THE IMPACT OF CHATBOTS ON SERVICE QUALITY IN THE E-COMMERCE PLATFORM

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DECLARATION

I declare that this thesis entitled "The impact of chatbots on service quality in the E-commerce platform is the result of my own research except as cited in the references. The thesis has not been accepted for any degree and is not concurrently submitted in the candidature of any other degree.

Signature : 

Name : SITI AISYAH BINTI SAIYDIN

Date : 15/1/2024

APPROVAL

I hereby declare that I have checked this report entitled "The impact of chatbots on service quality in the E-commerce platform", and in my opinion, this thesis fulfils the partial requirement to be awarded the degree of BACHELOR OF TECHNOLOGY MANAGEMENT (HIGH TECHNOLOGY MARKETING) WITH HONOURS

Signature : 

Supervisor Name : TS. DR. TEOH BAK AUN

Date : 15/1/2024

DEDICATIONS

I would like to acknowledge the commitment of my cherished family members who educated me and inspired me to continue my education to the degree level. In addition, I am extremely grateful to my lecturer, who was also my project supervisor for my senior thesis, and to Ts. Dr. Teoh Bak Aun, one of my closest companions. They have provided me with complete assistance and guidance throughout this investigation. Without their approval and encouragement, it is impossible to conclude this research in a timely manner.

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Second, I would like to express my gratitude and appreciation to my supervisor, Ts. Dr. Teoh Bak Aun, for her assistance, instruction, monitoring, support, and contribution. He has attentively guided and assisted me. This investigation cannot be completed in a timely manner without his supervision. In addition, I'd like to applaud the Faculty of Technology Management & Technopreneurship for allowing me to conduct this research. Through my research, I am able to increase my knowledge of integrated marketing communication practices and their effects on consumer intent to purchase. In addition, my communication skills have improved as a result of my interactions with the respondents.

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ABSTRACT

Chatbots are AI-powered computer programs that simulate human-like conversations, offering real-time interaction with consumers in e-commerce platforms. They provide benefits such as 24/7 accessibility, instant responses, and multitasking capabilities. As e-commerce continues to grow, exceptional customer service is crucial for competitiveness, and chatbots have emerged as a means to enhance service quality. They help meet the demand for effective consumer support and ensure prompt assistance, leading to customer satisfaction and loyalty. E-commerce users are interested in understanding the impact of chatbots on service levels. Implementing chatbots streamlines customer service, reduces response times, and improves the overall purchasing experience. However, challenges exist, as chatbots may struggle with complex inquiries, causing frustration. Investigating both benefits and potential obstacles is essential for a comprehensive understanding of chatbot implementation in e-commerce platforms. This study seeks to evaluate the impact of chatbot implementation on customer interactions, response times, and levels of customer satisfaction. In addition, the factors that influence consumers' perceptions of chatbot service quality will be identified. Despite their advantages such as 24/7 availability, quick responses, and cost-effectiveness, there are concerns about chatbots' capacity to provide personalized experiences. It is essential to evaluate the effect of chatbots on e-commerce platform service quality, taking into account customer satisfaction, usability, and enjoyment. The purpose of this research is to find the influence of the four elements of the adoption of chatbots on service quality in E-commerce which is perceived ease of use, perceived usefulness, satisfaction, and perceived enjoyment. This study used a quantitative method was conduct people who using adoption of chatbots in service quality. The findings of this study contribute to understanding the impact of chatbots on service quality in the E-commerce platform. However, the study emphasizes the possibility of implementing service quality chatbots in e-commerce platforms and suggests a new technology acceptance approach.

Keywords: Adoption of Chatbots, Service Quality, Satisfaction, Perceived Ease of Use, Perceived Usefullness, Perceived Enjoyment

ABSTRAK

Chatbots ialah program komputer berkuasa AI yang mensimulasikan perbualan seperti manusia, menawarkan interaksi masa nyata dengan pengguna dalam platform e-dagang. Mereka memberikan faedah seperti kebolehaksesan 24/7, respons segera dan keupayaan berbilang tugas. Memandangkan e-dagang terus berkembang, perkhidmatan pelanggan yang luar biasa adalah penting untuk daya saing, dan chatbots telah muncul sebagai cara untuk meningkatkan kualiti perkhidmatan. Mereka membantu memenuhi permintaan untuk sokongan pengguna yang berkesan dan memastikan bantuan segera, yang membawa kepada kepuasan dan kesetiaan pelanggan. Pengguna e-dagang berminat untuk memahami kesan chatbots pada tahap perkhidmatan. Melaksanakan chatbots menyelaraskan perkhidmatan pelanggan, mengurangkan masa respons dan menambah baik pengalaman pembelian keseluruhan. Walau bagaimanapun, cabaran wujud, kerana chatbots mungkin bergelut dengan pertanyaan yang rumit, menyebabkan kekecewaan. Menyiasat kedua-dua faedah dan potensi halangan adalah penting untuk pemahaman yang menyeluruh tentang pelaksanaan chatbot dalam platform e-dagang. Kajian ini bertujuan untuk menilai kesan pelaksanaan chatbot terhadap interaksi pelanggan, masa tindak balas dan tahap kepuasan pelanggan. Selain itu, faktor-faktor yang mempengaruhi persepsi pengguna terhadap kualiti perkhidmatan chatbot akan dikenalpasti. Walaupun kelebihan mereka seperti ketersediaan 24/7, respons pantas dan keberkesanan kos, terdapat kebimbangan mengenai kapasiti chatbots untuk memberikan pengalaman yang diperibadikan. Adalah penting untuk menilai kesan chatbots pada kualiti perkhidmatan platform e-dagang, dengan mengambil kira kepuasan pelanggan, kebolehgunaan dan keseronokan. Tujuan kajian ini adalah untuk mencari pengaruh empat elemen penggunaan chatbots terhadap kualiti perkhidmatan dalam E-dagang iaitu persepsi kemudahan penggunaan, persepsi kegunaan, kepuasan, dan persepsi keseronokan. Kajian ini menggunakan kaedah kuantitatif adalah menjalankan orang yang menggunakan penggunaan chatbots dalam kualiti perkhidmatan. Dapatan kajian ini menyumbang kepada pemahaman impak chatbots terhadap kualiti perkhidmatan dalam platform E-dagang. Walau bagaimanapun, kajian itu menekankan kemungkinan melaksanakan chatbot kualiti perkhidmatan dalam platform e-dagang dan mencadangkan pendekatan penerimaan teknologi baharu.

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TAM - TECHNOLOGY ACCEPTANCE MODEL

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1. INTRODUCTION

1.1 Introduction

This chapter will present the background of the study, the problem statement, research questions and objectives, the study's scope and limitations, its significance, and a summary.

1.2 Background of Study

In the current era of digital technology, it is anticipated that artificial intelligence (AI) would take over employment, particularly those involving text-based conversational agents (chatbots) (Letheren et al., 2020). Chatbots are making a big difference in customer service, which is good for users and businesses (Ashfaq et al., 2020). At the moment, chatbots offer services around the clock in areas like sales, customer service, and marketing. More specifically, robots are most often used for sales (41%), then customer service (37%), and then marketing (17%). More importantly, it increased sales by an average of 67%, and chatbots now handle 26% of all payments (Press, 2019).

Chatbots are computer programs that use artificial intelligence and natural language processing techniques to simulate human-like conversations (G. Krishna Vamsi et al., 2020). They are able to interact with consumers in real-time, responding to inquiries, recommending products, and assisting with various transactions (Dr. Bharati Rathore, 2023). Chatbots offer numerous benefits for e-commerce platforms, including 24/7 accessibility, instantaneous response times, and the capacity to manage multiple conversations simultaneously (Liss Jenneboer et al., 2022).

In recent years, E-commerce has experienced exponential growth, revolutionizing how people purchase and sell products online (Jain et al., 2021). As the popularity of online purchasing continues to rise, e-commerce platforms must provide exceptional customer service to remain competitive in the market (Ahmed and Kumari, 2022). In this situation, robots have become an interesting way to improve customer service and service quality (Huang et al., 2021). With the increase in online shopping, there has also been an increase in the demand for effective consumer support and service. (Ahmad Samed Al-Adwan and Maher Ahmad Al-Horani, 2019). To ensure the

satisfaction and loyalty of consumers, e-commerce platforms must provide prompt and effective assistance (Dr. Yogesh Wasudeo Bhowte et al., 2023).

Researchers and people who use e-commerce platforms are becoming more and more interested in how chatbots affect the level of service (Balazs Gyenge et al., 2021). By utilizing chatbots, e-commerce businesses can streamline their customer service processes, decrease response times, and improve the overall purchasing experience (Nguyen, 2023). To completely comprehend the implications of chatbot implementation, it is necessary to investigate both the benefits and potential obstacles associated with their implementation (Owoc et al., 2019). However, there are obstacles that must be overcome. Chatbots may occasionally struggle to comprehend complex or nuanced customer inquiries, resulting in frustration and discontent (Ana Isabel Canhoto & Clear, 2020).

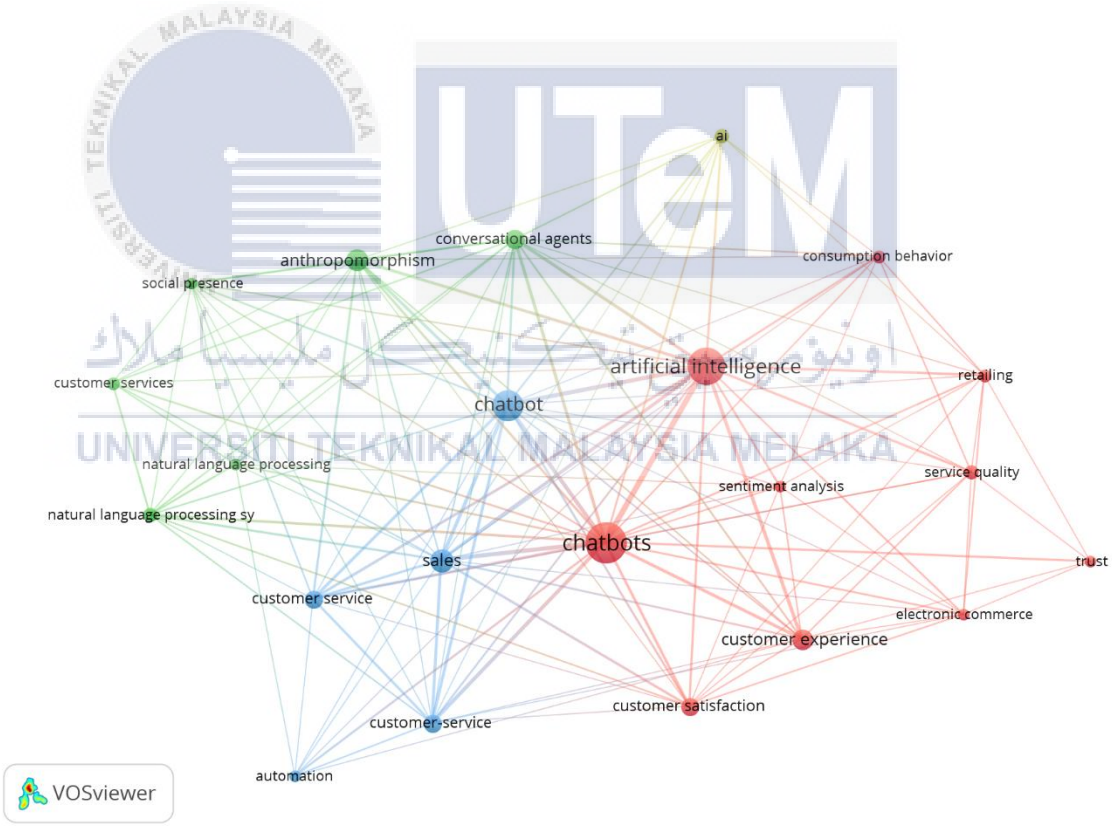


Figure 1.1 : The Network Visualization of Chatbots

1.3 Problem Statement

Customer service is crucial to assuring customer satisfaction and loyalty in the rapidly expanding world of e-commerce (Siber Akıl & Ungan, 2022). With the rise of new technologies, chatbots have become a popular way to help customers in an automatic way. Even though chatbots are used a lot, the effect they have on service quality in the E-commerce market is still up for debate and needs more research (Adam et al., 2020). By analysing customer interactions, response times, and levels of customer satisfaction, the study aims to determine whether the implementation of chatbots influences service quality positively or negatively (Ashfaq et al., 2020). In addition, it seeks to identify the factors that contribute to consumers' perceptions of chatbot service quality (Lars Meyer-Waarden et al., 2020).

In recent years, there has been a rise in the prevalence of the utilisation of chatbots inside e-commerce platforms. Chatbots are automated customer service solutions that are based on artificial intelligence and have the goal of enhancing the customer experience while simultaneously lowering costs and improving service quality (Torres & Delgado, 2022). Even though chatbots are being used more and more in the E-commerce business, their effect on service quality needs to be carefully looked at (Li & Wang, 2023). Concerns have been expressed over the capability of chatbots to provide personalized and empathic client experiences despite the fact that they offer benefits such as availability twenty-four hours a day, rapid response times, and cost-efficiency (Ulset, 2021).

The manner in which customers participate in online buying has been revolutionised as a result of the broad use of e-commerce platforms (Nguyen, 2023). As businesses endeavour to provide superior customer service in the current digital environment, chatbot integration has emerged as a promising solution (Valentine, 2021). However, it is essential to assess the impact of chatbots on service quality in the e-commerce platform, taking into account key factors such as satisfaction, perceived ease of use, and perceived enjoyment (Dharun Lingam Kasilingam, 2020). While a number of studies have demonstrated that chatbot service quality dimensions, such as dependability, interactivity, assurance, responsiveness, and comprehensibility, have a substantial impact on user satisfaction and retention, this is not universally accepted (Sangeeta Mehrolia et al., 2023).

Besides, others have discovered that chatbot service quality does not significantly affect overall customer satisfaction (Thi Phuong Anh & Rajah, 2022). On the other hand, studies have demonstrated that the quality of service provided by AI chatbots has a favourable influence on customer retention by means of perceived value, cognitive trust, affective trust, and satisfaction (Chen et al., 2023). Using robots in different areas has also been shown to improve the customer experience and cut costs (Hyrmet Mydyti & Arbana Kadriu, 2021). As a result, more research into the influence of chatbots on service quality in the e-commerce platform is needed to better understand their limitations and potential benefits.

Table 1.1 : Summarizations of Previous Research

Author (Year)	Independent variables	Dependent Variables	Relationship	Research method
Chiara Valentina Misischiaa , Flora Poeczeb , Christine Strauss (2022)	chatbots in customer service	service quality	Chatbots in customer service: Their relevance and impact on service quality	Quantitative
A Customer Service Chatbot for E-commerce Websites	Chatbot in E-commerce website	Customer service	A Customer Service Chatbot for E-commerce Websites	Quantitative
Jenneboer, L., Herrando, C., Constantinides, E. (2022)	Chatbots	Customer loyalty	The Impact of Chatbots on Customer Loyalty: A Systematic Literature Review	Quantitative
Li, L., Lee, K.Y., Emokpae, E., Yang, S.-B. (2021)	Chatbots service	Online travel	What makes you continuously use chatbot services? Evidence from chinese online travel agencies	Qualitative

Martin Adam1 & Michael Wessel2 & Alexander Benlian (2020)	AI-based chatbots in customer service	user compliance	AI-based chatbots in customer service and their effects on user compliance	Quantitative
Shuangyong Song, Chao Wang, Haiqing Chen, Huan Chen (2021)	Emotional Comfort Framework	e-commerce customer service chatbots	An Emotional Comfort Framework for Improving User Satisfaction in E-Commerce Customer Service Chatbots.	Mixed method
Eric W.T. Ngai a, , Maggie C.M.Lee , Mei Luo , Patrick S.L. Chan , Tenglu Liang (2021I	intelligent knowledge-based chatbot	customer satisfaction with the chatbot's customer service	An intelligent knowledge-based chatbot for customer service	Quantitative
Cuicui Wang a,b , Yiyang Li , Weizhong Fu, Jia Jin (2023)	chatbot in e-commerce.	consumers' emotional experiences in interactions with chatbots in e-commerce	Whether to trust chatbots: Applying the event-related approach to understand consumers' emotional experiences in interactions with chatbots in e-commerce	Quantitative
Minjee Chunga , Eunju Koa, , Heerim Jounga , Sang Jin Kim (2020)	chatbot e-service	customer satisfaction	Chatbot e-service and customer satisfaction regarding luxury brands	Quantitative
Filipe Araújo Silva , Alireza Shabani Shojaei and	chatbot-based services	customers' reuse intention	Chatbot-Based Services: A Study on Customers'	Quantitative

Belem Barbosa (2023)			Reuse Intention	
Xusen Cheng, Ying Bao, Alex Zarifis, Wankun Gong, Jian Mou (2021)	complexity and chatbot disclosure	consumers' response to text-based chatbots in e-commerce	Exploring consumers' response to text-based chatbots in e-commerce: the moderating role of task complexity and chatbot disclosure	Quantitative
Yang Sun, Liangqing Wu, Shuangyong Song, Xiaoguang Yu, Xiaodong He, Guohong Fu (2022)	customer satisfaction states	customer satisfaction prediction	Tracking Satisfaction States for Customer Satisfaction Prediction in E-commerce Service Chatbots	Qualitative
Chin-Lung Hsu a , Judy Chuan-Chuan Lin (2023)	customer service chatbots	satisfaction and loyalty.	Understanding the user satisfaction and loyalty of customer service chatbots	Qualitative
Jorge Cordero, Luis Barba-Guaman and Franco Guam (2022	chatbots	Customer service	Use of chatbots for customer service in MSMEs	Mixed method

1.4 Research Questions

The researcher determined four research questions in this study:

i. What is the relationship between perceived enjoyment and service quality of chatbots?
ii. What is the relationship between perceived ease of use and service quality of chatbots?
iii. What is the relationship between the perceived usefulness and service quality of chatbots?
iv. What is the relationship between satisfaction and service quality of chatbots?

1.5 Research Objective

In this research, there are four research objectives to be figured out:

i. To analyze the relationship between perceived enjoyment and service quality of chatbots in E-commerce.
ii. To identify the relationship between perceived ease of use and service quality of chatbots in E-commerce.
iii. To explore the relationship between perceived usefulness and service quality of chatbots in E-commerce.
iv. To examine the relationship between satisfaction and service quality of chatbots in E-commerce.

1.6 Scope of the Study

This investigation will investigate the degree of acceptance among people in Ayer Keroh, Malacca. Respondents will be selected at random for this study. The principal method of data collection is questionnaires. This study's geographical scope will be limited to people in Ayer Keroh, Malacca. This study can gain insight into perceptions and attitudes towards chatbots on the E-commerce platform by focusing on Ayer Keroh, Malacca. In addition, selecting a specific location ensures a manageable sample size and reduces potential confounding variables that may arise from the study's geographical diversity. By reducing its scope, the study can produce more specific results. This study will focus on the user's perspective and analyze the factors that influence the use of chatbots on e-commerce platforms.

1.7 Significant study

The purpose of this research is to find the influence of the four elements of adoption of chatbots on service quality in E-commerce which is perceived ease of use, perceived usefulness, satisfaction, perceived enjoyment. Theoretically, it enhances the comprehension of technology acceptability within the context of the E-commerce platform by providing insight into the adoption of chatbots. Using existing theoretical frameworks such as the Technology Acceptance Model (TAM), this study provides empirical data on the applicability and effectiveness of these models in the context of E-commerce chatbots. In addition, the study investigates the correlation between the adoption of chatbots and service quality, providing a deeper understanding of how technological advancements influence service delivery and consumer satisfaction on the E-commerce platform. This study's theoretical findings may influence future research on the acceptability and deployment of chatbots in E-commerce platforms, advancing knowledge in the fields of technology acceptance and service quality. As technology advances, the incorporation of chatbots into the E-commerce platform has the potential to revolutionize customer service and operational efficiency. By investigating the acceptance of chatbots on service quality in this specific context, the results of this study can provide significant insights for the chatbots on service quality in the E-commerce platform in Malacca, enabling them to make informed decisions regarding the adoption and utilization of chatbots.

1.8 Definition of Terms

1.8.1 Chatbots

Chatbots are computer programs or artificial intelligence systems designed to engage in text-based or voice-based conversations with users. They use natural language processing (NLP) techniques to comprehend and interpret user inputs, allowing them to provide pertinent and context-appropriate responses. Rule-based chatbots follow predefined sets of rules and responses, whereas AI-powered chatbots use machine learning algorithms to learn from data and generate more dynamic and personalised interactions. Retrieval-based chatbots retrieve responses from a knowledge basis, whereas generative chatbots produce responses from

scratch. In a variety of industries, including customer service, virtual assistants, e-commerce, and healthcare, chatbots assist users, automate duties, and improve the overall user experience.

1.8.2 Service quality

Service quality is the measurement and evaluation of a service's ability to satisfy or exceed customer expectations. It is a multifaceted concept that incorporates various aspects of a service, such as dependability, responsiveness, assurance, empathy, and tangibles. Reliability is the consistency and dependability of service delivery, whereas responsiveness is the promptness and willingness to assist consumers. The assurance of service providers' competence, credibility, and reliability. Understanding and addressing customer requirements and concerns are facets of empathy. Physical or tangible components of a service, such as facilities, apparatus, and communication materials, are referred to as tangibles. Assessing service quality assists organizations in identifying areas for improvement, boosting customer satisfaction, and fostering long-term customer relationships.

1.8.3 Acceptance

In the context of technology or systems, acceptance refers to individuals' and groups' willingness, approval, and adoption of new technology, innovation, or change. It entails adopting and incorporating the new technology or change into one's work or personal life. Acceptance can be influenced by numerous factors, such as perceived utility, usability, compatibility with existing systems or processes, perceived benefits, social influence, and individual attitudes or beliefs. Acceptance is frequently a crucial stage in the implementation and utilization of new technologies or initiatives, as it determines the extent to which individuals and groups engage with and derive value from the innovation.

1.9 Organization of the Thesis

This study is divided into five chapters, which is pertinent to the trajectory of the research.

The first chapter provides an overview of the study. The purpose of this section is to provide the reader with a clear understanding of what is being measured in this study. This chapter included the research context, problem statement, research

objectives, research questions, the scope of the study, the significance of the study, definitions of key terms, and the thesis organisation.

The second chapter provides a literature review of robotic system-related topics. This chapter discusses the measurement variables, underlying theory, and working hypothesis of the study. The research examined empirical literature from prior studies that was deemed relevant to the current investigation.

The research methodology described in Chapter Three defines in detail the research design, type of study, unit of analysis, target population, sampling frame, sample method, data collection method, survey instrument, measurement of variables, construct, and data analysis.

Chapter Four contains the study's findings and research results. The results and findings are discussed at the conclusion of the chapter, along with a summary of the findings and a reference to the literature reviewed in Chapter 2. This chapter included fundamental information regarding data collection, the demographic analysis of respondents, the reliability of measures, and inference analysis.

Chapter Five provides a summary of the findings, conclusions, and recommendations. Based on the study's findings, policy recommendations are provided. In addition, this chapter provided recommendations for future research. Lastly, the present study includes all pertinent appendices.

CHAPTER 2
LITERATURE REVIEW

2.1 Chapter Overview

In this chapter, the literature review will be discussed the impact of chatbots on service quality in the E-commerce platform. The following chapter provides readers with information by delving further into the independent and dependent variables. The dependent variable in this research is chatbots in E-commerce while the independent variable is service quality.

2.2 E-commerce Industry

2.2.1 E-commerce Industry

The e-commerce industry is the economic sector that includes electronic commerce, which involves the purchasing and selling of products and services through the internet. It covers online transactions mediated by various online platforms and technologies between businesses (B2B), businesses and consumers (B2C), and consumers themselves (C2C) (Bhatti et al, 2020). Electronic media and the internet as a means of conducting business transactions involving commodities and services. In order to engage in electronic commerce, a business must first access the internet and then utilize information technology (IT), such as the electronic data exchange (EDI) (Jain et al., 2021). E-commerce relates to a vendor's website on the internet that facilitates the direct exchange of products or services with a user. To pay by credit card, debit card, or Electronic Fund Transfer (EFT), the gateway employs a wireless purchase cart or a purchase container (Husain et al., 2021).

2.2.2 Technology introduce in E-commerce industry

Advances in technology have changed the way businesses and customers shop. Mobile commerce, artificial intelligence, big data analytics, augmented reality, voice commerce, and blockchain are some technologies introduced in the E-commerce business. Chatbots have grown in popularity as a tool for E-commerce enterprises looking to enhance their customer service (Dhanalakshmi et al, 2020). E-commerce platforms are software applications or systems that allow companies to create, administer, and operate online stores. They offer capabilities including product catalog

administration, shopping cart functionality, payment gateways, and order management (Karuna Jadhav, 2022). Mobile commerce is the pervasive adoption of smartphones and tablets; as a result, e-commerce has become an integral component of e-commerce. It includes mobile-optimized websites, mobile applications, and mobile payment systems (Donga Taruwandira, 2020)

2.2.3 The use of chatbots

Computer programmes or AI-based software applications known as chatbots are created with the intention of simulating human-like discussions with users. Natural language processing (NLP) techniques are used by them to comprehend and respond to customer inquiries or requests, and they are often employed on chat platforms, websites, or mobile apps. Customer service, information retrieval, task automation, and interactive user engagement are just a few of the uses for chatbots (Adamopoulou and Moussiades, 2020).

2.2.4 TAM (Technology acceptance model)

TAM is applicable in the context of chatbots in e-commerce, and it may be used to assess both the acceptance of chatbots by users and the impact chatbots have on the quality of service. TAM has been utilized in the past studies to explore similar technology adoption scenarios, and those studies have demonstrated its relevance in comprehending the attitudes and behaviours of users in regard to chatbots (Roberta De Cicco et at, 2022). Perceived It is possible to evaluate the usefulness of chatbots in online retail by investigating how customers feel about the bots' speed, response, level of customization, and level of accessibility. These characteristics have been found as important drivers of how useful people think new technologies will be (Niyazi Gumus and Ozgurr Çark, 2021). Perceived Ease of Use of chatbots in e-commerce can be measured by looking at how users feel about the user interface design, how easy it is to connect with the chatbot, and how long it takes to learn how to use the chatbot. Researchers have found that these factors have a big effect on how people feel about how easy something is to use (Kasilingam, 2020). A user's acceptance and intent to use chatbots in the e-commerce context can be substantially influenced by their attitudes towards chatbots, including trust, social acceptance, and perceived risk. These factors play a crucial role in shaping users' attitudes and behavioural intentions

regarding technology adoption, according to research (Niyazi Gumus and Ozgur Çark, 2021)

2.2.5 Parasuraman Theory

The SERVQUAL model, commonly known as the Parasuraman theory is a widely used paradigm for measuring service quality (Firdous & Farooqi, 2019). These measurements are a component of the SERVQUAL scale. SERVQUAL was created to evaluate service quality and has proven to be a trustworthy, widely applicable, and concise instrument (Isha Kharub et al., 2021). SERVQUAL developed by Parasuraman et al. in 1988, is a widely acknowledged and widely applied model for comprehending the aspects of service quality (Kanyama et al., 2022). SERVQUAL has been used not only for people who work in customer service, but also for online platforms and information systems, which use modern technology (Yun Sun Moon & Armstrong, 2019). The rating of service quality is based on the difference between what was predicted and what was actually seen (Ozkan et al., 2019). The SERVQUAL scale is regarded as a generic and useful instrument for measuring service quality in numerous service contexts, including e-commerce platforms.

2.3 Service Quality in E-commerce

2.3.1 Service Quality in E-commerce

In e-commerce, service quality is crucial because it directly influences consumer satisfaction and loyalty. In the context of e-commerce, service quality can be evaluated based on website design, product information, simplicity of navigation, the checkout procedure, and after-sale customer service. Several studies have been conducted to investigate the link between service quality and consumer satisfaction in the context of e-commerce. For example, in E-commerce, website design, customer service, and product quality are important predictors of customer happiness (Dhingra et al, 2020). Increased customer satisfaction and repeat purchases are another result of the excellent quality of the service provided (Rita et al, 2019).

2.4 Chatbots in E-commerce

2.4.1 Chatbots in E-commerce

Chatbots are conversational machines driven by artificial intelligence that can replicate human discussions and deliver personalised advice to consumers in real time. Chatbots are increasingly being employed in e-commerce platforms to improve customer support and simplify the purchasing process. Chatbots may undertake basic and repetitive jobs like answering commonly asked inquiries, making product suggestions, and processing orders, allowing human agents to concentrate on more difficult issues (Brush and Scardina J, 2021). Several studies have examined the effect of chatbots on E-commerce service quality. By providing prompt and accurate responses to customer questions, chatbots can boost customer satisfaction and loyalty. Chatbots can enhance service quality by decreasing delay times and increasing response rates. However, a number of studies have identified potential disadvantages of chatbots in E-commerce (Chen J,2021).

2.5 Service quality of chatbots

2.5.1 Service quality of chatbots

It entails the capacity of chatbots to promptly respond to customer inquiries, accurately comprehend and interpret their needs, provide relevant and personalized assistance, effectively resolve issues, and provide a satisfying user experience (Adam et al., 2020) In addition, service quality includes the seamless integration of chatbots with other systems on the e-commerce platform, continuous development based on user interactions, and proactive engagement to increase customer satisfaction (Moch Akbar Selamat & Nila Armelia Windasari, 2021) . Evaluating the service quality of chatbots on the e-commerce platform would entail evaluating these factors and their impact on the overall consumer experience and service quality (Chiara Valentina Misischia et al., 2022).

2.6 Adoption of chatbots

To the integration and utilisation of chatbot technology as part of the online purchasing experience.It involves users' acceptance and incorporation of chatbots into their interactions with the platform, as well as their propensity to interact with and utilise the provided chatbot services (Chen et al., 2021). Adoption encompasses

multiple factors, such as users' awareness of chatbot availability, their perception of the usefulness and benefits that chatbots provide, the ease of use of chatbot interfaces, users' attitudes and beliefs towards chatbots, and the influence of social factors such as peer recommendations or reviews (Alboqami, 2023). Measuring chatbot adoption entails evaluating users' intentions, behaviours, and actual usage of chatbots; this provides valuable insight into the factors that promote or inhibit adoption (Rahim et al., 2022). Understanding chatbot adoption is necessary for evaluating the impact of chatbots on service quality and informing strategies to increase their adoption and integration within the E-commerce platform (Moch Akbar Selamat & Nila Armelia Windasari, 2021).

2.6.1 Perceived enjoyment

Understanding how much consumers like interacting with chatbots is essential for determining the extent to which chatbots have improved the quality of customer service (Adam et al., 2020). This is due to the fact that this understanding sheds light on the affective experience and emotional response that are linked with interactions with chatbots (Benke et al., 2021). Researchers are able to determine the extent to which chatbots contribute to boosting users' overall pleasure and enjoyment of the services provided by an e-commerce platform by evaluating perceived enjoyment (Dharun Lingam Kasilingam, 2020). This, in turn, influences users' opinions of the quality of the services provided. Perceived enjoyment is the subjective experience of delight, satisfaction, or positive affect that individuals have when engaging in a particular activity or utilising a particular product (Wilson et al., 2021). The impact of perceived delight on intent to use chatbots is insignificant (Goli et al., 2023). However, the researcher discovered that enjoyment is a predictor of perceived e-portfolio usability in an educational context (Augusto et al., 2009). Perceived enjoyment is also important in mobile commerce, e-commerce shopping plans, social commerce, and online repurchase intentions (Hu et al., 2021).

2.6.2 Perceived ease of use

Perceived ease of use is a significant factor in user acceptance and satisfaction with technology. When a system or technology is simple to use, users are more likely to have favourable attitudes towards it, experience a reduction in cognitive load, and perceive it as more convenient and (Imam Adi Wicaksono & Maharani, 2020) .

Measuring perceived ease of use can help determine how well chatbots are designed and implemented, as well as how well they help users with their online shopping tasks (Adam et al., 2020). It can give insights into the usability of the chatbot interface and help identify potential areas for improvement to improve service quality and user experience in the E-commerce platform (Cordero et al., 2022).

2.6.3 Perceived usefulness

Users' subjective perceptions of how much a system or piece of technology will help them be more effective, efficient, and productive in completing particular tasks or goals are referred to as perceived usefulness (Hsu & Lin, 2021). A major factor in people' acceptance and adoption of technology is perceived usefulness. Users are more likely to have good attitudes towards a system or technology, believe it can help them achieve their goals, and actively participate with it if they believe it to be useful (Chao, 2019) .Assessing how successfully chatbots meet consumers' demands, alleviate their problems, and enhance their online buying experience can be done by measuring perceived usefulness. It can offer perceptions into the usefulness and efficacy of chatbot services, assisting in the discovery of chances to improve the platform's user experience and service quality (Adam et al., 2020).

2.6.4 Satisfaction

The general assessment of a person's experience or impression of a good or bad product, service, or contact is referred to as satisfaction (Vu, 2021). In order to assess the quality of a service, it is important to consider customer satisfaction, which measures how well consumers' expectations are met or exceeded. It includes a number of elements, such as the level of service, usability, responsiveness, dependability, and overall customer experience (Rahayu et al., 2023).

2.7 Hypotheses

This research will assess the hypothesis regarding the relationship between independent variables and dependent variables. This hypothesis would be evaluated to determine if it responds to the research questions and achieves the research objectives.
i. The influence of chatbots on the customer service experience, with a focus on the role of perceived delight. The researchers conducted an experiment in which participants interacted with a chatbot-supported e-commerce platform (Kathleen et al.,

2022). Perceived enjoyment played a significant role in determining how consumers viewed the quality of the service. Those participants who reported higher levels of perceived delight during their interactions with the chatbot also gave a higher rating to the overall service quality. These individuals were more likely to view the chatbot as useful, efficient, and engaging (Klein & Martinez, 2022).

H1: Perceived enjoyment positively influences the service quality of chatbots.

ii. Users' intentions to adopt chatbots and their evaluations of service quality were substantially impacted by the perceived ease of use, according to the study's findings. Participants who perceived chatbots as user-friendly were more likely to implement them and were more satisfied with the service quality provided by the chatbot (Goli et al., 2023). Multiple variables can affect the perception of usability. For instance, the intuitiveness of the chatbot interface, the clarity of instructions, the ease of navigating the system, and the availability of helpful prompts or guidance can all contribute to the user's perception of the system's usability. When chatbots are user-friendly, users are more likely to interact with them, have positive experiences, and perceive a higher level of service quality (Chen et al., 2021).

H2: Perceived ease of use positively influences the service quality of chatbots.

iii. Users' perceptions of service quality were significantly influenced by the perceived utility. Participants who perceived chatbots as valuable tools for obtaining information, resolving issues, and enhancing their overall experience reported greater satisfaction with the chatbot's service quality (Lars Meyer-Waarden et al., 2020). Various factors can influence perceived utility. For instance, the accuracy and relevance of the information provided by the chatbot, the efficacy of problem-solving capabilities, and the efficiency of service delivery can all contribute to the users' perception of the chatbot's utility. When users perceive chatbots as valuable and helpful in completing their tasks and attaining their objectives, they are more likely to have positive experiences and rate the quality of the service more favorably (Chen et al., 2021).

H3: Perceived usefulness positively influences the service quality of chatbots.

iv. The chatbots influenced service quality and customer satisfaction significantly. Users who had positive interactions with chatbots, such as receiving prompt and accurate responses, personalized recommendations, and effective problem resolution, were more satisfied with the chatbot's service (Ashfaq et al., 2020). Various factors can influence customer satisfaction. Customer satisfaction is influenced by the quality

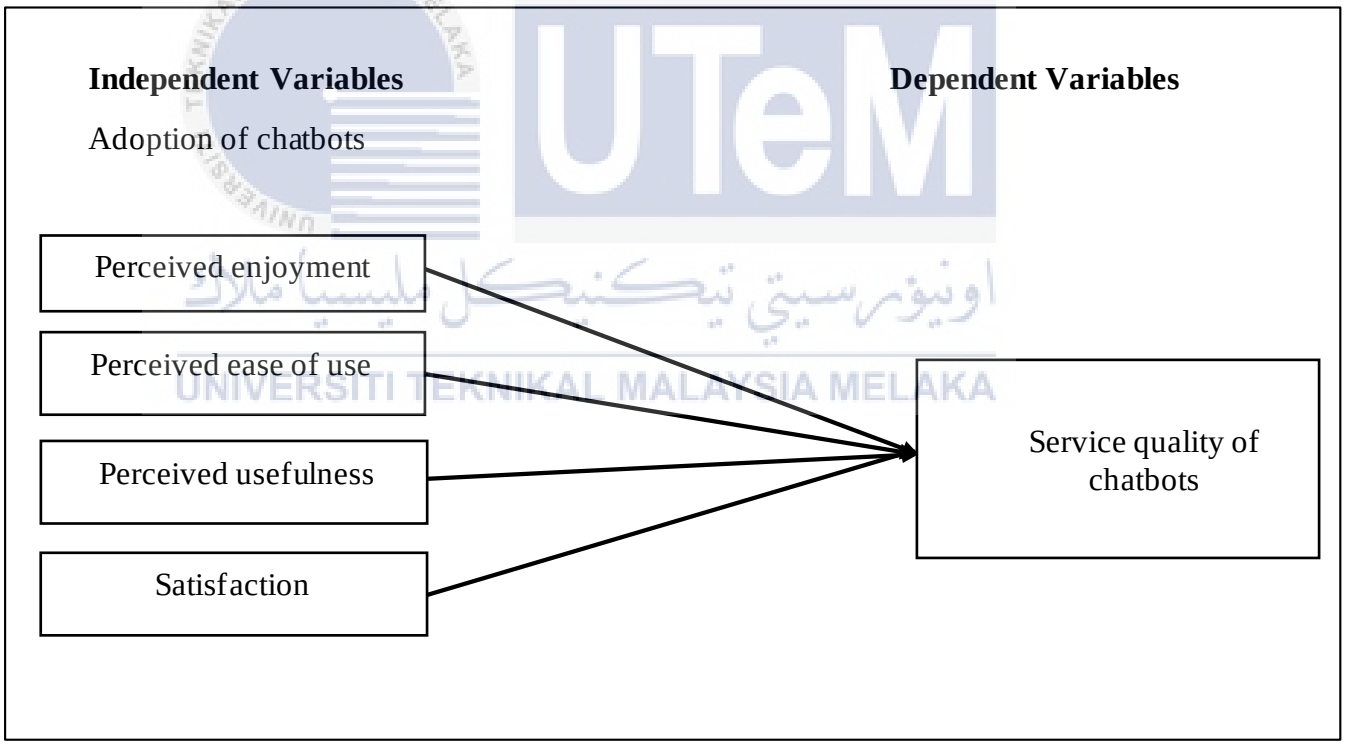
of information and assistance provided, the ability to effectively manage user inquiries, and the overall user experience. When users perceive that their needs are being met, their expectations are being met, and their interactions with chatbots are pleasurable, they are more likely to positively evaluate the service quality and report greater levels of satisfaction (Kim, 2021).

H4: Satisfaction positively influences the service quality of chatbots.

2.8 Conceptual Framework

Figure 1 depicts the conceptual model that will be examined in this paper as a result of the hypotheses posed in the previous section. To verify this model, research that will be described in the Methodology chapter will be conducted.

Figure 2.1 : The Conceptual Framework



2.9 Summary

In this chapter, the researcher has discussed the impact of chatbots on service quality in the E-commerce platform. The researcher has explained the independent variables (perceived enjoyment, perceived ease of use, perceived usefulness, satisfaction), and dependent variables (service quality of chatbots) by using the TAM model and

proposed research framework. The hypothesis testing has determined the relationship between independent and dependent variables. Lastly, the following chapter will be discussed about the research methodology.

CHAPTER 3

METHODOLOGY

3.1 Chapter Overview

Research methodology is how a researcher plans a study in a systematic way to get reliable and valid results that meet the goals and aims of the study. This chapter describes the research methodology based on the research design, data collection method, and other considerations. The sampling strategy, measurement scales, and data analysis technique.

3.2 Research Design

Study design refers to the appropriate procedures and techniques for collecting and analysing data in order to accomplish the research objective. Selecting an appropriate research design is essential for producing accurate and meaningful findings. In this study, the case study research method is implemented in the form of a quantitative method (questionnaire) that evaluates more of this study based on the responses of the sample population to the provided questions (Khalid, Hilman and Kumar, 2018). Quantitative research was primarily concerned with measurement and assessment using numerical data (Hennink & Kaiser, 2021). For instance, quantitative methodology is used to measure the adoption of chatbots relationship between service quality and the customer satisfaction and to test a set of hypotheses developed in this study. This quantitative study method is used to describe the independent and dependent variables, look at the relationships between the variables, and figure out if there is a significant relationship between the independent and dependent variables.

3.2.1 Types of Study

3.2.1.1 Quantitative Research

The collection of quantitative data is predicated on the quantification of a particular amount or quantity of a given phenomenon. The primary focus is on collecting and analysing numerical data, which can be applied to the determination of averages and patterns as well as the forecasting of events. Research can be broken down into two basic categories: qualitative and quantitative, with the latter focusing on numbers. It

does so by utilising data in the form of tables, facts, and graphs. This method of study is the primary method utilised in a great number of scientific and field-based studies.

3.2.1.2 Unit of Analysis

In this study, the individual consumer or user of chatbots on the e-commerce platform is the unit of analysis. The concentration is on comprehending the effect of chatbots on E-commerce platform service quality. This research investigates the influence of perceived usefulness, perceived ease of use, satisfaction, and perceived enjoyment on user adoption. In addition, these variables will be investigated as potential antecedents of the user's intention to continue.

3.2.1.3 Population

The population is also known as the theoretical population. In order to generalize the results, researchers focused on a specific population which is people in Malacca, who use chatbots. Because randomization was used, any research conducted on this sample should have high internal and external validity, and sampling and selection bias should be less likely. Participants' identities and information will be kept private and secure, and their informed consent will be requested prior to any data collection. The research will be conducted ethically and legally to protect the rights and safety of the participants.

3.2.1.4 Sampling Frame

A sampling frame is a list or group of units from which a sample is chosen for a poll or research study. It acts as a representation of the target group and gives a reason for choosing participants or data collection elements (Zou et al., 2019).The purpose of the sample frames, which is to provide a mechanism to pick the precise people of the target population who are to be questioned for the poll, is also included in the definition of the concept (Af Lim et al., 2019).Because a home survey has more than one step, most of the time more than one set of items is needed. In home surveys, the first stages of selection are usually made from area frames, but the last stage can be made from either an area frame or a list frame (see the parts on area frames and list frames below for more information) (Af Lim et al., 2019).

3.2.1.5 Sample Size

Research standards are used to define sample sizes. Calculating the required sample size with respect to analysis methods and predetermined significant values is also possible with the help of software and spreadsheets (Baffo et al., 2023).Sample sizes should be determined by the researcher based on the study's population, purpose, analysis methods, previous sample sizes, number of subgroups, population variability, and research design (SA Haider et al.,2023).

The sample size required in the social and behavioural sciences is typically calculated using G*Power. G*Power has been used to estimate sample size in a large number of publications, including those that have appeared recently (Memon et al., 2020). The G*Power manual is available for download from the official website for individuals who want to learn more about power estimates in general, as well as how to use G*Power specifically for various types of statistical research.Scientists estimate their sample size with the help of G*Power because the programme shows them what a typical effect size is for their study. This study's sample size will be created at random, with each participant hailing from a different geographic area within Malacca.

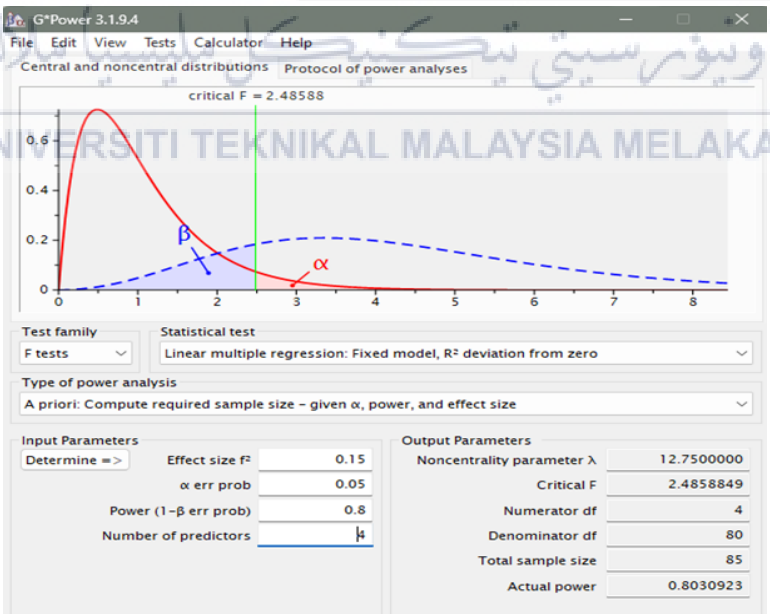


Figure 3.4 : Calculate by G*Power Softwar

3.2.1.6 Sampling Method

This investigation utilises a non-probability sampling method. Convenience sampling is the selection of subjects who are most easily accessible to the researcher (McCombes, 2019). Convenience sampling is one of the non-probability sampling techniques in which researchers select samples from the population based solely on their availability. In addition, it is simple and inexpensive for researchers to enlist participants and they do not have to select a sample that may be representative of the entire population. Consequently, convenience sampling will be employed in this investigation. In this study, only people with experience using chatbots on E-commerce platforms will be selected to complete the questionnaire, as this is the simplest and quickest method to collect data.

3.2.1.7 Data Collection Method

In this study, one of the data acquisition methods used in quantitative research will be the survey method. In this study, surveys were chosen as the appropriate research technique for measuring specific variables and testing the hypotheses developed for this study. Large-scale surveys that generate voluminous amounts of numerical data would likely be the optimal method for this study. Questionnaires are a valuable tool for descriptive and explanatory research because researchers are able to interpret respondents' responses to a set of standardised questions (N. Elangovan & E. Sundaravel, 2021). Google Forms will be used as the online survey instrument for the questionnaires in this study. This online survey instrument was chosen for this study because it facilitates questionnaire creation, is more accessible, and requires less time. Google Forms will be shared via social media platforms including WhatsApp, Messenger, Instagram, and others.

3.3 Survey Instrument

The data collection instrument was a questionnaire developed by the researcher. The quiz is based on studies of how chatbots modify customer service on e-commerce sites. The questionnaire was divided into two parts. In the first section, we learn about the demographics of the company in terms of gender, job function, educational attainment, and years of experience. In the second section, respondents were asked to indicate their level of agreement with a statement by marking either a 5 (Strongly Agree), 4 (Agree),

3 (Neutral), 2 (Disagree), or 1 (Strongly Disagree) on a 5-point Likert scale. The replies were on a five-point scale, with one being a strong disapproval of the statement and five representing a strong agreement. The survey's Part A (demographics) will collect information via a nominal scale. Nominal scales are the most basic kind of measurement, and they are typically employed to classify or classify variables without respect to their numerical value or rank. People's ages, sexes, levels of education, professions, and other relevant categories will be collected using this scale.To avoid assuming numerical significance or order among the categories, it is best to use the nominal scale for the demographic component of the survey (Z Gniazdowski, 2023) to collect data that is adequate for understanding the characteristics of the survey participants. By doing so, they can better understand the demographics of their sample and look for correlations or trends between demographic factors and the independent ones.

3.3.1 Measurement Scales

3.3.1.1 Nominal Scale

Component A (demographics) of the survey will capture data using a nominal scale of measurement. The nominal scale is the lowest level of measurement and is primarily used to categorize or group variables without regard to their intrinsic numerical value or order. This scale will be used to collect demographic information about individuals, including their age, gender, level of education, occupation, and other category factors. Using the nominal scale for the demographic section ensures that the data are sufficient for understanding the characteristics of the survey participants, without presuming any numerical significance or order among the categories (Z Gniazdowski, 2023). This enables researchers to learn more about the demographic composition of the sample and potentially identify any trends or correlations between demographic parameters and the variables under investigation.

3.3.1.2 Likert Scale

Section B of the survey questionnaire will use the Likert scale to compile responses.The Likert scale is a common method for measuring respondents' attitudes, perspectives, and perceptions of constructs (J Amidei et al,2019).On a scale, respondents indicate their degree of agreement or disagreement with a series of statements or items.Typical response options on Likert scales include "strongly agree,"

"agree," "neutral," "disagree," and "strongly disagree." For each statement, respondents select the response that best reflects their opinion. Utilising the Likert scale permits the quantification of respondents' subjective evaluations, enabling researchers to quantitatively analyse and interpret collected data. The scale facilitates the measurement of the intensity or force of respondents' attitudes or opinions regarding the relevant constructs.Section B of the survey questionnaire will contain a few statements regarding the variables under investigation. Respondents will use the Likert scale response options to indicate whether they concur or disagree with each statement. Using the Likert scale, researchers can obtain valuable insights into the views, attitudes, and opinions of respondents regarding the variables being examined.

3.3.2 General Questions

The questionnaire for this study is divided into three sections: A, B, and C. Section A collects demographic information, including position and experience, from respondents.

Table 3.3.1 Variable General Question

Variables
Gender 1) Male 2) Female
Age 1) 18-24 2) 25-23 3) 35-44 4) 45-54 5) 55 or above
Employment status 1) Employed full-time 2) Employed part-time 3) Unemployed 4) Student 5) Retired 6) Others

Frequently shop online 1) Daily 2) Once a week 3) Several times a month 4) Once a month 5) Less than once a month 6) Never

3.3.3 Independent Variable Construct

Section B consists of questions about the adoption of chatbots. Each variable contains five questions that the respondent must address.

Table 3.3.2 Variable Independent Questions

Varibles	Number of item
Perceived enjoyment 1) I enjoy a conversation with the chatbot. 2) It is fun and pleasant to share a conversation with the chatbot. 3) The conversation with the chatbot is exciting 4) I enjoy choosing products more if they are recommended by the chatbot than if I choose them myself 5) I was absorbed in the conversation with the chatbot.	5
Satisfaction 1) I am satisfied with chatbots 2) The chatbots did a good job 3) The chatbots did what I expected 4) I am happy with the chatbots 5) I was satisfied with the experience of 6) interacting with chatbots	5
Perceived Usefulness 1) Using chatbots improves my performance 2) Using chatbots increases my productivity	5

3) Using chatbots enhances my effectiveness to perform tasks 4) I find chatbots useful in my daily life 5) Using chatbots would increase my efficiency	
Perceived Ease of Use 1) My interaction with chatbots is clear and understandable 2) Interacting with chatbots does not require a lot of mental effort 3) I find chatbots to be easy to use 4) I find it easy to get the chatbots to do what I want them to do 5) It is easy for me to become skilful at using chatbot	5
Source : (Ashfaq et al., 2020)	

3.3.4 Dependent variables construct

Section C consists of questions about the service quality of chatbots. Each variable has three to 5 questions which require the respondent to answer.

Table 3.3.3 Variable Dependent Questions

Variable	Number of items
Service Quality of Chatbots 1) I am satisfied with the service provided by the chatbot. 2) The chatbot provided accurate and relevant responses. 3) The chatbot's overall performance met my expectations. 4) The chatbot efficiently resolved my issues or inquiries. 5) The chatbot provided helpful and satisfactory solutions	5
Source : (Ashfaq et al., 2020)	

3.4 Data Analysis

Data analysis should be conducted after data collection has been completed. Data analysis helps researchers assess hypotheses, develop explanations, identify facts and patterns (Chong, et al., 2016).

3.4.1 Descriptive Analysis

Descriptive statistics is a type of statistical analysis used to describe and compare numerical data values across multiple variables (Saunder, et al., 2019). Quantitative descriptions of populations and samples, along with information about central tendency, are provided by this sort of analysis. It is a descriptive overview of the data set expressed as a single value that represents the median of the data. The most common value (mode), the value in the centre (median), and the overall average (mean) are all approaches to assess a dataset's central tendency (Saunders, et al, 2019). This is done in order to comprehend the behaviour and pattern of the concerned data set, such as the fact that the demographic profile has varying ages and thus various perspectives on the research questions.

3.4.2 Normality Analysis

This type of analysis is used to determine if a model derived from a data set conforms to normal distribution (Goh et al., 2013). This analysis employs skewness and kurtosis to determine the normality of the study's model. According to Goh et al. (2013), skewness and kurtosis refer to the geometry of the distribution, and all variables should not exceed an absolute value of 1 in order to meet the multivariate model's assumptions. Positive values for both skewness and kurtosis indicate that a distribution is positively skewed and more peaked than a normal distribution, whereas negative values for both skewness and kurtosis indicate that a distribution is negatively skewed and flatter.

3.4.3 Reliability Analysis

The purpose of this analysis test is to ensure that the measurement is objective and, therefore, yields consistent results (Sekaran and Bougie, 2016). This investigation employs Cronbach's Alpha as a reliability-related measurement instrument.

3.4.4 Inferential Analysis

3.4.4.1 Pearson Correlation Analysis

Pearson Correlation Analysis shows how strongly two factors are linked in a straight line (Goh, et al., 2013). This analysis is used to investigate the relationship between chatbot adoption and service quality on e-commerce platforms. According to Hair et al. (2007) cited by Goh et al. (2013), the coefficient range can be used to ascertain the strength of the relationship between independent variables and dependent variables.

3.4.4.2 Multicollinearity Analysis

The goal of multicollinearity analysis is to figure out how closely related two or more independent factors are (Saunders, et al., 2009). According to Hair et al. (1998), if the tolerance value is less than 0.1 or greater than 1, multicollinearity is present, and the highly correlated variables should be eliminated. Multicollinearity analysis makes use of variation Inflation Factors (VIFs) to quantify and measure the degree to which variation is inflated (Daoud, 2017).

3.4.4.3 Linear Regression Analysis

Regression analysis is a collection of statistical techniques used to estimate the relationship between one or more independent variables and a dependent variable (CFI, 2022). It is used to evaluate the degree of relationship strength between variables. The p-value is used as a statistical test to determine the results of the hypothesis test in this study (Abhigyan, 2020).

3.4.4.4 R-Square

R-squared, which is also called the coefficient of determination, is a statistical measure of how much of the change in a dependent variable can be explained by the changes in the independent factors in a regression model. It shows how well the model fits the data and how well the independent factors explain why the dependent variable changes. R-squared values run from 0 to 1, and higher values mean that the model and the data fit together better.R-squared equals 0. The changes in the dependent variable cannot be explained by any of the changes in the independent factors. R-squared equals 1. The variability of the dependent variable is fully explained by the independent variables, and the model can correctly predict the data that has been seen.

3.4.4.5 F-Value

In analysis of variance (ANOVA) and regression analysis (R), the F-value (or F-statistic) is a statistical metric used to assess the significance of a model or the combined significance of a group of variables. The formula is the division of the squares of the means of the groups or variables in question. To evaluate whether or not the independent variables as a whole have a statistically significant effect on the dependent variable, the F-value is commonly used in regression analysis. The residual sum of squares is in contrast to the explained sum of squares, which measures the amount of variation that can be attributed to the regression model. To determine whether or not an F-value is statistically significant, it is compared to the critical value of the F-distribution at a predetermined significance level (often 0.05 or 0.01). The total effect of the regression model is statistically significant if and only if the estimated F-value is greater than the critical value. The F-value can also be used to examine whether or not means differ between sets of categories in an ANOVA. It compares and contrasts intra-group variation with inter-group variation.In regression analysis and ANOVA, a bigger F-value indicates stronger evidence against the null hypothesis of no significant influence or difference. The F-value, together with its degrees of freedom and p-value, is used to determine the statistical significance of a model or group differences.

3.4.4.6 T-Value

The t-statistic, also known as the T-value, is a metric used to calculate the statistical significance of individual coefficients or variables in a regression model. The null hypothesis that the coefficient is equal to zero is tested by comparing the predicted coefficient to its standard error. In regression analysis, you divide the predicted coefficient by the standard error to get the T-value.The t-value is paired with a p-value, which shows how likely it is to see a t-value that is as extreme or more extreme than the calculated value if the null hypothesis is true. The p-value is used to figure out if the coefficient is statistically important.If the absolute value of the t-value is high and the associated p-value is low (usually less than 0.05 or 0.01), this means that the coefficient is statistically different from zero. This means that the variable in the regression model has a big impact on the variable that is being measured. A small t-value and a high p-value, on the other hand, mean that the difference between the

coefficient and zero is not statistically important. This means that the variable may not have a big impact on the variable that the model depends on.

3.5 Summary

This overview of methodology describes the research technique used to examine the impact of chatbots on E-commerce platform service quality. The study used a combination of a literature review and quantitative analysis to provide a comprehensive understanding of the topic. The research findings and suggested approach will advance our understanding of the impact of chatbot adoption on e-commerce platform service quality.

Chapter 4

DATA ANALYSIS

4.1 Introduction

This chapter will provide an explanation and organization of the data analysis results that were gathered from the respondents via a Google Form. Version 27.0 of the Statistical Package for Social Science (SPSS) software is being used by researchers to analyse the data that they have gathered. This chapter will employ several statistical methods such as Person's Correlation analysis and Multiple Regression analysis, analysis to determine the correlation between the dependent and independent variables. Using a Google form, the survey is sent to users of the e-commerce platform's chatbots. The questionnaire is divided into three sections (see Appendix 1), the first part is about the respondents' demographics, the second part assesses the effectiveness of chatbots on e-commerce platforms, and the third part determine service quality of chatbots.

4.2 General Information of Data Collected

4.2.1 Data Entry – Codebook

Table 4.2.1: Codebook

Items	Code
Perceived Enjoyment	**PE**
Perceived Ease of Use	**PEU**
Perceived Usefulness	**PU**
Satisfaction	**SA**
Service Quality of Chatbots	**SQC**

4.3 Descriptive Statistics on Demographic Background

Descriptive analysis was employed in this study to examine the respondents' demographic backgrounds. Gender, age, work status, and how often people shop online are among the research questions for users of chatbots in e-commerce platforms. A total of 150 people answered the questionnaire, which was delivered to the target respondent via an online Google Form.The demographic background of the respondents was described using percentage and frequency.

4.3.1 Gender

Table 4.3.1 : Gender of Respondent

(Source : SPSS Output)

Gender

	Frequency	Percent	Valid percent	Cumulative Percent
Female	79	52.7	52.7	52.7
Male	71	47.3	47.3	100.0
Total	150	100.0	100.0	

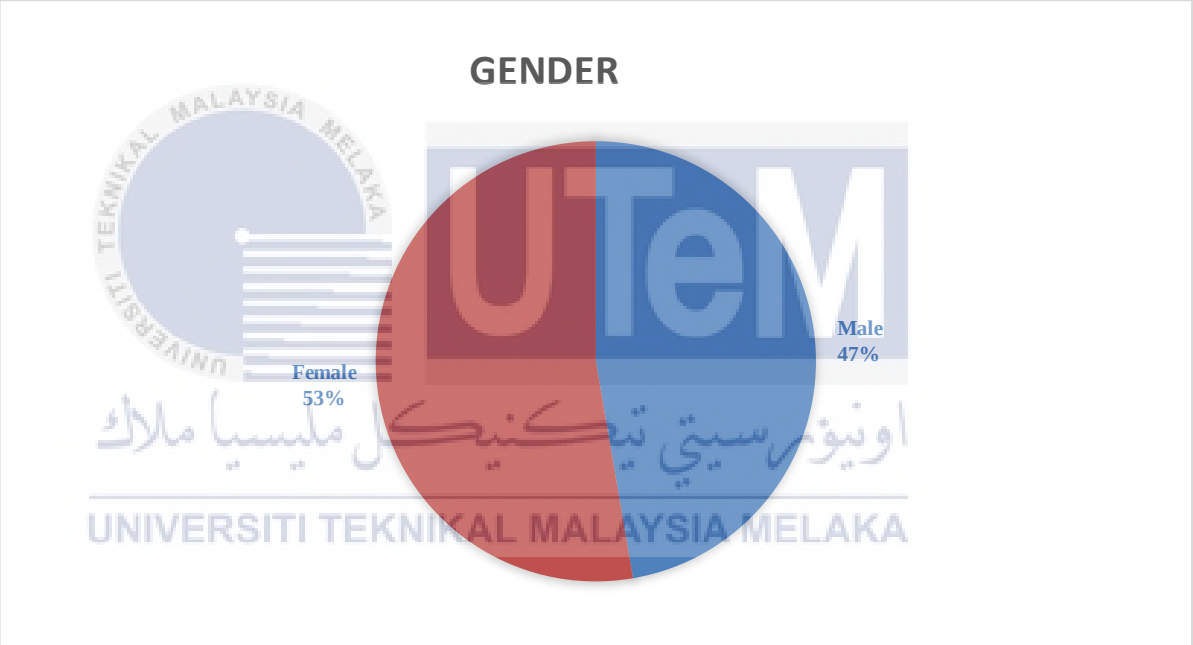


Figure 4.3.1: Gender of Respondent

Table above shows the gender of 150 respondents in this research. From the table above, it that only 79 male respondents involved in this research which was around 52.7% of the total respondents. Besides, there are 71 female respondents involved in this research, which is 47.3%. Thus, the majority of respondents were female.

4.3.2 Age

Table 4.3.2: Age of Respondent
(Source: SPSS Output)

	Frequency	Percent	Valid percent	Cumulative Percent
18-24	64	42.7	42.7	42.7
25-31	61	40.7	40.7	83.3
32-38	22	14.7	14.7	98.0
39-45	2	1.3	1.3	99.3
46 and above	1	0.7	0.7	100.0
Total	150	100.0	100.0	

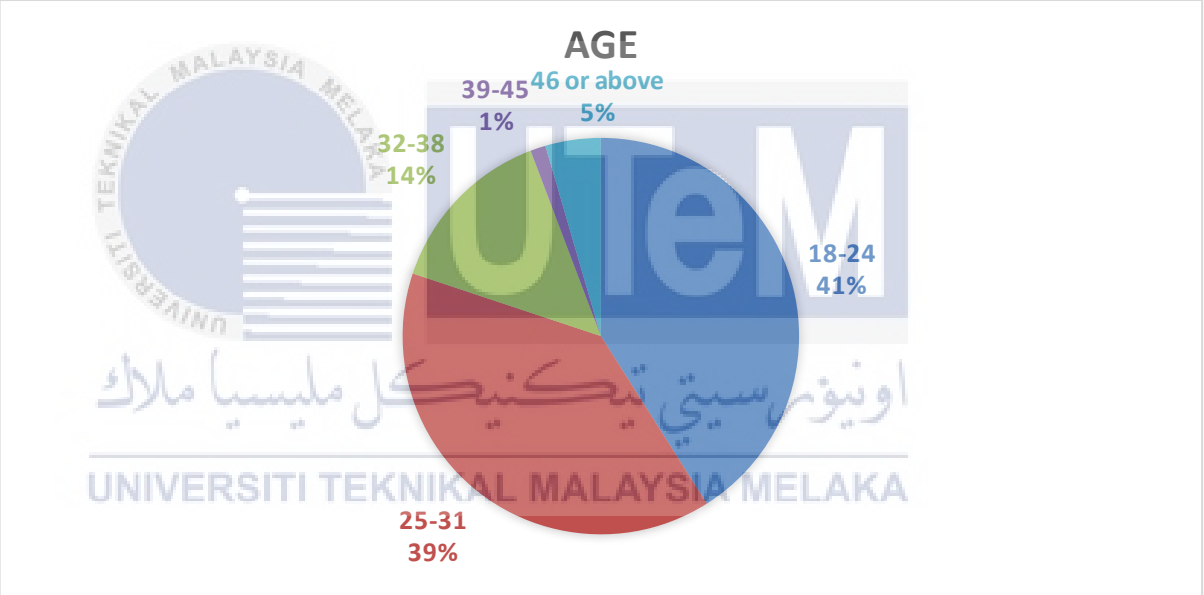


Figure 4.3.2: Age of Respondent

Table above shows the range of 150 respondents were from 18-24 and 46 and above. The majority of respondents were in the age range of 18-24 years old, there were total 64 respondents (42.7%), follow by age of 25-31 years old, which contains 61 respondents (40.7%). Besides, respondents who aged between 32-38 years old comprise 22 respondents (14.7%). In the age 39-45 old, there were 22 respondents (2.0%). And the last 46 and above only got 1 respondent (1.0%). The researcher focuses on young generation of using chatbots in e-commerce because they were

widely exposed to the applicant of enhance technology. Elder respondents mostly higher management level and is difficult to approach them.

4.3.3 Employment Status

Table 4.3.3: Employment Status of Respondent (Source: SPSS Output)

	Frequency	Percent	Valid percent	Cumulative Percent
Employed full-time	74	49.3	49.3	49.3
Employed part-time	13	8.7	8.7	58.0
Retired	2	1.3	1.3	59.3
Student	56	37.3	37.3	96.7
Unemployed	5	3.3	3.3	100.0
Total	150	100.0	100.0	

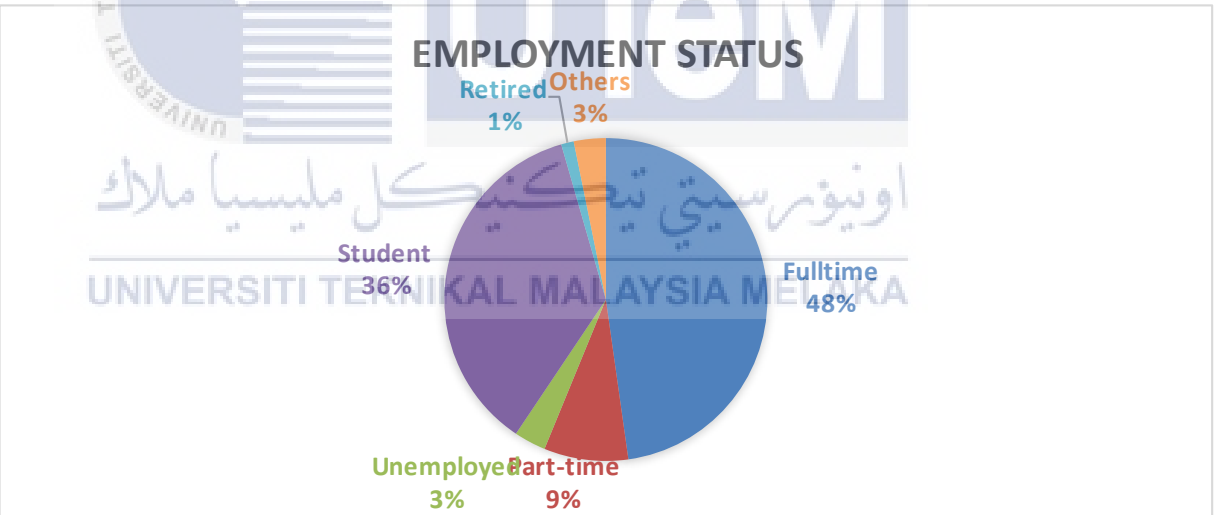


Figure 4.3.3: Employment Status of Respondent

Table above shows the range of 150 respondents. The majority of respondents were in employed full-time, there were total 74 (49.3%), follow by student, which contains 56 respondents (56%). Besides, the employed part-time get 13 respondents (8.7%) and the unemployed got 5 respondents (3.3%). Lastly, the retired got 2 respondents (1.3%).

4.3.4 Frequently Shop Online

Table 4.3.4: Frequently Shop Online of Respondent (Source: SPSS Output)

	Frequency	Percent	Valid percent	Cumulative Percent
Less than once a month	43	28.7	28.7	28.7
Once a month	76	50.7	50.7	79.3
Once a week	4	2.7	2.7	82.0
Several times a month	27	18.0	18.0	100.0
Total	150	100.0	100.0	

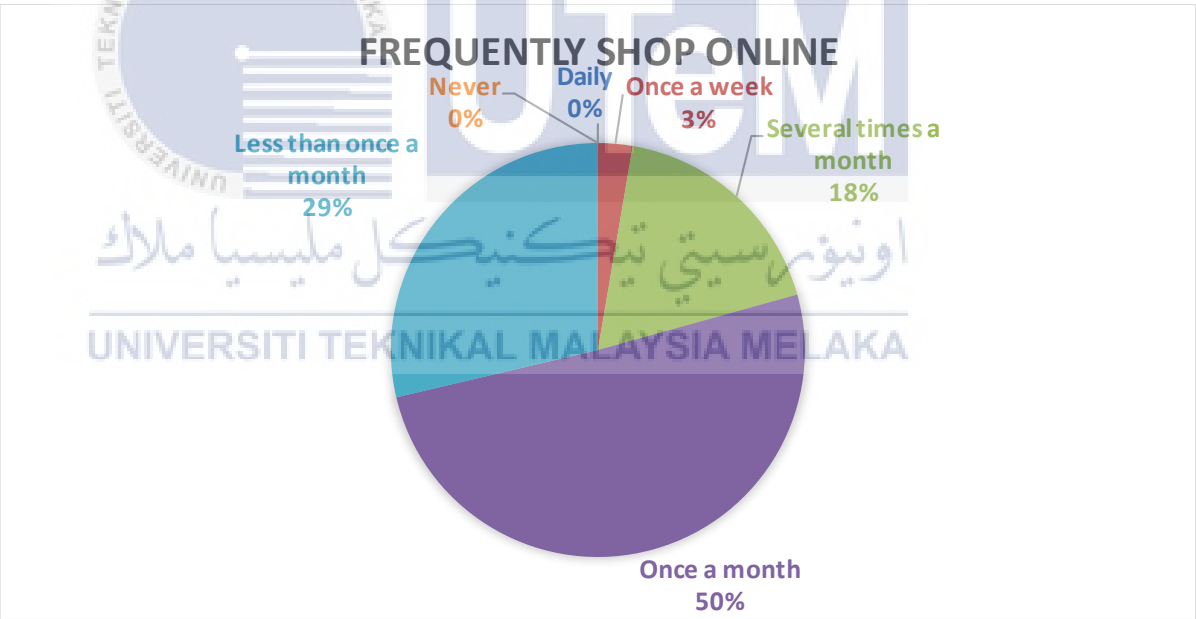


Figure 4.3.4: Frequently Shop Online of Respondent

Based on table above, it described the position of 150 respondents. The highest totals of 76 respondents with the percentage of 50.7% were shopping less than once a month. Then, there were 43 respondents with the percentage of 28.7% were shopping once a month. 27 respondents were shopping several times a month with a percentage of

18.0%. There were 4 respondents with a percentage of 2.7% were shopping once a week.

4.4 Demographic Profile

Table 4.4: Demographic profile of the respondent

Demographic Variable	Categories	Frequency	Percentage
Gender	Male	79	52.7
	Female	71	47.3
Age	18-24	64	42.7
	25-31	61	40.7
	32-38	22	14.7
	39-45	2	1.3
	46 or above	1	0.7
Employment Status	Employed full-time	74	49.3
	Employed part-time	13	8.7
	Retired	2	1.3
	Student	56	37.3
	Unemployed	5	3.3
Frequently Shop Online	Less than once a month	43	28.7
	Once a month	76	50.7
	Once a week	4	2.7
	Several times a month	27	18.0

4.5 Goodness of Measure

Factor analysis and reliability tests are performed on the independent variables (perceived enjoyment, perceived ease of use, perceived usefulness, satisfaction) and dependent variables (service quality of chatbots) to assess the goodness of variables.

4.5.1 Factor Analysis

To identify the elements or components of the variables in the study, factor analysis is carried out. The reason for this is the infrequent implementation of the adopted items used in the development of this questionnaire in Malaysia.

For the independent variables, 20 items, showing 4 components, which are perceived enjoyment (5 items), perceived ease of use (5 items), perceived usefulness (5 items), and satisfaction (5 items). As a result, the findings divided the total number of components into four component parts.

According to the findings of the factor analysis, the dependent variables consist of four elements, each of which has an eigenvalue greater than 1.0 and explains a total of 73.815 percent of the variance. The Kaiser-Meyer-Olkin (KMO) test, which assesses the suitability of the data for factor analysis, determined that the sampling exhibited a significant correlation with a value of 0.936. In order to determine whether a correlation exists, Bartlett's Test of Sphericity is utilized; the results indicate that the correlation is significant (chi-square = 2514.528, $p < 0.00$). The factor loadings for the independent variables, derived from the rotated component matrix, were presented in Table 4.5.1

Table 4.5.1: Rotated factors and factors loading for independent variables

Items	Questionnaire Items	Component			
		1	2	3	4
PE	I enjoy a conversation with the chatbot	**0.760**			
PE	It is fun and pleasant to share a conversation with the chatbot.			**0.615**	
PE	The conversation with the chatbot is exciting	**0.714**			
PE	I enjoy choosing products more if they are recommended by the chatbot than if I choose them myself			**0.682**	
PE				**0.741**	

	I was absorbed in the conversation with the chatbot				
PEU	My interaction with chatbots is clear and understandable				**0.587**
PEU	Interacting with chatbots does not require a lot of mental effort				**0.796**
PEU	I find chatbots to be easy to use	**0.587**			
PEU	I find it easy to get the chatbots to do what I want them to do			**0.529**	
PEU	It is easy for me to become skilful at using chatbots	**0.659**			
PU	Using chatbots improves my performance		**0.604**		
PU	Using chatbots increases my productivity			**0.563**	
PU	Using chatbots enhances my effectiveness to perform tasks	**0.744**			
PU	Using chatbots would increase my efficiency	**0.668**			
PU	I find chatbots useful in my daily life				**0.572**
SA	I am satisfied with chatbots		**0.613**		
SA	The chatbots did a good job			**0.773**	

SA	The chatbots did what I expected	**0.756**			
SA	I am happy with the chatbots			**0.643**	
SA	I was satisfied with the experience of interacting with chatbots	**0.666**			
	Eigenvalues	**11.723**	**1.198**	**1.076**	**0.766**
	Total Variances Explained	**21.273**	**19.446**	**17.795**	**15.301**
	KMO	**0.936**			
	Bartlett's Test of Sphericity Test	**2514.528**			

Note: **p < 0.01

PU = Perceived Usefulness, PE = Perceived Enjoyment, PEU = Perceived Ease of Use,
SA = Satisfaction, SQC = Service Quality of Chatbots

4.5.2 Reliability Analysis

Reliability analysis was done based on the factor analysis accepted items for the study to see whether the items used in each variable are dependable enough to yield consistent results. Cronbach's Alpha test was therefore applied.

4.5.3 Cronbach's Alpha Test

In this section, employ Cronbach's Alpha Test to assess the internal consistency and reliability of the constructs utilized in our study. The focal points of investigation include perceived ease of use, perceived usefulness, satisfaction, and perceived enjoyment as independent variables, all of which contribute to our understanding of their collective impact on the dependent variable, the service quality of chatbots.

Table 4.2.1: Reliability Analysis

Variables	Original number	Number of items	Cronbach's Alpha
PE	5	3	0.805
PEU	5	5	0.890

PU	5	1	0.708
SA	5	5	0.881
SQC	5	5	0.904

Note: PU = Perceived Usefulness, PE = Perceived Enjoyment, PEU = Perceived Ease of Use, SA = Satisfaction, SQC = Service Quality of Chatbots

As shown in Table 4.2.1, the coefficient for every variable in this study was greater than 0.6, indicating that the reliability of every item used was sufficient. As a result, the factor analysis and reliability test, which assessed the items' validity and reliability, offer a helpful starting point for additional hypothesis testing.

4.6 Inferential Analysis

4.6.1 Pearson Correlation Analysis

Pearson Correlation Analysis is a statistical method used to determine the association between independent variables and dependent variables. An analytical method is essential for comprehending the interconnection between important variables, serving as a basis for later regression studies. Pearson Correlation Analysis provides useful insights into the nature of relationships, helping to assess the overall influence of chatbots on service quality in the e-commerce platform. Table 4.6.1 illustrates the association between the independent variables and dependent variables.

The satisfaction variable has the strongest relationship with the service quality of chatbots (r = 0.818), followed by perceived ease to use (r = 0.788) and perceived usefulness (r = 0.779). However, perceived enjoyment has the weakest linear relationship with the service quality of chatbots (r =0.673). All the independent variables have a positive linear relationship with the service quality of chatbots.

Table 4.6.1: Pearson Correlation Analysis

	PE	**SA**	**PU**	**PEU**	**SQC**
PE	1				
SA	0.803**	1			
PU	0.773**	0.855**	1		
PEU	0.714**	0.809**	0.831**	1	
SQC	0.673**	0.818**	0.779**	0.788**	1

Note: p** <0.01 (one-tailed)

PU = Perceived Usefulness, PE = Perceived Enjoyment, PEU = Perceived Ease of Use,

SA = Satisfaction, SQC = Service Quality of Chatbots

4.6.2 Multiple Regression Analysis

In this section, the employ Multivariate Regression Analysis (MRA) to investigate the intricate relationships between key independent variables and the dependent variable, aiming to uncover the impact of user perceptions on the service quality of chatbots within the e-commerce platform. The independent variables encompass users' perceptions, including perceived ease of use, perceived usefulness, satisfaction, and perceived enjoyment.

4.6.2.1 Adoption of chatbots (Independent Variables) and Service Quality of Chatbots (Dependent Variables)

Based on the table 4.5, the R value is 0.848 which means that there was a relationship between independent and dependent variables. Next, the r square value is 0.719, this means that the four independent variables for 0.719 (71.9%) of variation in dependent variable.

Table 4.6.2.0 depicted that two out four adoption of chatbots variables are positively related to service quality of chatbots. Therefore, the accepted variable is perceived ease of use (B = 0.337, t value = 3.731, p value = <0.001) and satisfaction (B = 0.515, t value = 4.818, p value <0.001). Hence, H3 and H4 is supported. Meanwhile, there are no supported relationships for perceived usefulness (B = 0.152, t value = 1.515, p value = 0.066) and perceived enjoyment (B = -0.048, t value = -0.595, p value= 0.2765). Consequently, H1, and H2 are rejected.

Table 4.6.2.1: Regression Analysis for Operational Performance

Hypotheses	Standardized beta (β)	*t* value	*p-value*	Decision
HI: PU → SQC	0.152	1.515	0.066	Not Supported
H2: PE → SQC	-0.048	-0.595	0.2765	Not Supported
H3: PEU → SQC	0.337	3.731	<0.001	**Supported**
H4: SA → SQC	0.515	4.818	<0.001	**Supported**

Note: *p*** <0.01 (one-tailed)

PU = Perceived Usefulness, PE = Perceived Enjoyment, PEU = Perceived Ease of Use, SA = Satisfaction, SQC = Service Quality of Chatbots

4.7 Summary

A total of four hypotheses have been tested. Table 4.6.2.1 summarised two hypotheses that were supported, while the other two were not supported. The findings from this chapter will be discussed in the next chapter.

Chapter 5

DISCUSSION AND CONCLUSION

5.1 Chapter Overview

This chapter examines and provides a summary of the research outcomes presented in the preceding chapter, which encompassed both descriptive and inferential analyses. Furthermore, plausible rationales and validations shall be offered in order to bolster the hypotheses. In addition, research implications and limitations are addressed in this chapter, along with suggestions for future investigations. A comprehensive summary of the research findings will be provided in the concluding section of this chapter.

5.2 Discussion

5.2.1 Relationship between Perceived Usefulness and Service Quality of Chatbots

H1: Perceived usefulness is positively related to the service quality of chatbots.

Based on the hypotheses testing result, H1 is rejected. It shows that usefulness does not have a significant impact on the service quality of chatbots. The impact of perceived usefulness on service quality might be contingent on task complexity and user expertise. In instances where chatbots demonstrate efficiency in simpler tasks, users may perceive high usefulness without necessarily witnessing a statistically significant effect on overall service quality (Davis, 2023). Moreover, research conducted by (Aleksandar Rodić et al, 2015) underscores the significance of reliability, empathy, and emotional intelligence in the context of chatbot interactions. If users assign greater importance to these dimensions over perceived usefulness, it could elucidate the observed non-significant relationship. From the findings above, perceived usefulness has a correlated but not significant relationship with service quality of chatbots.

5.2.2 Relationship between Perceived Enjoyment and Service Quality of Chatbots

H2: Perceived enjoyment is positively related to the service quality of chatbots.

"In this study, it was found that perceived enjoyment has no significant impact on the service quality of chatbots, leading to the rejection of H2. The influence of enjoyment on service quality may vary depending on task intricacy and user

expectations. In straightforward tasks that prioritize efficiency, the level of enjoyment may not substantially affect overall satisfaction. Conversely, complex tasks involving user engagement and problem-solving may benefit from a more pleasurable experience, potentially establishing a stronger connection with service quality (Gefen & Straub, 2000). The impact of enjoyment on users' perception of service quality can be influenced by individual preferences and personality traits. Preferences may differ, with some users emphasizing a utilitarian experience, while others value a more enjoyable and engaging interaction. Further research considering individual differences could provide insights into the diverse ways in which enjoyment influences service quality across various user segments (Venkatesh et al., 2021)."

5.2.3 Relationship between Perceived Ease of Use and Service Quality of Chatbots

H3: Perceived ease of use is positively related to the service quality of chatbots.

The result from hypotheses testing, H3 is supported. According to this study, people are more likely to believe chatbots that they think are easy to use. When users find a chatbot easy to navigate and interact with, they are more likely to believe its answers and hold a positive view of its service quality (Subburaj Alagarsamy & Sangeeta Mehrolia, 2023). Customers also perceive chatbots that are easy to use as providers of superior service. A positive service experience is enriched by task efficiency, clear directions, and intuitive navigation (Chiara Valentina Misischia et al., 2022). This study establishes a paradigm wherein perceived ease of use directly influences the quality of chatbot services. Chatbots perceived as intuitive and easy to use receive higher ratings for service quality, contributing to increased user satisfaction and influencing future usage (Meyer-Waarden et al., 2020)."

5.2.4 Relationship between Satisfaction and Service Quality of Chatbots

H4: Satisfaction is positively related to the service quality of chatbots.

The result from hypotheses testing, H4 is supported. In certain conditions, chatbots can attain a level of satisfaction comparable to or greater than that of human workers (Shumanov & Johnson, 2021). Reliability, timeliness, and information quality are crucial aspects of service quality that are crucial for chatbot satisfaction (Ula et al., 2023). The promise of chatbots for online

shopping, but emphasizes how crucial it is to customize their functionality to specific product categories and guarantee the highest level of customer care (Ruan & Mezei, 2022).

5.3 Research Implications

5.3.1 Theoretical Implications

The study's findings have significant implications for research communities exploring the impact of perceived ease of use, perceived usefulness, satisfaction, and perceived enjoyment and service quality of chatbots.

This research study, which centers on the users of chatbots in Ayer Keroh, Malacca, enhances our comprehension of the effects that chatbot users experience on e-commerce platforms. It illuminates how satisfaction, perceived enjoyment, perceived ease of use, and perceived usefulness influence the service quality of chatbots.

The relationship between the perceived usefulness and service quality of chatbots was found to be inconsistent. Chatbot effectiveness can be influenced by various factors, including user expectations, preferences for human-like interactions, and potential technical restrictions. This relationship may be further complicated by the dynamic nature of e-commerce platforms and the growing expectations of users. Comprehending these intricacies is essential for a detailed understanding of the insignificant correlation between perceived usefulness and service quality in the context of e-commerce chatbot encounters. This observation enhances our understanding of the various elements that impact user happiness in the ever-changing realm of electronic commerce.

The findings revealed that the relationship between perceived enjoyment and service quality of chatbots was found to be inconsistent. The lack of a meaningful relationship may be attributed to user preferences for personalized and amusing interactions, technical restrictions that impede consistent engaging encounters, and the transactional nature of e-commerce. An in-depth analysis of these components is essential for comprehending how user expectations and technical capabilities impact the perceived satisfaction and overall quality of chatbots in the particular domain of e-commerce. The

knowledge acquired from this investigation can be used to shape the development of chatbot systems in order to more effectively meet customer expectations and improve the quality of service in the e-commerce setting.

The relationship between the perceived ease of use and service quality of chatbots was consistent. Within this framework, the perceived ease of use of chatbots, which represents users' perceptions of the simplicity and user-friendliness of the engagement process, is expected to have a substantial impact on their overall evaluation of service quality. An interface that is easy to use and navigate, allowing for seamless communication and speedy transactions, is expected to increase user happiness and have a beneficial impact on the perceived quality of service. The significance of a well-crafted and user-friendly chatbot system in enhancing user experiences in the e-commerce setting is highlighted by this relationship.

The relationship between satisfaction and service quality of chatbots was consistent. User satisfaction serves as a comprehensive measure of the overall efficacy of chatbot interactions, encompassing variables such as promptness, precision, and user-friendliness. Positive perceptions of chatbot service quality are likely to lead to increased satisfaction, whilst any shortcomings in service quality can result in decreased satisfaction levels. Gaining a comprehensive understanding of and maximizing this connection is vital in the fiercely competitive e-commerce industry, where customer contentment plays a significant role in customer retention and loyalty. Exploring this connection can provide valuable insights that can be used to develop strategies for improving chatbot services. This, in turn, can lead to an overall increase in consumer happiness on the e-commerce platform.

5.3.2 Practical Implication

Examining the effects of chatbots on service quality in the e-commerce platform has practical consequences that can enhance the entire user experience. With the increasing importance of chatbots in online customer contacts, organizations should priorities enhancing the user interface and guaranteeing that these automated systems deliver smooth, instinctive, and customized experiences. Pragmatic approaches may include allocating resources towards improving natural language processing capabilities to boost

communication, developing interfaces that are easy for users to navigate, and refining chatbot responses to better line with consumer preferences. By placing user experience as the first priority during the creation and implementation of chatbots, organizations have the ability to significantly impact consumer happiness and loyalty in a positive manner.

Customizing chatbot functions is a practical way to improve service quality. Businesses should customize chatbot capabilities to suit various e-commerce situations, recognizing the wide range of consumer wants and preferences. Customization may entail integrating functionalities like product recommendations, order monitoring, and personalized assistance, enabling chatbots to offer more precise and relevant service. Achieving a harmonious equilibrium between standardized operations and flexible features guarantees that chatbots can effectively cater to a wide range of user needs, hence boosting the overall quality of service they provide.

The practical consequences underscore the significance of ongoing monitoring and enhancement in the implementation of chatbots in e-commerce. Businesses want to implement strong feedback channels in order to obtain valuable insights into user happiness, pinpoint areas that require enhancement, and tackle developing difficulties. The agility and responsiveness of the system are enhanced through continuous upgrades and changes to chatbot algorithms, responses, and features, which are informed by real-time user feedback. The iterative method guarantees that chatbots maintain their effectiveness in providing top-notch service by adjusting to changing consumer expectations and technology improvements.

Establishing user confidence and promoting openness becomes a pragmatic factor in utilizing chatbots to improve the quality of service in e-commerce. Businesses must to give priority to transparent information regarding the function and skills of chatbots, guaranteeing that users are fully informed of the automated nature of their interactions. Confidence in chatbot services is fostered by the use of transparent practices, secure data processing, and dependable performance, which in turn establishes trust. By prioritizing the ethical and reliable utilization of chatbots, businesses may cultivate favorable

user impressions, thereby bolstering service excellence and fostering enduring client connections within the e-commerce realm.

5.4 Limitations on the Study

This section does not exempt this study from any limitations, nor does it undermine the result rather, it demonstrates that the study is cognizant of the constraints. Respondents disregarded a significant limitation in this study, despite the researcher having communicated it via WhatsApp. In addition, time constraints and the candor of respondents constituted further obstacles for the researcher. The researcher possesses a restricted timeframe in which to administer the questionnaire to the participant and must complete the report within four months. In addition, respondents will disregard the questionnaire out of a reluctance to squander time answering it; consequently, the research cannot be continued within the allotted time frame. Certain individuals do not provide a completely corporate response to the survey. This will affect the accuracy of the data, as they simply checked the appropriate response without carefully reading the queries. The researcher's final obstacle pertained to the precision of the data. All inquiries presented on the survey instrument included one or more possible responses. Consequently, some individuals check the box without carefully reading the query. It will compromise the accuracy of data analysis and have an impact on the study's findings.

5.5 Recommendation for Future Research

This research examines the factors that contribute to the influence of chatbots on service quality in the e-commerce platform, drawing from a range of literature studies. Therefore, the researcher has proposed recommendations for future researchers who would undertake similar studies.

Firstly, future research may be disseminated to other states. Diverse states of respondents may engender distinct perspectives. In the future, researchers may opt to focus their investigations on states with substantial populations due to time limitations. The utilization of data gathered from sizable populations can yield precise and accurate outcomes. Researchers are encouraged to conduct future studies cross-country or among neighboring countries that have made greater advancements, if at all feasible.

Second, future research is encouraged to employ a blended methods approach, combining quantitative and qualitative methods. A mixed method approach permits the conduct of interviews to gather comprehensive information, without imposing limitations on respondents regarding the expression of their own ideas. This approach promotes respondent engagement, thereby eliciting a greater quantity of feedback for the researcher. Additionally, the interview provides the researcher with the chance to elaborate on service quality in chatbots, thereby enhancing the respondent's comprehension of the study's objectives.

Aside from that, investigating the integration of emergent technologies, such as advancements in artificial intelligence and natural language processing, could contribute to the enhancement of chatbot capabilities as technology continues to progress. An examination of the effects that these technologies have on the perception of perceived ease of use, enjoyment, and perceived usefulness could yield significant knowledge regarding the future of chatbot development. Finally, it is recommended that the researchers ensure they have sufficient time to carry out the study to obtain a greater number of responses and enhanced results from the data analysis.

5.6 Summary

This study revealed the significant influence of chatbots on the quality of service in the e-commerce platform. All four independent variables have a beneficial impact on the service quality of chatbots.

5.7 Conclusion

Ultimately, this study aimed to understand the complex dynamics related to the influence of chatbots on the quality of service in the e-commerce platform located in Ayer Keroh, Malacca. The study conducted a meticulous analysis of four distinct independent variables which is perceived ease of use, perceived usefulness, satisfaction, and perceived enjoyment. The dependent variable under scrutiny is the service quality of chatbots.

Although these observations enhance our comprehension of the relationship between user perceptions and the quality of chatbot service, it is crucial to recognize the distinctive contextual elements that exist in Ayer Keroh, Malacca. The study's findings

were significantly influenced by the regional residents' particularities, cultural idiosyncrasies, and cultural inclinations.

Fundamentally, this research illuminates the intricate correlation that exists between user perceptions of chatbot service quality and simplicity of use, utility, satisfaction, and enjoyment. With the increasing adoption of chatbots by businesses as essential elements of their e-commerce platforms, the knowledge acquired from this study can function as a beneficial manual for improving tactics, enhancing user journeys, and ultimately advancing service standards in the continuously changing digital environment.

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APPENDIX

APPENDIX A (QUESTIONNAIRE)

INSTRUCTION:

Please read the questions carefully before answering them. Where appropriate, please tick (√) in the box provided. Your honest and sincere response is highly appreciated.

1. Gender

   Male ☐ Female ☐

2. Age

   18-24 ☐
   23-34 ☐
   35-44 ☐
   45-54 ☐
   55 or above ☐

3. Employment status

   Employed full-time ☐
   Employed part-time ☐
   Unemployed ☐
   Student ☐
   Retired ☐
   Others ☐

4. Frequently shop online

   Daily ☐
   Once a week ☐
   Several times a month ☐
   Once a month ☐
   Less than once a month ☐
   Never ☐

INSTRUCTION:
Please indicate your answer by circling the appropriate number based on the current flexibility of your company.

Perceived Enjoyment					
	Strong Disagree	Disagree	Neutral	Agree	Strong Agree
I enjoy a conversation with the chatbot.	1	2	3	4	5
It is fun and pleasant to share a conversation with the chatbot.	1	2	3	4	5
The conversation with the chatbot is exciting	1	2	3	4	5
I enjoy choosing products more if they are recommended by the chatbot than if I choose them myself	1	2	3	4	5
I was absorbed in the conversation with the chatbot.	1	2	3	4	5

Satisfaction					
	Strong Disagree	Disagree	Neutral	Agree	Strong Agree
I am satisfied with chatbots	1	2	3	4	5
The chatbots did a good job	1	2	3	4	5
The chatbots did what I expected	1	2	3	4	5
I am happy with the chatbots	1	2	3	4	5
I was satisfied with the experience of interacting with chatbots	1	2	3	4	5

Perceived Usefulness					
	Strong Disagree	Disagree	Neutral	Agree	Strong Agree
Using chatbots improves my performance	1	2	3	4	5
Using chatbots increases my productivity	1	2	3	4	5
Using chatbots enhances my effectiveness to perform tasks	1	2	3	4	5
I find chatbots useful in my daily life	1	2	3	4	5
Using chatbots would increase my efficiency	1	2	3	4	5

Perceived Ease of Use					
	Strong Disagree	Disagree	Neutral	Agree	Strong Agree
My interaction with chatbots is clear and understandable	1	2	3	4	5
Interacting with chatbots does not require a lot of mental effort	1	2	3	4	5
I find chatbots to be easy to use	1	2	3	4	5
I find it easy to get the chatbots to do what I want them to do	1	2	3	4	5
It is easy for me to become skilful at using chatbots	1	2	3	4	5

Service Quality of Chatbots					
	Strong Disagree	Disagree	Neutral	Agree	Strong Agree
I am satisfied with the service provided by the chatbot.	1	2	3	4	5
The chatbot provided accurate and relevant responses.	1	2	3	4	5
The chatbot's overall performance met my expectations.	1	2	3	4	5
The chatbot efficiently resolved my issues or inquiries.	1	2	3	4	5
The chatbot provided helpful and satisfactory solutions.	1	2	3	4	5