to use an AI-based chatbot in shopping.					
PUI 5	I am interested in continuing to use an AI-based chatbot	220	3	5	4.36	.678

Table 4.6 refers to the descriptive statistics of the dependent variable which is Purchase Intention (PCI). According to the table above, the rating with a minimum scale for this factor is 3 while the rating with a maximum scale is 5. From the results analyzed, the highest mean value is 4.41 and associate with the item "Now I intend to use an AI-based chatbot to shop and procure products", while its standard deviation is 0.594. This proved that the majority of the respondents will intend to use AI-based chatbots for shopping in the future. Next, the item "I think it will be worth it for me to use an AI-based chatbot in shopping" had a mean value of 4.40 and a standard deviation is 0.637 while the item "I am willing to recommend others to use AI-based chatbot" had a mean value of 4.38 and standard deviation of 0.695. Furthermore, the mean value for the item "I am interested in continuing to use an AI-based chatbot" is 4.36 and its standard deviation is 0.678. At last, the least mean value of the item fell into "I want all stores to be offered AI-based chatbots during COVID-19 and beyond" with a mean value of 4.35 and a standard deviation of 0.635.

4.5 Reliability Analysis and Validity Test

Table 4.7 depicts the evaluation of the reliability of the data gathered across all independent variables and dependent variables throughout this research. As shown in the table above, there were a total of 20 items in the online questionnaire, and 150 people filled it out. The result of Cronbach's Alpha is 0.899, which is much higher than 0.70. Malhotra (2012) says that a value of 0.60 for Cronbach's Alpha in a reliability analysis means that the data is not reliable and is poor. When the reliability value is more than 0.70, it deems highly and excellently acceptable. Overall, the reliability evaluation of this research is acceptable and poor.

Table 4.7: Reliability Analysis of All Items

Reliability Statistics	
Cronbach's Alpha	N of items
.899	20

Table 4.8 describes how Cronbach's Alpha looks at the reliability of every variable in the study, both independent and dependent. All of the variables fall in a range from 0.546 to 0.738. Based on these reliability values, the entire alpha coefficient value for every variable is good, but one of the independent variables is bad which is the Attitude variable. As shown in the table above, Cronbach's Alpha value for perceived ease of use (PEU), perceived usefulness (PU), attitude (A), and purchase intention (PUI) are 0.726, 0.697, 0.546, and 0.738, respectively.

Table 4.8: Reliability Analysis of Each Variable

	Variables	Cronbach's Alpha	No. of Items	Result
Independent Variables	Perceived Ease of Use (PEU)	.726	5	Acceptable
	Perceive Usefulness (PU)	.697	5	Questionable
	Attitude (A)	.546	5	Poor
Dependent Variable	Purchase Intention (PUI)	.738	5	Acceptable

4.6 Pearson Correlation Analysis

Pearson correlation analysis is a technique to look at how one dependent variable and one independent variable relate to each other. This method can also be used to find out how strong or effective the relationship is between the dependent variable, which in this research is "Purchase Intention among consumers," and the independent variables, which are "Perceived Ease of Use (PEU)", "Perceived Usefulness (PU)," "Attitude toward AI-based chatbot (A)". The value of the correlation coefficient varies between +1 and -1. This shows how strong the relationship is. Also, a value close to +1 or -1 means that the relationship between the two variables is strong, while a value close to 0 means that the relationship is weak.

Table 4.9: Pearson Correlation Coefficient for Each Variable

Correlations					
		meanIV1	meanIV2	meanIV3	meanDV
meanIV1	Pearson Correlation		.792**	.665**	.692**
	Sig. (2-tailed)		.000	.000	.000
	N			220	220
meanIV2	Pearson Correlation	.792**		.682**	.665**
	Sig. (2-tailed)	.000		.000	.000
	N	220	220		220
meanIV3	Pearson Correlation	.665**	.682**		.696**
	Sig. (2-tailed)	.000	.000		.000
	N	220	220	220	
MeanDV	Pearson Correlation	.692**	.665**	.696**	
	Sig. (2-tailed)	.000	.000	.000	
	N	220	220	220	220
**. Correlation is significant at the 0.01 level (2-tailed).					

Table 4.9 shows the correlation between all of the independent variables, such as perceived ease of use (PEU), perceived usefulness (PU), attitude (A), and the dependent variable, which is the consumer's intention to purchase when grocery shopping. All of the independent variables have a positive and substantial relationship with the dependent variable, as shown by the correlation coefficient (r) values that are greater than or within the range of 0.6 to 0.7.

Based on the table, the correlation result of the first variable which presents perceived ease of use (PEU) toward the dependent variable, the test is significant as

stated with the significant r = 0.692 while p-value = 0.000, p < 0.001. Thus, these two variables have a moderate relationship.

After that, for the second independent variable which is perceived usefulness (PU), the correlation relation result toward consumer purchase intention stated that they have a significant relationship. This is related to the value of the test correlation coefficient, r = 0.665 while p-value = 0.000 where p < 0.001. Therefore, a moderate relationship between these two variables can be seen.

Last but not least, followed by the independent variable which is attitude (A) use of AI-based chatbot towards the dependent variable, which is consumer purchase intention during grocery shopping, the results indicate that the test is significant where r = 0.696 whereas p-value = 0.000, p < 0.001. Hence, both variables have a moderate relationship.

4.7 Multiple Regression Analysis

Multiple regression analysis is a way to predict the value of a variable based on the values of at least two other variables. This method can be used to figure out how the independent and dependent variables are related to each other. Also, multiple regression analysis helps explain the relationship between all independent variables (like Perceived Ease of Use, Perceived Usefulness, and Attitude) and the dependent variable (Consumer Purchase Intention during grocery shopping). An equation will show the results of the regression analysis.

Based on table 4.10 revealed the outcomes of the regression analysis of the relationship between independent variables and dependent variables. The independent variables included can be utilized to measure the Perceived Ease of Use, Perceived Usefulness, and Attitude while the dependent variable is consumer Purchase Intention during grocery shopping. Based on the table above, the correlation coefficient (R) shows a value of 0.766 and indicates a strong degree of correlation. Hence, there is a

positive and strong relationship has been identified since the R-value is more than 0.70. Moreover, the R square value in this model is 0.587 which indicates that the dependent variable (consumer purchase intention during grocery shopping) is affected by 58.7% by the independent variables (Perceived Ease of Use, Perceived Usefulness, and Attitude). The rest (100% - 58.7% = 41.3%), on the other hand, are affected by things that are not part of this research.

Table 4.10: Model Summary of Multiple Regression Analysis

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.766[a]	.587	.581	.29355
a. Predictors: (Constant), meanIV3, meanIV1, meanIV2				

The ANOVA analysis of this study is presented in Table 4.11 below. According to the table, the F-test is used to figure out which survey data show that the model fits well. The results show F value is 102.250 while the significant value, p is 0.000 which is lower than the significance level of 0.01. Thus, it is completely obvious that all of the independent variables (Perceived Ease of Use, Perceived Usefulness, and Attitude) have a big effect on the dependent variable (Attitude) (consumer purchase intention during grocery shopping).

Table 4.11: Regression Analysis on ANOVA

ANOVA[a]					
Model	Sum of Squares	df	Mean Square	**F**	Sig.

1	Regression	26.434	3	8.811	**102.250**	.000[b]
	Residual	18.614	216	.086		
	Total	45.047	219			
a. Dependent Variable: meanDV						
b. Predictors: (Constant), meanIV3, meanIV1, meanIV2						

Table 4.12 shows how significantly each of the independent variables affects the dependent variable based on its coefficient beta value. The outcomes in the above table reveal that B1 = 0.291, B2 = 0.150, and B3 = 0.465 respectively for all independent variables. According to the table, Attitude (A) has the highest coefficient beta value where B = 0.465 with t = 6.086 and $p < 0.05$ as compared to other variables. It indicates that the Attitude toward AI-based chatbot factor has the strongest influence on the consumer purchase intention among consumers (dependent variable). Additionally, this explores that there are 46.5% of the variation in the dependent variable caused due to Attitude. Moreover, perceived ease of use (PEU) is the second largest predictor of the dependent variable as it has a beta value of B = 0.291, t = 4.240, and $p < 0.05$. This shows that 29.1% variation in consumer purchase intention during grocery shopping is causing due to perceived ease of use. Lastly, perceived usefulness (PU) has the lowest impact on the dependent variable as its B = 0.150, t = 2.047, $p > 0.05$ with a variation of 15%. Hence, the outcome marked that the independent variables which are Perceived Ease of Use, Perceived Usefulness, and Attitude act as important inputs for the prediction model.

Table 4.12: Multiple Regression Analysis of Coefficients

Coefficients				
Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.

		B	Std. Error	Beta		
1	(Constant)	.392	.243		1.613	.108
	meanIV1	.291	.069	.317	4.240	.000
	meanIV2	.150	.073	.156	2.047	.042
	meanIV3	.465	.076	.379	6.086	.000
a. Dependent Variable: meanDV						

The connection can be seen through a mathematical equation, which is shown below. According to Table 4.10, the following is accurate:

$Y = \beta 0 + \beta 1\ x1 + \beta 2\ x2 + \beta 3\ x3 + \varepsilon$

Where:

Y	Dependent Variable (Consumer Purchase Intention during grocery shopping)
β0	the y-intercept, regression constant
β1	the slope coefficient for the first Independent Variable (Perceived Ease of Use)
β2	the slope coefficient for the second Independent Variable (Attitude)
β3	the slope coefficient for the third Independent Variable (Perceived Usefulness)
ε	the error, regression residual

Y (Dependent Variable) = 0.392 (Constant) + 0.291 (Perceived Ease of Use) + 0.150 (Perceived Usefulness) + 0.465 (Attitude)

4.8 Summary of hypothesis

The researcher took important measurements to figure out how to interpret the findings based on the suggested hypotheses from Chapter 3. In statistics, hypothesis testing is frequently utilized to find out what the outcomes of the hypothesis were rooted on the sample data. The outcomes of hypothesis testing will be utilized to test the statistical sample to determine whether the null hypothesis is accepted or refused. In this research study, a hypothesis test was conducted to evaluate all of the variables by using the data from the regression analysis. Besides assessing the significant value, the results in Table 4.10 will be utilized to see if the value was less than or more than 0.05.

Table 4.13: Hypothesis testing between each of the IV and DV

Hypothesis	**Analysis**	**Result**	**Support/Not Supported**	**Reason**
$H1_1$: Perceived Ease of Use positively influences purchase intentions among consumers. $H1_0$: Perceived Ease of Use negatively influence purchase intentions among consumers	Pearson correlation matrix	P < 0.05 Significant	Support	The result marked a significant value of the perceived ease of use factor, p = 0.000 which is lower than 0.05. This shows that perceived ease of use has a significant relationship with purchase intention among consumers

$H1_1$: Perceived Usefulness positively influences purchase intentions among consumers. $H1_0$: Perceived Usefulness negatively influences purchase intentions among consumers	Pearson correlation matrix	P < 0.05 Significant	Support	The result marked a significant value of the perceived usefulness factor, p = 0.042 which is lower than 0.05. This shows that perceived usefulness has a significant relationship with purchase intention among consumers
$H1_1$: Attitude towards AI-based chatbots positively influence purchase intentions among consumers. $H1_0$: Attitude towards AI-based chatbots negatively influence purchase intentions among consumers	Pearson correlation matrix	P < 0.05 Significant	Support	The result marked a significant value of attitude factor, p = 0.000 which is lower than 0.05. This shows that attitude toward AI-based chatbots has a significant relationship with consumer purchase intention

Table 4.14: Summary of research objective, research questions, research hypothesis, and outcome

No.	Research Objectives	Research Questions	Research Hypothesis	Outcome
1	RO1: To analyze the significant relationship between the effect of AI-based chatbot features and grocery consumer purchase intention in Malaysia.	RQ1: What are the significant relationships between the effect of AI-based chatbot features and consumer grocery purchase intentions in Malaysia?		Descriptive Analysis, Cronbach's alpha, Mean, Standard Deviation.
2	RO2: To examine the factors of AI-based chatbots that influence will affect grocery consumer purchase intentions in Malaysia.	RQ2: What are the factors towards AI-based chatbots that will affect grocery consumer purchase intentions in Malaysia?		Pearson Correlation Analysis

3	RO3: To verify the most dominant factors of AI-based chatbots on grocery consumer purchase intention in Malaysia	RQ3: What is the most dominant factor of AI-based chatbots that influences grocery consumer purchase intentions in Malaysia?	H1: Perceived ease of use positively affects grocery consumer purchase intention	Support
			H2: Perceived usefulness positively affects grocery consumer purchase intention	Support
			H3: Attitude toward AI-based chatbots positively affects grocery consumer purchase intention	Support

4.9 Summary

In a conclusion, this chapter has progressed over all of the data and findings from this research. The Statistical Package for Social Science (SPSS Version 26) was used to look at the data from 220 respondents who filled out an online questionnaire. Furthermore, descriptive analysis, correlation analysis, reliability analysis, and multiple regression analysis are used to figure out what the data mean. The reliability and validity tests were initially performed in the Reliability Analysis, where 15 respondents were assessed for reliability using Cronbach's alpha. In addition, 220 respondents were subjected to an extra reliability test using Cronbach's alpha. The demographics of the respondents were collected and shown in the form of a pie chart for the descriptive analysis. Pearson's Correlation Coefficient was used to determine the connection between the dependent and independent variables. The findings demonstrate that the independent variables of Perceived Ease of Use (PEU), Perceived Usefulness (PU), and Attitude toward AI-based chatbot (A) have a positive relationship with Consumer Purchase Intention (PUI). The strength of a numerical dependent variable and three numerical independent variables was also determined using multiple regression analysis. It was possible to determine a result in which the independent variable had a significant impact on purchase intention among consumers. In this research study, all three of the hypotheses have been acknowledged because the significant value, p, is less than 0.05.

CHAPTER 5

DISCUSSION, CONCLUSION, AND RECOMMENDATION

5.1 Introduction

The conclusion of the overall outcomes will be examined in this chapter. An overview of the statistical analysis, the rationale for the research's objectives, its consequences, its limits, and its suggestions will all be covered here. Initially, the researcher uses statistical analysis to summarise the survey's results. Then, the research goal will be supported by the test results derived from SPSS's Reliability Analysis, Pearson's Correlation Coefficient, and Multiple Regression Analysis. This chapter will also include a discussion of the justification regardless of whether the offered hypotheses are accepted or rejected. This research's limitations will also be constructed and presented by the researcher. The chapter will conclude with a discussion of the research's key implications and recommendations. Future researchers who wish to do related research will receive a proposal from the researcher.

5.2 Discussion of Findings

5.2.1 The relationship between Perceived Ease of Use of AI-based chatbot and purchase intention among consumers

The purpose of discussion 1 was to assess the interaction effects between the Perceived Ease of Use of AI chatbots and the purchase intent of consumers. First, the results revealed a substantial positive association between the Perceived Ease of Use of AI-based chatbots during interactions with an AI-based chatbots service agent and the purchase intents of consumers. PEU is a significant predictor of user happiness with chatbots. In technology studies, PEU is a crucial factor that refers to "the extent to which the prospective user anticipates the target system to be free of effort" (Ashfaq et al., 2020). Based on the findings of Chapter 4 (Data Analysis), the researcher determined that the correlation value of Perceived Ease of Use is 0.692, indicating a moderate relationship with the dependent variable, customer purchase intentions. In addition, the researcher discovered that the Perceived Ease of Use factor had a significant value ($p<0.05$) in relation to consumer purchase intention. This indicated a substantial positive relationship between the two variables ($\beta = 0.291$, $p = 0.000$).

Perceived Ease of Use opinions of how simple something is to use can have a major impact on a company's brand image and the consumer's propensity to make a purchase, according to prior research (Watchravesringkan & Myin, 2021). In addition, to increase user experience, technology services such as chatbots should be easily comprehensible and allow users to execute their duties without difficulty. These characteristics are positively associated with consumers' purchase intent (Ashfaq et al., 2019). This is demonstrated by the fact that the item 'I believe using an AI-based chatbot service application is straightforward and understandable' has the highest mean score of 4.57 in chapter 4. This is endorsed by an existing experimental study in which it was demonstrated that customers can use AI-based chatbots because it provides 24-hour support and emergency quick response, even when an organization's office is closed, allowing customers to still find the information they need in any language. AI-based chatbots also benefit organizations by lowering the average response time and improving the likelihood of exceeding customers' expectations. AI-based chatbots may provide support in any language, allowing consumers of diverse nationalities to

receive the assistance they require without the need to interpret or wait for proficient professionals. It promotes leading users to superior outcomes, as it is evident that most people do not know where and how to obtain information (Eyada, B.,2022).

Some people may think technology is easy to use, but most people believe it can give benefits (usefulness) (Maryanto & Kaihatu, 2021). As an added bonus, while picking a piece of technology, consumers will think about how simple it is to use in addition to how helpful it is. As a result, it is clear that the influence of user perception of complexity cannot be discounted. Also, the application needs to be accessible and simple to use. It is also important that it has some leeway in terms of making the actual deal. Even while competition among app developers is expected to heat up in the future, a customer's perception of how simple a product is to use may still result in loyalty (Ozturk et al., 2016). Therefore, our research supports the notion that customers' expectations of how simple it will be to interact with AI-based chatbots affect their propensity to make impulsive purchases and, perhaps, their purchase intention behavior on websites (Khoa, 2021).

5.2.2 The relationship between Perceived Usefulness of AI-based chatbot and purchase intention among consumers

The second research attempts to use reliability analysis to consumer perceptions of an artificial intelligence chatbot to see if it had any bearing on people's propensity to make a purchase. Discussion 2 results indicated that the perceived usefulness of AI-based chatbots and purchase intents was moderate at best. Given that it is concerned with the introduction of new technologies, the perceived usefulness has also been found to be a powerful predictor of the willingness to transact in e-commerce. Customers are more likely to make a purchase decision based on their pleasure with the product and their perception of how valuable the product is to them. It has been shown that (Camacho, C. S. P. D. G., 2021). In the context of an AI-based chatbot, its definition is given by (van den Broeck et al., 2019) as the extent to which the chatbot's responses are seen as pertinent to satisfying the desire for information.

When it comes to retail buying, where a lot of information needs to be marketed, shoppers' perceptions of a product's usefulness were found to be the most important factor in determining whether or not they planned to use or purchase the item in concern.

Based on the results of the data analysis in this research, the researcher found that the correlation value of Perceived Usefulness (PU) is 0.665, which demonstrates a moderate relationship with the dependent variable, which is consumer purchase intentions toward AI-based chatbots while grocery shopping. Next, the researcher finds that the hypothetical relationship between how useful something is seen to be and whether or not a person plans to buy it is not very strong. So, the second set of hypotheses is not very likely to be true. It shows that there is a statistically significant relationship between how useful people think something is and whether or not they plan to buy it, where $\beta = 0.150$ and $p = 0.000$. So, the hypothetical relationship between the two variables is barely acceptable, and they have a moderate effect on each other.

The conclusion of this research is that it agrees with the conclusions of several other studies that have already been made up. Also, it has been shown that perceived usefulness has a stronger effect on the intention to use than the perceived ease of use. This result is clear because even if the technology is easy to use, a consumer will not buy it if they think it is not useful (Halima et al., 2021). But users of AI-based chatbots will be happier if they think the bots are more useful. Also, the authors say that, in general, it is expected that perceived pleasure will lead to greater satisfaction (Hwang & Hyun, 2017). According to Pereira et al., (2021), ease of use is a factor that helps with how useful something is thought to be. An AI-based chatbot should be easy to use, and the way you talk to it should be clear and understandable. These features will make the chatbot interaction more enjoyable. Also, an AI-based chatbot should be helpful and help optimize the user's life to make it easier and more productive. Also, customers in a retail context are more likely to buy the products they want with the help of new technologies if they trust them and expect them to save them time when deciding what to buy (Ul Hassan et al., 2020). This is shown by the fact that in chapter 4, the item "Using an AI-based chatbot can save me time waiting" has the highest mean value of 4.57. As a result, perceived usefulness can have a positive effect on customers' buying decisions when they go grocery shopping.

5.2.3 The relationship between Attitude toward AI-based chatbot and purchase intention among consumers

Research conducted in the past has shown the link between how customers feel and how they use technology (Gelderman et al., 2011; Moutinho & Smith, 2000). One of the most likely scenarios in this area is the technology acceptance model (Davis, 1989). From this point of view, the perceived benefits and ease of use of new technology have a big impact on how customers feel about it and how much they want to use it (Adams et al., 1992; Davis, 1989; Davis et al., 1989). Attitude has a big effect on how someone plans to act. This relationship has been looked at and discovered to be crucial in many technologies, including e-banking, smart homes, virtual worlds, academic social networking sites, and mobile payment services (Dharun Lingam Kasilingam,2020)

According to the data results from the last chapter, the correlation between how people feel about AI-based chatbots and whether or not they plan to buy something was 0.696. It looks at a moderate relationship between both variables of Attitudes toward AI-based chatbots and the dependent variable that was found in this research. The researcher also finds a strong link between consumers' attitudes toward chatbots based on AI and their plans to buy. Given the fact that the attitude factor's beta value is 0.465, while the p-value is 0.000, which is less than the significant value of 0.05. So, the alternative hypothesis of this factor is approved. On the whole, there is a statistically significant and positive relationship between how people feel about AI-based chatbots and what they plan to buy when they go grocery shopping. The hypothetical relationship between the two variables is accepted, and there are strong influences between them.

The results of discussion 3 showed that consumers' attitudes toward AI-based chatbots had a big effect on their decision to buy. The regression results showed that the AI-based chatbot had little effect on customers' plans to buy. From this point of view, the compatibility of IT systems is both a complicated issue for companies and something that users notice (Benbya, Nan, Tanriverdi, & Yoo, 2020). As a result of the COVID-19-related restrictions that were implemented in every city of the world, people's daily routines shifted significantly, necessitating an increase in the demand for convenience services (Di Renzo et al. 2020). After all, the emergence of COVID-

19 has transformed the daily lives of individuals all over the globe. If a user thinks that technology fits better with their environment, they should be more likely to use it. This should have a big effect on how customers feel about the technology and make them more likely to use it (Brachten et al., 2021). In the same way, the planned behavior theory says that how customers feel about AI-based chatbots affects their decision to buy. In this way of thinking, beliefs come before attitudes (Vassinen, 2018). So, when customers trust what they think are the benefits of an AI-based chatbot, they are more likely to buy. But when looking at the research on how people accept new intelligent technologies (Van Esch et al., 2020), some scholars say that a positive attitude toward using intelligent technology comes before the intention to use it (Zarouali et al., 2018). Then, the chatbots in this research either sent the people to specific pages on the institutions' websites or gave them a standard answer. Users' expectations often changed based on how they interacted with other chatbots, so users' expectations were also always changing. The most important reason to use AI-based chatbots was to increase productivity and being able to respond quickly and consistently was a key factor (Do Rosário Valverde & Couto e Vasconcelos, 2019). This attitude comes from the fact that technology can provide personalized digital services on its own. Intelligent agents are, in fact, computer systems that can learn on the fly. They analyze data to remember consumer preferences and then suggest interactions that fit their behavioral profiles (Ricotta, 2020). As such, a chatbot's artificial intelligence develops actions that it can do on its own to help consumers and businesses.

5.3 Significant Implication of the Research

5.3.1 Implication of Theoretical Contribution

Pertaining to company or product information sources, AI-based chatbots are still a fairly new technology in retail, as they are only used by large companies. Few studies have looked at how chatbots or AI-based services affect users' attitudes and behaviors (Van Esch et al., 2020). Also, there is no research that looks at how useful

people think AI chatbots are and how easy they are to use in relation to how people in Malaysia feel about them and whether or not they plan to buy something. This leaves a gap in the research about how people think AI-based chatbots work, which has always been a key factor in how quickly new technologies are adopted in the market (Mon Thu Myin and Kittichai (Tu) Watchravesringkan, 2020). This research provides the theory about how people accept new technology by looking at the introduction of AI-based chatbots, especially in terms of how useful and easy-to-use people think they are, how they feel about AI chatbots, and whether or not they plan to buy one.

These results have also added to what is known about AI in terms of the long-term value of users. In particular, the research reveals that usefulness, ease of use, and positive attitudes toward AI-based chatbots have a strong effect on long-term customer purchase intentions, such as word-of-mouth, satisfaction, and the desire to buy again. These results back up earlier studies that found a link between AI-based chatbot factors and attitudes toward AI-based chatbots (Khoa, 2021). They also show how AI functionality plays a significant role in the long-term value of users who are using online AI-based chatbots in terms of usefulness, ease of use, and attitude toward AI-based chatbots on consumer purchase intention.

The results add to the research on AI shopping experiences by looking at how exposure to technology affects the desire to buy. In particular, the researchers found that how easy it was for customers to use AI chatbots was a big factor in getting them to use AI chatbots when shopping in stores, which increased their desire to buy. This finding backs up a previous survey that looked at how this technology exposure boosts confidence (Chung et al., 2020). The perceived ease of use and usefulness of an AI-based chatbot rise the effect of exposure on a consumer's intention to buy, supporting the opinions of the author, Lo Presti et al. (2021). The research findings also help the innovation-diffusion theory by putting the theory into the technology acceptance model (Min et al., 2019).

5.3.2 Implication of Practical Contribution

A recent innovation, AI-based chatbots provide emotional benefits to customers in stores. Contributing to the marketing literature, this research offers

practical advice for those working in retail and marketing in regard to the use of technology. As a result, the findings demonstrate that customers appreciate stores that adopt innovative technologies that enhance their shopping experiences. The findings should also motivate businesses to implement AI-enabled technologies that simplify the shopping experience for customers, hence increasing the likelihood that they will complete a purchase. Nonetheless, businesses should remember that for some clients, AI can be both annoying and humiliating.

Another effect of the ruling is that businesses should inform the public about a system before putting it into place to allay any worries that some customers may have (Van Esch et al., 2021). In light of this, marketers should highlight any benefits, whether they are psychological (like saving time and effort) or technological (like security and privacy), or social (like making people feel good about themselves, especially during public health emergencies such as the Covid-19 pandemic). In fact, marketers and managers have another reason to use this new technology: AI-based chatbots improve public health by reducing the amount of human interaction and cash handling by shoppers. The suggestions made here can help practitioners and merchants as well, helping them to allay client worries about AI-based chatbots. Given that knowledge is important, this new information enables marketers to reach more consumers by educating them about the convenience and other advantages of AI-based chatbots, which can boost consumer purchase intent and, as a result, boost merchant profitability (Prentice et al. 2020).

In summary, this research provides a number of theoretical and operative insights into the body of knowledge in a number of research areas, including marketing and anthropology. In particular, consumer attitudes toward AI-based chatbots and their connection to purchase intentions can be studied in current and future marketing, retailing, and management studies. These studies can be informed by consumer experiences with AI-based chatbots and related concepts, particularly ease of use and usefulness. Finally, this research may assist businesspeople in comprehending this new technology and associated marketing techniques when Malaysians use AI-based chatbots to conduct their grocery shopping.

5.4 Limitations of the study

There were some problems with this research that need to be pointed out so that we can figure out how those problems might have affected the results and interpretations. The problems also show where more research could be done. The current research was conducted online, and Google Forms were used to collect data. The first problem with the research is that the researcher makes the assumption that all respondents know enough about using AI-based chatbots to be able to answer this questionnaire. This is because the researcher did not know if the people answering the questions were clear on what was being asked and giving honest answers. Some of the people who fill out the survey might just fill it out quickly, or they might not fully understand the questions. So, this will affect how accurate and reliable the data from those respondents is, which will affect the whole data findings of the study, which might not be enough to show how consumers plan to use AI-based chatbots when grocery shopping as a whole.

Even though the results showed that there was a strong connection between AI-based chatbots and consumer purchase intentions, the results were based on fake scenarios that were given to consumers and had nothing to do with brands or the real experiences that participants had with AI-based chatbots. Consequently, when pure AI-based chatbots are measured against related brands, real-life advantages, experiences, and performance, factors that cannot be taken into consideration in an online experiment, the strong association found in this research may be substantially less. Field studies were not possible after the Covid-19 pandemic because there were time and cost constraints then, needed following guidelines endemic, and online questionnaires were the best way to get information after that. Since AI-based chatbots are a new technology that is becoming more popular, there may be other factors that have not been studied yet that could affect how consumers feel about them or how likely they are to buy products through experiences or brands that use AI-based chatbots.

5.5 Suggestions for Future Research

Future research into AI-based chatbots and customer behavioral intents could proceed in a number of different paths, as suggested by the research. For better results and to understand consumers' attitudes and behavioral intentions after interacting with AI-based chatbots of different functions, future research could utilize a more extensive experimental research survey in the investigation of these relationships, such as introducing practical training testing of AI-based chatbots on computers. This is because the current study is restricted to online research methods due to the Covid-19 endemic. This research is also part of the first wave of studies examining the effect of customer service provided within Malaysia on the country's GDP.

AI-based chatbots have an effect on how customers act and what they want to buy. In the same way, more research should build on this research to look into other ways that variables might help move this technology forward. For example, future research could look into adding moderating or mediating factors between AI-based chatbots and purchase intentions such as user satisfaction, trust, and accessibility. This could help find other factors that strengthen the link between AI chatbots and good customer outcomes. In future research, it would be smart to take into account the difference between how warm and cold something feels by using different descriptions of AI that include pictures. This would help confirm this possible result. Then, this should be proven with research that is broader and more generalizable by using a larger sample that is more representative of the community.

5.6 Conclusion

As the retail sector in Malaysia has grown, businesses have been competing to get customers by making their services better. Big grocery stores have started using AI-based chatbots, which is one of the newest things to happen in stores. AI-powered chatbots give customers quick service and make shopping easier. They also help service providers improve their services and bring in more customers. So, more

research is needed to find out what might happen if this technology is used and if grocery shoppers are ready to use it.

In the end, this research study talked about the results of the factors of AI-based chatbots in the retail sector on purchase intention among consumers in Malaysia during the COVID-19 endemic by using online questionnaires through Google Forms. The findings demonstrate that the constructs used as independent variables, such as Perceived Ease of Use (PEU), Perceived Usefulness (PU), and Attitude toward AI-based chatbots (A), supported both correlation values and have a significant relationship with the dependent variable, which is consumer purchase intentions when grocery shopping. The methods that were used in this research were descriptive analysis, Pearson correlation analysis, reliability analysis, multiple regression analysis, and hypothesis testing. These methods were used to answer the research questions and meet the research objective.

The results showed that there was a strong connection between the factors of AI-based chatbots and people's plans to purchase. Hence, academics and professionals will need to find out more about the possible factors that affect AI chatbots and how customers plan to behave. This will help with the right way to use AI-based chatbots in the future as a cost-saving customer service strategy.

5.7 Summary

The three purposes of this research were to look at the effect of perceived ease of use on purchase intention toward AI-based chatbots among consumers, to examine the effect of perceived usefulness on purchase intention towards AI-based chatbots among consumers, and to analyse the effect of attitude toward AI-based chatbot on purchase intention among consumers. All three goals were met by the researcher. In this chapter, we talked about what the research means, what it cannot do, and what more research needs to be done. This research was done with the help of Statistical Package for the Social Sciences (SPSS) version 26, which was used to analyse the results from 220 grocery shoppers who took part in the survey. From the results and analysis, the researcher discovered that all of the independent variables, which are Perceived Ease of Use (PEU), Perceived Usefulness (PU), and Attitude toward AI-

based chatbots (A), are linked to the dependent variable, which is consumer purchase intention, in a positive way and have a significant relationship with it.

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APPENDICES

Appendix 1: Gantt Chart for Final Year Project 1

Weeks / Activities	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PSM 1 briefing																
Search FYP topic																
Meeting with FYP supervisor																
Modification research topic																
Identify research questions and research objectives																
Identify problem statement and background of study																
Search information for literature review																
Completed for Chapter 1																
Completed for Chapter 2																
Completed for Chapter 3																
Revised report before presentation																
Presentation FYP 1																
Correction of FYP 1																
Submission of FYP 1																

Appendix 2: Gantt Chart for Final Year Project 2

Weeks / Activities	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Questionnaire Development																
FYP talk																
Collect Data																
Analyse Data																
Completed Chapter 4																
Completed Chapter 5																
Revised report before presentation																
Presentation FYP 2																
Correction of FYP 2																
Submission of FYP 2																

APPENDIX 3

QUESTIONNAIRE

THE EFFECT OF AI-BASED CHATBOT IN THE RETAIL SECTOR ON PURCHASE INTENTION AMONG CONSUMERS IN MALAYSIA

Dear Tan Sri/Dato'/Professor/Assc. Professor/Sir/Madam/Mr/Ms,

Assalamualaikum and Greetings. I am Nur Athilah binti Othman, a final year student who is undertaking a program in Bachelor of Technology Management (Innovation Technology) with Honours at Universiti Teknikal Malaysia Melaka (UTeM). I am conducting research about the Effect of AI-based chatbot in the retail sector on purchase intention among consumers in Malaysia. This questionnaire is conducted as part of a research project, which shall be submitted in part of the completion of BTMU 4084 Final Year Project II. The purpose of this research is to study the Effect of AI-based chatbot in the retail sector on purchase intention among consumers in Malaysia. The result from this study will be used to look at the intention of the consumer in Malaysia on using the AI-based chatbot in the retail sector (grocery retail).

There are three (3) primary sections in this questionnaire. I would like to ask you to take a few minutes to complete this survey, which will take you about 5 to 10 minutes to complete. This survey is only served for academic purposes and the information you provide will be anonymous and held as strictly confidential. Please read the instructions and questions carefully before answering the questions. Your assistance in completing this survey is greatly appreciated and your response is vital as it will

contribute to the use and user intention of AI-based chatbot in Malaysia. Thank you for taking the time to read this.

For further information or question about this survey, please contact:

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THE EFFECT OF AI-BASED CHATBOT IN THE RETAIL SECTOR ON PURCHASE INTENTION AMONG CONSUMERS IN MALAYSIA

SECTION A: GENERAL INFORMATION / BAHAGIAN A: MAKLUMAT UMUM

"The AI-based chatbot employs messaging services to apply artificial intelligence (AI). The ease of use of this product will be advantageous to customers. They are automated systems that communicate with customers in a human-like manner and are either free or very inexpensive to use. Customers can contact chatbots at any time of day or week, they are not constrained by time or place. This makes its adoption appealing to a number of firms that might not have the personnel or financial resources to maintain people working around the clock."

This section lists some questions about your personal information. Please tick (/) on the space given.

Simulation of AI-based chatbot being used for grocery shopping at Tesco (Lotus)

Link YouTube: https://youtu.be/utMq76K0nfM

1. Gender

	Male
	Female

2. Age

	18-25 years old
	26-33 years old
	34-41 years old
	42-49 years old
	50 years old and above

3. Races

	Malay
	Chinese
	Indian
	Others:

4. Employment Status

	Public Sector / Sektor Awam
	Private Sector / Sektor Swasta
	Self-employment / Bekerja Sendiri

	Student / Pelajar
	Retired / Bersara

5. Awareness of AI-based Chatbot Technology

	Aware
	Unaware

6. What items often that you shop at the grocery store?

	Meat / Daging
	Frozen Foods / Makanan Sejuk Beku
	Beverages / Minuman
	Vegetables and Fruits / Sayur dan Buah
	Cleaning Products / Produk Pembersihan
	Personal Care Products / Produk Penjagaan Diri
	Other/Lain-lain:

7. Name the grocery store that you visit often?

	Econsave
	Lotus (Tesco)
	Mydin
	Jaya Grocer
	Aeon
	Giant
	Others:

8. On average, how often did you use AI-based ssssssss for grocery shopping

	Several times a week / Beberapa kali seminggu
	Once a week / Seminggu sekali
	Once every 2 weeks / 2 minggu sekali
	Once a month / Sebulan sekali
	I do not use AI-based chatbot / Saya tidak menggunakan AI-based chatbot

SECTION B: FACTORS THAT INFLUENCE USERS' INTENTION WITH AI-BASED CHATBOT

This section is about the factors that affect AI-based chatbots on purchase intention among consumers in Malaysia. Respond to each statement based on the following rating scale. The respondent needs to answer this survey like that option.

provided.

Scale:

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

Part 1: Perceived ease of use

No.	Statements	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1	I believe using AI-based chatbot service applications is easy.					

2	Shopping using an AI-based chatbot does not require great mental effort					
3	I believe an AI-based chatbot service can help me solve problems faster.					
4	I think I will be able to shop using an AI-based chatbot independently without the help of an expert.					
5	I think using an AI-based chatbot service application is clear and understandable					

Part 2: Perceived usefulness

No.	Statements	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1	An AI-based chatbot will be helpful while shopping					
2	I can improve the shopping experience process with an AI-					

	based chatbot service application.					
3	Using an AI-based chatbot for shopping will enhance my effectiveness.					
4	Using an AI-based chatbot can save me waiting time.					
5	In my opinion, AI-based chatbot could be useful in providing answers to some basic queries.					

Part 3: Attitude

No.	Statements	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1	The use of AI-based chatbots during the COVID-19 endemic is an interesting idea.					
2	I have a favourable attitude toward the shopping experience with AI-based chatbot					
3	I like using AI-based chatbots for shopping.					

4	Using an AI-based chatbot for shopping would be pleasant.					
5	I believe the use of AI-based chatbot services is a trend during the COVID-19 endemic.					

Part 4: Purchase Intention

No.	Statements	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1	Now I intend to use an AI-based chatbot to shop and procure products.					
2	I want all stores to be offered AI-based chatbots during COVID-19 and beyond.					
3	I am willing to recommend others to use AI-based chatbot					

4	I think it will be worth it for me to use an AI-based chatbot in shopping.					
5	I am interested in continuing to use an AI-based chatbot.					

~END OF QUESTIONS~

We sincerely thank you for your precious time and participation in this survey. We can assure you that your information will be kept strictly confidential.

Kami mengucapkan terima kasih atas masa dan penyertaan anda yang berharga dalam tinjauan ini. Kami dapat memberi jaminan bahawa maklumat anda akan dirahsiakan.

Have a nice day ahead.