DETERMINANTS OF THE BEHAVIOURAL INTENTION TO USE QR CODE MENUS AMONG MALAYSIAN CONSUMERS

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DETERMINANTS OF THE BEHAVIOURAL INTENTION TO USE QR CODE MENUS AMONG MALAYSIAN CONSUMERS.

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DECLARATION OF ORIGINAL WORK

I confirm that the work contained in this thesis is entirely my own. All references have been properly credited and acknowledged.

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APPROVAL

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DEDICATION

I want to dedicate appreciation to my loving family members and supporting partner, who have provided me with unwavering support and been a never-ending source of inspiration as I've worked on finishing this thesis, both emotionally and physically. Additionally, I want to sincerely thank those on the panel and my great supervisor, Dr. Johanna Binti Abdullah Jaafar, for their helpful suggestions and strong support during my study. I am very appreciative of their guidance and knowledge, which helped to shape the conclusion of my thesis.

Lastly, thank you to my wonderful friends for helping me with this research. Thanks to their assistance, encouragement, and cooperation, this adventure has been made more pleasurable and meaningful. I sincerely appreciate them being here and being ready to assist.

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ABSTRACT

These days, QR codes have evolved as versatile tools with a variety of uses that improve accessibility, connection, and convenience in a variety of sectors. In the food and beverages industry, QR code is also being developed as one of the tools that can take the order menu using technology. However, consumers have faced various global problems using QR code menus, such as disrupting the dining experience and inconveniencing for people. Hence, this study aims quantitavely identify factors that could influence the behavioural intention to use QR Code Menus among Malaysian Consumers using the Unified Theory of Acceptance and Use of Technology (UTAUT) model and the Theory of Planned Behaviour (TPB). An online questionnaire was distributed via a social media platform and 152 people responded. The collected data was analyzed using a Multiple Regression analysis. The results show that performance expectancy, effort expectancy and social influence had the significant relationship and the most significant factor is effort expectancy based on the highest Beta value. This findings have contributed to to the literature in the body of knowledge in technology management research and have helped business owners and managers decide if they want to embrace and use this technology in their places of business.

Keywords : QR codes, Qr code menus, behavioural intention.

ABSTRAK

Kod QR telah menjadi teknologi yang sangat berguna yang boleh melakukan pelbagai aktiviti dan menjadikan kehidupan lebih mudah dalam pelbagai industri. Dalam industri makanan, kod QR digunakan untuk memesan makanan daripada menu menggunakan teknologi. Walau bagaimanapun, beberapa masalah telah timbul daripada pelanggan yang menggunakan menu kod QR, antaranya ia boleh mengganggu pengalaman menjamu selera dan sukar untuk digunakan oleh orang yang lebih tua. Kajian ini ingin mengetahui apakah faktor yang boleh menyebabkan orang ramai ingin menggunakan menu kod QR di Malaysia. Soal selidik dalam talian telah diedarkan melalui platform media sosial dan 152 orang telah menjawab. Data yang dikumpul dianalisis menggunakan analisis Regresi Berganda. Keputusan menunjukkan jangkaan prestasi, jangkaan usaha dan pengaruh sosial mempunyai hubungan yang signifikan dan faktor yang paling signifikan ialah jangkaan usaha berdasarkan nilai Beta tertinggi. Penemuan ini telah menyumbang kepada literatur dalam bidang bahasa dalam penyelidikan pengurusan teknologi dan telah membantu pemilik dan pengurus perniagaan memutuskan sama ada mereka mahu menerima dan menggunakan teknologi ini di tempat perniagaan mereka.

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CHAPTER 1

INTRODUCTION

1.1 Chapter Overview

This chapter presents a background of the study on the food and beverages industry and its significance to the economy, which appropriate references and statistics can validate. The researcher focused on the problem statements that led to the research questions and objectives for the study. Following that, the scope of this study, its limitations, and its significance of the study have been written about. This research aims to identify factors that could influence the determinants of the behavioural intention to use QR Code Menus among Malaysian Consumers.

1.2 Background of The Research

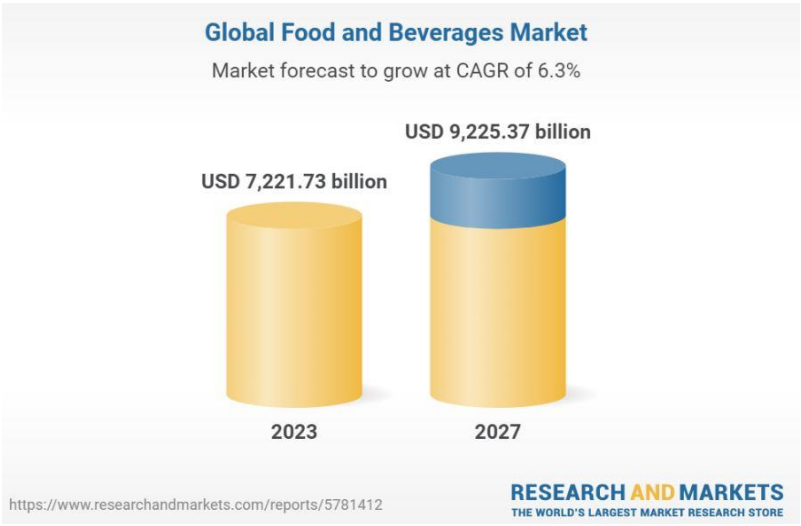

Figure 1.1 Market forecast growth of Food and Beverage market.
Source: Statista Research Department (2023)

The food and beverage industry has had a significant impact on the national economy, increasing downstream added value, income from investment and export, and high labour absorption (Ardika, 2021). From Food And Beverages Global Market Report 2023, In order to reach $7,221.73 billion in 2023, the global food and beverage business is predicted to grow 7.3% yearly from $6,729.54 billion in 2022. The conflict between these two countries has led to economic sanctions against a number of nations, an increase in commodity prices, and supply chain disruptions, creating inflation in goods and services and hurting numerous markets around the world. At least in the short term, this has made it harder for the world economy to recover from the COVID-19 epidemic (Food And Beverages Global Market Report, 2023). By 2027, the food and beverage sector is expected to grow at a CAGR of 6.3%, reaching $9,225.37 billion (Food And Beverages Global Market Report, 2023). City lockdowns around the world, labour mobility restrictions, travel bans, airline suspensions, and, most importantly, a slowdown in the economy have all been signs of the pandemic's effects on society and the economy. This slowdown is seriously affecting the sustainability of supply chains in many businesses around the world (Memon et al., 2021).

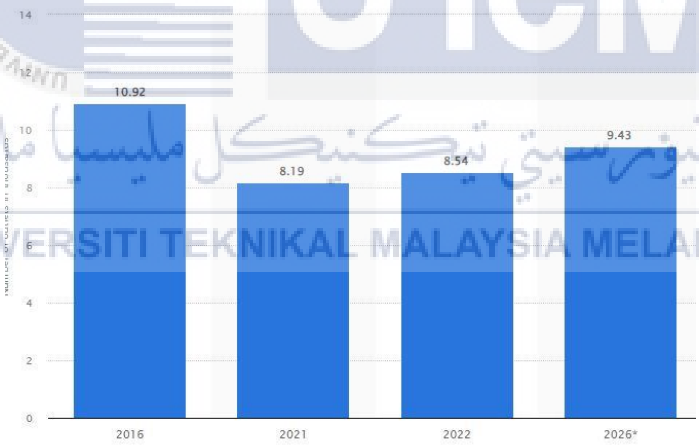

Figure 1.2 Full Service Restaurant in Malaysia
Source: Statista Research Department (2023)

Basri et al. (2019) believe that Malaysia's Food and Beverage (F&B) business is broad and growing, with a sizable export market. The Malaysian F&B sector has significantly boosted the national economy. In 2022, the Malaysian foodservice profit industry brought in MYR80.9 billion ($18.4 billion), and it is anticipated that between 2022 and 2027, it would grow at a CAGR of more than 6% (ShieldSquare Captcha, 2023). Plus, The GDP revenue of the food and beverage (F&B) business is expected to rise by 8% in

2023, following a 22% growth in 2022 to RM35.2 billion (Leng, 2023). Malaysia's food and beverage business is developing even more quickly since one of its most distinctive qualities is its culinary culture. Over 8.54 thousand full-service restaurant outlets were found in Malaysia in 2022, an increase from roughly 8.19 thousand the year before. In Malaysia, there will be fewer full-service restaurants by 2026 than there were in 2016, with an estimated 9.43 thousand locations (Statista, 2023).

The COVID-19 challenge, which is revolutionizing the food and beverage sectors, is speeding up the development of robots and AI (Forbes, 2020). Software assists in monitoring costs, inventories, and shelf stocking, while computers assist in managing supply chains and reducing waste (Forbes, 2020). In the millennial period, technology use is rapidly rising (Saputra, 2021). Patil & Karekar (2019) stated that implementing Quick Response (QR) code technology, which may be used for browsing and ordering menus, transacting, and receiving frequent updates on records, might help the restaurant business enhance service quality.

Figure 1.3 QR codes
Sources: Google Image

QR codes are storage techniques that make use of a dot-matrix or two-dimensional bar code created by Denso Wave that may be printed or displayed on a screen and is understood by a certain reader (Ibrahim et al., 2019). The program does a decent job of minimizing direct touch and removing the risk of transmission, which ought to increase the number of visits. Employees in the supply chain think that improving this service system may increase sales and service standards (Kocaman, 2021). Alsaad &Al-Okaily (2022) demonstrate that the impression of Covid 19 danger triggers application acceptance, heightening a person's concern and driving them to defend themselves from hazards by responding adaptively, boosting the intention to employ detection apps.

Many people appreciate this QR code since it allows them to order menu items simply by exhibiting a mobile phone or tablet (Pambudi et al., 2020; Azmi, 2020). This was supported by Ibrahim et al. (2019); using QR codes in mobile applications encourages people to see them favorably and in new ways. One of the most promising methods for enhancing client knowledge and influencing purchase behaviour among the most current marketing trends is F&B using QR Codes (Rotsios et al., 2022).

Additionally, QR codes are far more successful in advertisements than printed ones since they attract more people. If a QR code provides the right information, these customers will use it again or visit a business's website or store, creating loyal clients (Vuksanović et al., 2021). Another viewpoint is that QR codes are best used there because of the substantial workforce involved in the service industry. New improvements in customer service may be seen via new technology, such as QR codes (Tuncer et al., 2020). QR codes may be an effective marketing tool since it is now easier to draw customers' attention to in-person corporate marketing. Customers might be given unique discounts and incentives when scanned, luring them to follow the company's social media profiles. When customers scan with mobile devices, this is more accessible (Harian Malaysia, 2023).

1.3 Problem Statement

The restaurant business is especially worried during the pandemic since the virus spreads by respiratory droplets created by breathing, speaking, coughing, and sneezing (CDC COVID-19 Response Team., 2020). Because of the virus's quick spread, customers will pay greater attention to their health to minimize exposure to Covid 19, reducing the number of visitors (CDC COVID-19 Response Team., 2020). Brizek et al. (2021) discovered that 25% of the restaurants assessed could not withstand a nearly two-month shutdown, and less than a quarter could not return their firm personnel to pre-pandemic levels, resulting in a fall in restaurant revenues. Consumers are increasingly apprehensive about visiting restaurants, particularly those that serve food, because they are susceptible to COVID-19 transmission (Rotsios et al., 2022).

Ibrahim et al. (2020) argued that ordering food and beverage menus can be more efficient and appealing if done utilizing QR code technology; it will deliver a different

experience than other restaurants since it will be loaded with thorough information on the menu so that customers can find out the available food directly and eliminate the server who does not know the entire menu specifics.

However, various global problems have appeared from consumers using QR code menus. For instance, it might be difficult for people who view eating as a chance to spend quality time with friends and family to continuously look at the phone to make their order (Srivastav et al., 2023). Moreover, when dining with friends and family, reading QR codes and menus on their phones is inconvenient and frequently disrupts the dining experience (Times Of India, 2023). An age group has traditionally preferred ordering from actual menus and finds scanning codes and seeing menus on the phone displays unsettling (Sharma, 2023).

Meanwhile, the printed menu is faster and more convenient, allowing for more meaningful contact between customers and servers (Shurki et al., 2022). The sensation of flicking through the pages of an entire menu is vastly superior to scrolling through a computerized menu on the phone with your finger. Furthermore, people come to the restaurant because they do not wish to order their food online or scan QR codes (Shurki et al., 2022). Many restaurants used QR codes as an alternative to high-touch print menus to handle the enormous labour crisis that left eateries 5.9 million jobless (Pavement Pieces, 2021).

Besides, QR codes at restaurants offer accessibility concerns for certain elderly and low-income people, making it difficult, if not impossible, to order meals or even browse the menu (Joe Guszkowski., 2021). Restaurant QR code menus are “frustrating and inconvenient,” creating hurdles for homeless, low-income, or elderly persons who may not have a smartphone or are unfamiliar with QR codes (Taylor, 2021). As evidence, 24% of low-income Americans don’t own a smartphone, based on the Pew Research Center.

QR code systems can use cookies to track purchase history, gathering names, phone numbers, and credit card information and storing it in databases (Kurt Knutsson, 2021). Without the customers’ approval, the acquired data can be put into databases for targeted marketing and promotions (Yasar, 2021). QR codes are suitable for restaurants that have partially replaced their wait staff with QR codes, but they are not perfect for customers who

may need or miss a print menu (Joe Guszkowski., 2021). Due to a New York Times analysis, restaurant QR code scans have decreased by 27% annually. Fewer restaurants are developing new QR-code menus, and around 75% of all QR-code menus were scanned less than 90 times in the previous year (The Guardian, 2023).

In summary, from the previous discussion of acceptance QR codes menu has not yet to satisfied and has not been empirically studied widely. To better comprehend the issue, it is essential to learn that there is a lack of understanding regarding the need for QR Code Menus. Therefore, the researcher investigate the determinants of the behavioural intention to use QR Code Menus among Malaysian Consumers.

1.4 Research Questions

The researcher developed the following research questions based on the issue descriptions mentioned above:

RQ1: What factors could influence the behavioural intention to use QR Code Menus among Malaysian Consumers?

RQ2: How is the relationship between these factors and the behavioural intention to use QR Code Menus among Malaysian Consumers?

RQ3: Which are the most significant factors that could influence the behavioural intention to use QR Code Menus among Malaysian Consumers?

1.5 Research Objectives

The following study objectives have been defined to address the preliminary research questions:

RO1: To identify factors that could influence the behavioural intention to use QR Code Menus among Malaysian Consumers.

RO2: To analyse the relationship between these factors and the behavioural intention to use QR Code Menus among Malaysian Consumers.

RO3: To examine the most significance factors that could influence the behavioural intention to use QR Code Menus among Malaysian Consumers.

1.6 Scope and Limitations of the Research

The scope and limitations of the research could be looked at from two different points of view:

1.6.1 Scope

This study aims to identify factors that could influence the determinants of the behavioural intention to use QR Code Menus among Malaysian Consumers. A quantitative research method is used to gather information that can be analyzed using statistical tools. The researcher used primary and secondary data sources for this study to get different kinds of information.

Besides, this study covers a wide range of demographic profiles such as gender, age group, race, education level, and occupation, which may cause different perspectives on QR code menu usage. In addition, this study has used the extended UTAUT model, which included the Unified Theory of Acceptance and Use of Technology (UTAUT) model established by (Venkatesh et al., 2003) and the Theory of Planned Behaviour (TPB), .which identified four main determinants from those models, containing performance expectancy, social influence, effort expectancy and facilitating and add attitude from TPB model that might help conditions to explore the determinants of the behavioural intention to use QR Code Menus among Malaysian Consumers.

1.6.2 Limitations

The biggest problem with this research is that there was not enough time to do the search, which made it hard to get enough data. Also, secondary data sources are hard to access because they are not open to the public and cost money to get the whole record. Aside

from that, it is essential for people to be honest when filling out the questionnaire; some may not say what is going on to give a proper answer. The general results of this study will be affected by these things.

1.7 Significance of the research

The significance of the research could be divided into two approaches: academic and practitioner.

1.7.1 Academic Significance

By combining the theory, it contributed to the technology acceptance model, whereby the researchers extended the Unified Theory of Acceptance and Use of Technology (UTAUT) model established by (Venkatesh et al., 2003) and the Theory of Planned Behaviour (TPB) in this study research paper. Therefore, it will added to the literature in the body of knowledge in technology management research.

Academic writing like this thesis has helped researchers better understand innovation processes and the elements that drive new technology acceptance and dissemination. Researchers investigated innovation, technology transfer, and adoption models, which helped direct organizations' strategies for introducing and adopting new technologies.

Additionally, students can learn a lot by studying how people feel about QR code choices. It allows them to learn more about a specific topic within the broader field of how people use technology and act as consumers. Students learn to think critically, solve problems, and analyze information through study. These skills are instrumental in both school and the workplace.

1.7.2 Practical Significance

The research findings would have given practitioners helpful information about how people used QR code options and what they like. Knowing what makes people accept and use QR codes could have helped business owners and managers decide if they wanted to

embrace and use this technology in their places of business. With this information, they can change their plans and services to met customer needs better and improved their whole eating experience.

Moreover, this research could have helped establish best practices and industry standards. Practitioners could have used evidence-based strategies to maximize the use of QR code menus by gaining knowledge from the conclusions and suggestions of research studies. Research findings could have been shared and disseminated throughout the industry to promoted knowledge exchange and the creation of standardized procedures that are advantageous to all practitioners.

1.8 Summary

In conclusion, the research could have benefited from knowing the determinants of the behavioural intention to use QR Code Menus among Malaysian Consumers. Next, the researcher must know that understanding the purpose of QR code menus purpose is challenging. The background of the study was concluded in this chapter related to the food and beverages industry and the intention to use QR code menus. The problem of conducting this research has also been discussed in this chapter. Besides, three research questions and objectives have been addressed in this chapter. The scope of the study is to analyse the relationship between these factors and the determinants of the behavioural intention to use QR Code Menus among Malaysian Consumers. The significance of this study is to apply to the food and beverages industry in Malaysia because this research determines the relationship between these factors and the determinants of the behavioural intention to use QR Code Menus among Malaysian Consumers., which may give benefits business in improving and enhancing the quality of QR code menus in Food and Beverages industry.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The independent variable and dependent variable have been examined in this chapter 2. To support our scientific and observational investigation, genuine sources are required for all aspects of thesis writing. Reference materials, online news, and books were acquired to review the theories and prior scientific work relevant to this inquiry. This chapter briefly introduces food and beverage technology development, the technological evolution of QR code menus, and the variables that influence the behavioural intention to use QR code menus, which leads to the implied study context. Further, a brief review of the appropriate theory will be included in this chapter before introducing the suggested research framework. Plus, this chapter provides a theoretical framework, hypothesis formulation, and conclusion.

2.2 Food and Beverages Industry

Gomes (2017) claimed that part of food and beverage management oversees and is in charge of supplying, reception, stocking, distribution, manufacturing, providing services , and delivering full or light meals. In another opinion, “establishments primarily engaged in preparing meals, snacks, and beverages, to customer order, for immediate consumption on and off the premises” compose the food and beverage industry. (Government of Canada, 2012). The food and beverage division may operate as a standalone business, a division of a hotel, a banqueting or catering company, or a group of restaurants (Couto et al., 2021). The food and beverage industry started simply enough: people regularly needed or wanted to eat or drink as they traveled from their homes to places of work. To meet this requirement, others were asked to provide food and beverages. Products from the food and beverage business expanded along with the public’s interests (Tripp, 2015).

The food and beverage sector is another one that is growing. The internet and wireless technologies advanced quickly after 1990 (Tan, 2013). Additionally, restaurants began using various technology-based solutions to boost the system's effectiveness. "An integrated IT system that supervises, manages, and facilitates the planning operations in the restaurant" (Tan, 2013) is what a computerized restaurant system means. A registration book was used to manually handle the orders and payments before introducing the automated system (Rahman, 2018). Delivery became a lifeline for the ailing restaurant industry early in the pandemic due to lockdowns and physical separation laws (Ahuja, 2021).

The act of ordering meals online involves doing it through a website. The product may be food carefully prepared for direct consumption (such as vegetables that have been picked fresh from a farm or garden or frozen meats) or food that has not (like food obtained directly from a restaurant or certified home kitchen). (J. F et al., 2022). Using online meal ordering technology, which generates an online food menu, customers may make orders fast. A meal menu is available for online customers when placing orders (A. R et al., 2017). To guarantee that system users obtain efficient service, various amenities are provided. The approach considers dining establishments and client-use mess facilities (A. R et al., 2017).

By linking every meal ordering transaction to a computer system rather than a data record, technology will help restaurants better manage their operations (Deepa et al., 2018). Additionally, it may increase the restaurant's productivity by reducing time-consuming tasks, minimizing human mistakes or delivery, and offering consumers high-quality products and services (Deepa et al., 2018). For instance, the customer may touch their smartphone to confirm the stored order when they visit the restaurant. An order slip will be created for order processing after the list of preordered items you've chosen is approved and shown on the kitchen screen. In client presale transactions, Foster the solution makes selling simple (Nikose et al., 2023).

2.3 QR code Menus

A two-dimensional or matrix bar code called a QR code may hold data and is designed to be scanned by smartphones. The abbreviation QR stands for "Quick Response," suggesting that the information included in the code should be understood quickly and effectively (Tiwari et al., 2016). On a white backdrop, the code is composed of square-shaped black modules. The encoded information may include text, a URL, or other data (Tiwari et al., 2016). Globally, QR codes are becoming more popular, and many people now use smartphones with cameras built in to read them (Tiwari et al., 2016). Today, QR codes are used for various purposes, including websites, in-store product labeling, marketing, print newspapers, television broadcasts, traditional book publishing, and commercial tracking systems. There are QR codes on websites, television programs, advertisements, and print media (newspapers, magazines, books, and posters) (Aktaş et al., 2017).

A web-based ordering system is a QR code menu. It costs nothing to make QR codes; all users need to scan them is a smartphone with a camera (RestaurantQRCodes, 2016). Before the order is automatically delivered to the kitchen, the client must verify the code that is posted on a table in the cafeteria (Nikose et al., 2023). The cafeteria staff will find it easier to collect meal orders with a little aid from a QR code rather than the conventional approach (Nikose et al., 2023). Many people also highly value this QR code since it makes it simple to purchase food by just exhibiting a smartphone or tablet (Pambudi et al., 2020; Azmi, 2020). To speed up the ordering process, customers must provide personal information such as email addresses or mobile phone numbers (Kovacs et al., 2013).

With a specially created QR code reader App, QR code tags will be attached to the restaurant menu (Patil et al., 2019). By moving their mouse over QR codes, customers may read them. Businesses may maintain the existing menu design and layout while incorporating our new technology with the least switching costs since QR codes are so discrete (almost as thin as a sticker!) (Patil et al., 2019). A specifically developed web application is launched when the QR code is scanned, enabling customers to choose menu items and make orders. To reduce the work servers must do, the chosen items will be kept in a backend server database that the administrator can access directly from the kitchen (Patil et al., 2019).

The food industry has rapidly adopted technological advancements to enhance customers' dining experiences. One such innovation is using online menu QR codes in Malaysia (Tucker et al., 2023). With the COVID-19 pandemic, this technology has become even more critical as eateries deploy contactless steps to minimize viral spread (Tucker et al., 2023). The COVID-19 epidemic has caused a dramatic upheaval in the food business operations. The Malaysian government has mandated that eateries follow standard operating standards, including contactless technology. To satisfy these criteria, online menu QR codes have grown popular, giving a safer and more convenient dining experience (Tucker, et al., 2023). Furthermore, Malaysia's technology infrastructure is continuously improving, making it more straightforward for firms to incorporate new technologies. QR codes for online menus are a technology that is becoming increasingly accessible and economical for restaurants to employ (Tucker et al., 2023).

Figure 2.3 QR code menus ordering food
Source: Google Image

A QR code is a type of matrix bar code or two-dimensional code that can store data information and is designed to be read by smartphones. QR stands for "Quick Response" indicating that the code contents should be decoded very quickly at high speed. A QR code is a type of matrix bar code or two-dimensional code that can store data information and is designed to be read by smartphones. QR stands for "Quick Response", indicating that the code contents should be decoded very quickly at high speed. A QR code is a type of matrix bar code or two-dimensional code that can store data information and is designed to be read by smartphones. QR stands for "Quick Response", indicating that the code contents should be decoded very quickly at high speed.

2.4 Dependent Variables

2.4.1 Behavioural intentions to use QR code menus

The willingness of a person to utilize a technology system has been characterized as behavioural intention in earlier research on technology adoption (Venkatesh et al., 2012; Venkatesh et al., 2003; Davis et al., 1989). (Miadinovic et al., 2016) We define behavioural intention as an individual's desire to use and continue to use a technological system in which they are the consumers of technology. Researchers also concur that the desire to use a certain technology system significantly predicts users' eventual use and motivates good technology use (Miadinovic et al., 2016). As a result, a key idea in technology acceptance models (Venkatesh et al., 2003; Taylor & Todd, 1995; Ajzen, 1991; Sheppard et al., 1988) is the behavioural intention to utilize technology. On the other hand, there is little agreement among studies about the variables that influence the desire to engage in a certain activity (Miadinovic et al., 2016). Many scholars mention other elements impacting behavioural intention, which varies depending on the technological situation (Gefen, Karahanna, and Straum, 2003; Venkatesh et al., 2003). The relevant operational intents from the prior research are listed below using this definition.

The restaurant industry is particularly concerned during the pandemic because the virus spreads through respiratory droplets produced by breathing, speaking, coughing, and sneezing (CDC COVID-19 Response Team., 2020) (Mantik et al., 2022). The application is quite good in reducing direct contact and eliminating the danger of transmission, which should improve the number of visits. Supply chain employees believe upgrading this service system can boost sales and service quality standards (Kocaman, 2021).

From a previous study, Alsaad &Al-Okaily (2022) demonstrate that application acceptance is triggered by the perception of Covid 19 risk, which heightens a person's fear and motivates them to protect themselves from threats by behaving adaptively, thereby increasing the intention to use detection applications. Rad et al. (2021) conducted a study correlating PMT with cultural factors, including visiting family and friends, shaking hands, and touching cheeks. Prasetyo et al. (2020) analyzed the effectiveness of Covid 19 prevention measures by integrating PMT and the Theory of Planned Behaviour (TPB).

The outcome demonstrates that a person's perceived vulnerability and severity can indirectly affect behavioural intentions and lead to actual behaviour (Mantik et al., 2022).

2.5 Independent Variables

2.5.1 Attitudes

Munari (2019) cites Thomas and Znaniecki (1918) as the source for one of the oldest definitions of attitude: "a state of mind of the individual towards an object." Referring to the Longman Dictionary of Contemporary English, "attitude" refers to your thoughts and emotions about a subject. Ipsos (2019) claimed that attitudes is understand consumers' thoughts, feelings and behaviour regarding a specific target. Hence, attitude becomes a crucial term containing positive or negative experiences. For example, in the QR context, a person must decide whether to take some specific action (Chang et al., 2021).

Table 2.1 Definitions Of Attitudes

Theme	Definitions	Authors
Attitude toward Qr codes	Attitude is utilized to integrate theory to comprehend the advantages of QR codes for users.	(Yang et al., 2017)
Attitude	Attitudes are more likely to be stable and able to reflect behavior when the evaluative implications of the information are related to behavior	(Yanti, B. et al., 2020)
Attitude	Attitudes do not consistently predict behaviour, they are thought to influence	(Manarani et al., 2020)

Theme	Definitions	Authors
	people's behavioural intentions.	

2.5.2 Performance Expectancy

The degree to which a person expects that adopting a system will enable them to improve their work performance is known as performance expectancy (PE) (Venkatesh et al., 2003). Performance expectancy has a favourable and considerable influence on people's attitudes towards embracing different electronic- and mobile-based services, as several studies have demonstrated (Pynoo et al., 2019). Additionally, across various management and setting contexts, performance expectation was the most effective predictor of intention (Venkatesh, Morris, Davis, D. & Davis, G., 2003). From previous studies, the performance expectancy may contain to save time and output quality (Yang, 2018).

Table 2.2 Definitions Of Performance Expectancy

Theme	Definitions	Author
Performance Expectancy	Performance expectancy is the extent to which people think utilizing technology will help them accomplish their tasks better.	(Tiara Imani et al., 2020)
Performance Expectancy	Performance expectancy is that if one perceives a new service or technology to be useful, one's attitude	(Dwivedi et al., 2017)

Theme	Definitions	Author
	toward adopting it would be improved.	
Performance Expectancy	Performance expectancy is the degree to which people think adopting a system would increase their performance.	(Sair et al., 2018)

2.5.3 Effort Expectancy

Effort expectancy, which is referred to in most models as "perceived ease of use," "ease of use," or "complexity," is a major predictor of intention (Venkatesh, Morris, Davis, D., & Davis, G., 2003). the degree of ease with which the system may be used. The degree to which consumers anticipate that payment technology will be free of commercial interests and simple enough to use in daily life (Venkatesh et al., 2012). Additionally, it may be explained by the predicted complexity of the technology and the energy required to utilize it (Mamman et al., 2016). This element explains why people don't have to exert any effort to grasp how to utilize certain sorts of this strategy in the context of QR code menus.

Table 2.3 Definitions Of Effort Expectancy

Theme	Definitions	Author
Effort Expectancy	Effort expectancy is the degree of ease related to using a specific technology.	(A. Tiara Imani, A. Herlanto Anggono., 2020)

Theme	Definitions	Author
Effort Expectancy	Effort expectancy is a highly significant factor in influencing intention to use.	(N. Butarbutar et al., 2022)
Effort Expectancy	Effort expectancy refers to the effort needed to use a simple or complicated system.	(Huei et al., 2019)

2.5.4 Social Influence

Another key factor in UTAUT that directly affects intention is social influence (Lavenia et al., 2018). Although it goes by different names, like "subjective norm," their definitions are the same: People are influenced by others, especially those who are important to them, like their parents, friends, and coworkers, and they will have the intention to use technology when they hold a belief that others think they should not, or when using technology enables them to improve their status (Venkatesh, et al., 2003). From the previous case, the researcher can summarise that social influence will be measured by the perception of how friends, family, organizations, and essential individuals influence the intention to use QR code menus.

Table 2.4 Definition of Social Influence

Theme	Definitions	Author
Social Influence	Social influence is the degree to which one is persuaded to embrace a new system by the beliefs of	(Ayesha et al., 2021)

Theme	Definitions	Author
	others (family, friends, peers).	
Social Influence	To utilize a particular technology, an individual's social influence is the degree to which they value the views of their essential others, such as families, relatives, or friends.	(A. Tiara Imani, A. Herlanto Anggono., 2020)
Social Influence	Social influence becomes the most critical supporting component in a person's new system usage.	(Brata, A. H., & Amalia, F., 2018)

2.5.5 Facilitating Conditions

Initially, facilitating conditions were described as objective variables in the environment that observers agreed made an act easier (Ahmed Shuhaiber., 2016). If an operational infrastructure exists and supports the use of technology, the behavioral intention to use technology will increase (Brata et al., 2018). People think there is a basic organizational and technical infrastructure in place to enable them to use new technology without running into obstacles, such as setting up training sessions to impart the necessary knowledge and offering resources, direction, or instructions (Venkatesh, Morris, Davis, D., & Davis, G., 2003). Theoretically, clients will be more willing to utilize the system if they can get help and assistance more quickly. Venkatesh et al. (2003) stated that enabling conditions have a small effect on purpose and are more closely related to use than intention.

Table 2.5 Definitions Of Facilitating Conditions

Theme	Definitions	Author
Facilitating Conditions	Facilitating conditions are an individual's impression of having appropriate resources or access and a supportive environment to achieve successful technology adoption.	(A. Tiara Imani, A. Herlanto Anggono., 2020)
Facilitating Conditions	The degree to which a person believes a system's use is made possible by organizational and technical infrastructure.	(Wonglimpiyarat, 2019)
Facilitating Conditions	Facilitating conditions directly impact technology usage because they can serve as a surrogate for behavioural control and affect behaviour directly.	(Bagla & Sancheti, 2018)

2.6 Underpinning Theory

2.6.1 Unified Theory of Acceptance and Use of Technology (UTAUT)

Davis (1989) developed the technology acceptance model (TAM), which is based on the theory of reasoned action (TRA). Previous studies have proven the acceptability of novel technologies in various situations (Garg, et al., 2021). For example, user acceptance of information technology (Davis 1989), usage of an iPad menu (Beldona et al., 2014; Hsu & Wu, 2013; Wang & Wu, 2013; Yepes, 2015), consumer acceptability of kiosks (Kim et al.,

2013), and acceptance of QR code (Kim et al., 2016). Researchers state that TAM has limits because of its limited capacity to predict technological acceptance (Ifenthaler & Schweinbenz, 2013; Ifenthaler & Schweinbenz, 2016; Khlaif, 2018). Due to the weaknesses of the TAM model, Venkatesh et al. (2003) developed the unified theory of acceptance and use of technology (UTAUT) based on a collection of previous models and hypotheses used to consider technology acceptance. UTAUT suggests four fundamental variables influencing behavioural intentions: performance expectancy, effort expectancy, social influence, and facilitating conditions (Garg, et al., 2021).

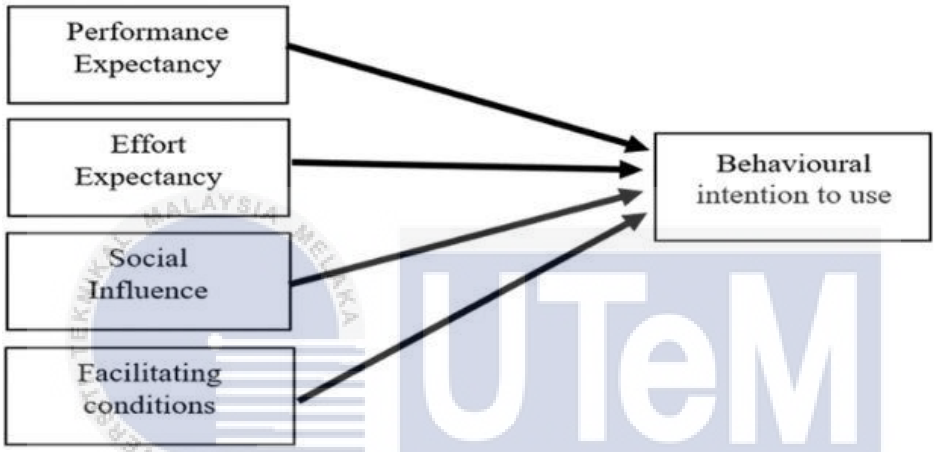

Figure 2.4 Framework Of Unified Theory of Acceptance and Use of Technology (UTAUT)

Source from: Unified Theory of Acceptance and Use of Technology (Venkatesh et al., 2003)

2.6.2 Theory of Planned Behaviour (TPB)

The theory of planned behaviour (TPB), which was developed from the concepts of multiattribute attitude (TMA) and the theory of reasoned action (TRA) (Ajzen & Fishbein, 1973), is a social-psychological theory that explains how people make behavioural decisions with the aim of understanding and forecasting individual behaviour. It promotes the idea that personal will is primarily responsible for completing human behaviours (Zhang et al., 2018). A study by TRA, people's conduct intentions are influenced by attitude and subjective norms, where normative beliefs impact the social norms that apply to them personally, and moods may be good or negative. Regarding TPB, behavioural intention is an individual's propensity to pursue an action, also known as the subjective probability of people wishing to participate in certain actions (Fishbein & Ajzen, 1975). Behavioral

intention is the greatest predictor of conduct (Zhang et al., 2018). The three factors of attitude, subjective norm, and perceived behavioural control are likely to analyse an individual's behavioural intention during the decision-making process, or each of the three factors can change behavioural intention directly, suggesting that the three factors may interact or have different effects on behavioural intention separately (Zhang et al., 2018).

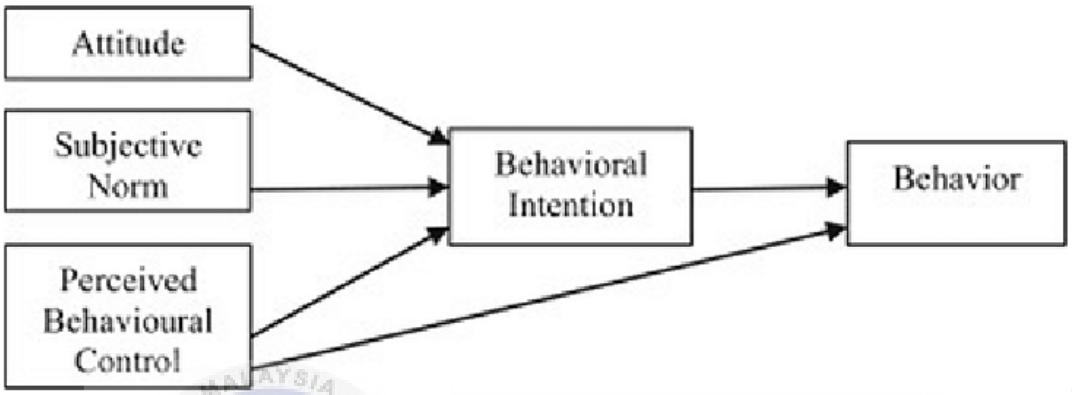

Figure 2.5 Framework Of Unified Theory of Planned Behaviour (TPB)
Source from: Theory of Planned Behaviour (Ajzen., 1991)

2.6.3 Theoretical Framework

The extended UTAUT model, which combines the Theory of Planned Behaviour (TPB) and the Unified Theory of Acceptance and Use of Technology (UTAUT) model, is the foundation for the conceptual framework. Performance expectancy, social influence, effort expectancy, facilitating conditions, and attitude from the TPB model are the four primary determinants of the Utaut model. Attitude, performance expectancy, social influence, effort expectancy, and facilitating conditions are the independent variables affecting the dependent variable, behavioural intentions to use QR code menus.

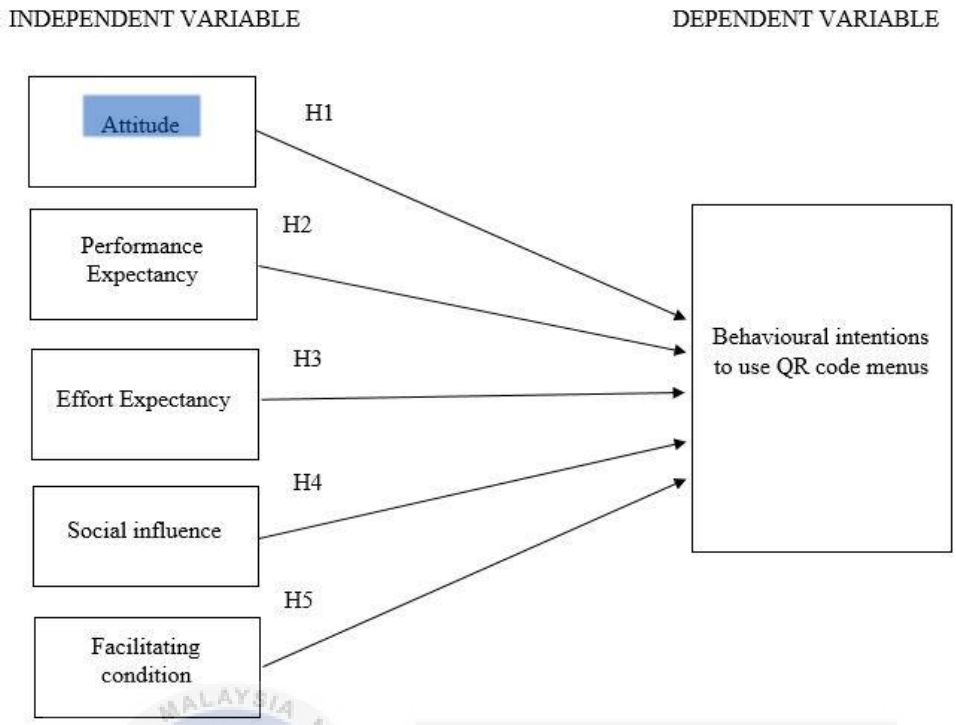

Figure 2.7 Theoretical Framework of The Study

2.7 Hypothesis Development

Several hypothesis are presented using the theoretical framework to investigate the direct impacts of independent and dependent variables. The hypothesis is written as follows:

2.7.1 Attitude and Behavioural Intentions to Use QR Code Menus

During the COVID-19 epidemic, (Brewer P. and Sebby AG., 2021) investigated the impact of internet restaurant menus on customers' buying intentions. The outcome demonstrates how people feel about online restaurant menus favorably impacting people's appetites.

Yang et al. (2017) believe that attitude is used to integrate theory to grasp the benefits of QR codes for consumers. Certain attitudes can impact a person's purpose in acting. The

higher the benefits of using QR codes when looking at restaurant menus, the more likely someone will have a favourable attitude toward their use (Mantik et al., 2022). This is done to prevent the spread of Covid 19. A previous study has shown that an optimistic attitude increases a person's behavioural intention to use (Wu, 2020; Yang et al., 2017). As for the results, attitude positively affects behavioural intention to use. Thus, the first hypothesis is developed as below:

H1: There is a positive relationship between attitudes and behavioural intentions to use QR code menus.

2.7.2 Performance Expectancy and Behavioural intentions to use QR code menus

Garg, A (2019) conducted research in terms of Tablet-Based Menus. The result shows that performance expectancy positively influences customer behavioural intention to use tablets for orders.

Huang and Kao (2015) discovered that PE is the most powerful determinant of an individual's behavioural intention to use a tablet. In consumer e-commerce travel acceptance research, performance expectancy has been a powerful predictor (Garg et al., 2019). Previous research (Ayeh, Leung, Au, & Law, 2012; Okumus et al., 2018) has proven performance expectancy to be a key determinant of technology utilization in tourism contexts. As a result, hypothesis two was developed based on the primary justifications.

H2: There is a positive relationship between performance expectancy and behavioural intentions to use QR code menus.

2.7.3 Effort expectancy and Behavioural intentions to use QR code menus

Ting (2022) researched Hong Kong's young adult's acceptance of the Self-service restaurant ordering system. Customers who perceive the system as more adaptable and straightforward are likelier to use it (Ting., 2022). The result shows that effort expectancy positively correlates with their intention to use.

Garg A (2019) said that effort expectancy positively influences customer behavioural intention to use tablets; customers are more likely to adopt a system if they perceive it is more adaptable and straightforward (Amaro & Duarte, 2013). As new behaviours develop, effort-oriented modifications are anticipated to become less noticeable as instrumental concerns take precedence (Davis, 1989; Venkatesh, 1999; Venkatesh et al., 2003). This is because process challenges represent obstacles that must be addressed early. As a result of the preceding debate, hypothesis three is developed.

H3: There is a positive relationship between effort expectancy and behavioural intentions to use QR code menus.

2.7.4 Social influence and behavioural intentions to Use QR code menus

Ting (2022) researched Hong Kong's young adult's acceptance of the Self-service restaurant ordering system. The emphasis on social peace and proper interpersonal connections is one of the characteristics of Chinese culture (Wong, 1988). Furthermore, Hong Kong residents may be influenced by Chinese culture and pay attention to social harmony, known as "Jan Cing" in Cantonese. Wong (1988) claimed that "Jan* Cing* has different meanings, one of which is the social norms that help people get along well. These norms include greeting when meeting, demonstrating your concern for others, and expressing your concern, understanding, or offering assistance when others are in trouble.

As a result of the "Jan* Cing" culture, Hong Kong residents may favor interacting with waiters and waitresses at restaurants to forge new social connections (Wong,1988). Based on that statement, the result shows that social influence positively correlates with their intention to use.

Garg A (2019) claimed that Social Influence positively influences customer Behavioural Intention to use tablet menus. A person's internalization of the subjective culture of the social system is referred to as a social factor (Huang & Kao, 2015). The image reflects how much a person believes using a cutting-edge invention would improve his standing in a social organization (Huang & Kao, 2015). Based on the rationale above, the four hypotheses represent what this study would want to suggest.

H4: There is a positive relationship between social influence and behavioural intentions to use QR code menus.

2.7.5 Facilitating conditions and behavioural intentions to use QR code menus

Garg, A (2019) conducted research in terms of Tablet-Based Menus. The result shows that the facilitating conditions positively influence customers' behavioural intention to use a tablet for an order.

Numerous investigations confirmed the role of FC in people's technology-related behaviours, and the conclusions of these studies demonstrated that FC significantly affects both actual technology use and behavioural intentions to apply technology s (Ali, Nair, & Hussain, 2016; Khalilzadeh, Ozturk, & Bilgihan, 2017; Maruping et al., 2016; Okumus et al., 2018). Escobar-Rodrguez and Carvajal-Trujillo (2014) discovered that FC affects the desire to make an online purchase. Similar findings were made by Agudo-Peregrina, Hernández-Garca, and Pascual-Miguel (2014) in a study of the factors influencing the acceptability of e-learning frameworks. The consumer is significantly more likely to have a greater intention to use a technology if they have access to suitable favorable conditions (Garg et al., 2019). Based on the rationale above, the last hypotheses represent what this study would want to suggest.

H5: There is a positive relationship between facilitating conditions and behavioural intentions to use QR code menus.

2.8 Summary of Hypothesis

Table 2.6 Summary of Hypothesis

Hypothesis	Statements	References
H1	There is a positive relationship between attitudes and behavioural intentions to use QR code menus.	Brewer P, Sebby AG (2021), Yang et al. (2017) , (Mantik, J., Kurdi, S., & Aprigliano, N., 2022)

Hypothesis	Statements	References
H2	There is a positive relationship between performance expectancy and behavioural intentions to use QR code menus.	Garg, A (2019), Huang and Kao (2015), (Ayeh, Leung, Au, & Law, 2012; Okumus et al., 2018)
H3	There is a positive relationship between effort expectancy and behavioural intentions to use QR code menus.	Ting (2022), Garg, A (2019)
H4	There is a positive relationship between social influence and behavioural intentions to use QR code menus.	Ting (2022), Garg, A (2019)
H5	There is a positive relationship between facilitating conditions and behavioural intentions to use QR code menus.	Garg, A (2019), (Ali, Nair, & Hussain, 2016; Khalilzadeh, Ozturk, & Bilgihan, 2017; Maruping et al., 2016; Okumus et al., 2018)

2.9 Summary

In summary, this chapter briefly defines the terms food and beverage industry and Qr code menus technology before discussing the study's independent variables, which include performance expectancy, social influence, effort expectancy, and facilitating conditions and attitude. In the study, the planned behaviour hypothesis is also explained. In the last section, a conceptual framework and hypothesis development are added.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter discussed the research methodologies, highlighting the approach to carry out the study and achieve the objectives. Research methodology may be considered a field of study that studies how research is conducted scientifically and is a strategy for methodically addressing the research topic (Patel et al., 2019). The research technique used is research design, plan, scientific canons, sampling design, and time horizon, all discussed in this chapter. Therefore, this chapter also focused on the design of questionnaires, data collection methods, and data analysis.

3.2 Research Design

To meet the study goals and give the justification for choosing data sources, collecting methodologies, and analysis approaches, the research design functioned as the framework for data collection and analysis (Saunders et al., 2016). Research design aims to enable the collection of relevant data with the least effort, expense, and time feasible (Patel et al., 2019). But how these may be done mostly depends on the research goal (Patel et al., 2019). The three different kinds of descriptive, explanatory, and exploratory research designs (Akhtar 2016). Saunders et al. (2016) define descriptive research as the primary goal of accurately characterizing events, people, or circumstances. Second, explanatory research is defined as investigations that pinpoint the causes of various variables (Saunders et al., 2016). Thirdly, exploratory research may be useful for presenting open questions to help researchers learn more and develop a deeper knowledge of a specific area of interest (Saunders et al., 2016). This study uses descriptive and explanatory research to identify the factors and relationships between the behavioural intentions to use QR code menus from the perspective of the extended UTAUT model. The research aims to collect primary consumer

data using QR code menus when ordering food in Malaysia. The descriptive analysis seeks to understand phenomena better, get a fresh perspective, and develop a more focused study question or hypothesis (Haron et al., 2012). As a result, this research assisted in analyzing the information gathered on behavioural intentions to use QR code menus.

3.3 Research Design Method

Research design is described as a framework of methodologies and procedures used by a researcher to effectively combine numerous research components in an appropriately logical manner to address the research challenge (Smith, 2016). The research design aids the researcher in structuring his thoughts so that he can check for inconsistencies and inaccuracies (Akhtar 2016). Descriptive research, explanatory design and quantitative research are both employed in this study to analyze the research questions.

3.3.1 Descriptive Research Design

Descriptive research may summarise current events without the researcher's influence over the variables (Harris, 1991). This strategy may respond to what, where, when, and how queries, but not why (McCombes, 2022). The two main categories of descriptive statistics are central tendency measurements and variability (spread). While variability measurements include standard deviation, variance, and minimum and maximum variables, measures of central tendency have the mean, median, and mode (Kenton et al., 2023).

Gravetter & Forzano (2018), descriptive research includes surveys. Survey research is used to include descriptions of particular groups of people. To discriminate between the respondent's gender, age, race, level of education, and occupation, the researcher employed the descriptive analysis or frequency distribution. . This approach was used by the researcher to collect data and information from respondents, who were people that have been used QR code menus when ordering food.

3.3.2 Explanatory Research Design

Explanatory research oversees determining cause-and-effect linkages to determine the why of the occurrences and its findings and recommendations represent the highest degree of knowledge (Fidias, 2017). The researcher may more effectively comprehend the issue by utilizing this explanatory research. This is because when pursuing the study, the researcher able to adapt to new data and new insights that he or she learned in the research (Fidias, 2017). As a result, this study uses explanatory design to find the relationships and the most significant factors.

3.3.3 Quantitative Research Design

Methodology choices can be categories to three types, which were quantitative method, qualitative method, and mixed method . This research used quantitative methods because the researcher think that the quantitative method was the suitable method that can be used to carry out the data collection compared with the qualitative method and mixed method. A quantitative research strategy focuses on analyzing and quantifying variables to produce insights. When addressing questions like who, how much, what, where, when, how many, and how, numerical data must be used and analyzed using specialized statistical techniques (Apuke. OD, 2017). As a result, this study uses quantitative research to examine the causes and consequences, test the hypothesis, and deliver an estimate.

3.4 Research Strategy

A complete plan for carrying out a study is known as a research strategy. A research strategy guides the design, execution, and assessment of the study. The research approach provides excellent, helpful assistance. Despite this, it has to be complemented by research approaches that may focus the study effort at a deeper level (Johannesson, P., & Perjons, 2014). This study uses a quantitative method to collect data through a questionnaire survey to study the behavioural intentions of using QR code menus.

The questionnaire was created using the 5-point Likert scale (Likert, 1932). The five-point Likert scale would start negatively with a 1 signifying much disagreement and finish positively with a 5 representing much agreement.

Table 3.1 Five-point Likert Scale

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

3.4.1 Questionnaire Design

The questionnaire was completed in a Google Form and had been disseminated online. The questionnaire was designed with 4 components. Respondents were asked to complete Section A, which included questions on their gender, age group, race, level of education, and occupation. In this part, four multiple-choice and one dual-choice question had to be answered. Next section B will cover general questions about technology QR code menus. Statements in Section C that will concentrate on the independent variables were present. Last but not least, reports describing behavioural intents to use QR code menus were included in Section D. Additionally, the respondents provided their responses using a Likert scale, which allowed them to rank their answers on a range of 1 to 5, with the numbers representing strongly disagree, disagree, natural, agree, and strongly agree.

3.4.2 Measurements of Constructs

Table 3.2 Measurement Of Constructs

Construct	Measurement	Sources	Adapted
Behavioural intention to use QR code	1. I'll frequently scan the QR code to look at the menu. 2. I'll advise other people to scan the QR code to read the menu. 3. I'll practise using the QR code to read the menu. 4. I'll keep scanning the QR code to see the menu in the future.	Zhang et al. (2020)	1. I extensively use my phone to scan the QR code to view the menu. 2. I recommend others to scan the QR code to read the menu. 3. I will practice reading the menu using the QR code. 4. If given the option, I will order from menus using QR codes compared to physical ones. 5. I will continue to use the QR code in the future to see the menu.
Attitude	1. Using a QR code while viewing the menu is an innovative idea. 2. Using QR codes to view menus can improve health management 3. I enjoy using the QR code to access the menu 4. Using QR codes for login is a clever idea	Zhang et al. (2020) Deng & Liu (2017)	1. I like scanning the QR code to access the menu. 2. Scanning a QR code while reviewing the menu is brilliant method. 3. Seeing menus by using QR codes can help with social distancing. 4. Using QR codes to see menus could prevent the spread of viruses. 5. Using QR codes for

Construct	Measurement	Sources	Adapted
			ordering menus is an excellent idea.
Performance Expectancy	1. ICT is useful for me 2. ICT facilitates quicker work completion 3. ICT makes working while traveling more convenient 4. ICT can raise the level of service quality	Ali et al., (2022)	1. QR code menus are helpful to me. 2. Using a QR code menu is easy. 3. QR code menus allow for more accurate orders. 4. QR code menus provide the information that I want. 5. QR code menus can improve the quality of service.
Effort Expectancy	1. We are prepared to employ ICT since it is simple to comprehend 2. It is simpler to use ICT interfaces. 3. ICT is easy to use ICT 4. I can easily get knowledgeable and skilled in ICT	Ali et al., (2022)	1. Using QR code menu interfaces is easier. 2. QR code menus are simple to use. 3. I can quickly learn how to use QR code menus. 4. QR code menus are easy to scan even when seated. 5. QR code menus are used by me due to their

Construct	Measurement	Sources	Adapted
			efficiency.
Social Influence	1. ICT should be utilized, especially by others around me 2. Family and friends have a significant role in using ICT 3. ICT usage seems prestigious/admirable while traveling 4. I will talk about how it feels to use technology when traveling with my family and friends	Ali et al., (2022)	1. I used QR code menus because of the influence of my family and friends. 2. I will use QR code menus if I see others doing so. 3. People who are important to me suggest using QR code menus for ordering is easy. 4. People who influence my behaviour think I should use QR code menus to order. 5. Many people around me have positive comments on the QR code menus.
Facilitating Conditions	1. We can afford digital gear for ICT 2. I have the tools I need to utilize ICT 3. ICT is appropriate for the technical tools I employ 4. I may ask for assistance from others if I am having trouble utilizing ICT	Ali, M. B., Tuhin, R., Alim, M. A., Rokonuzzaman M., Rahman, S. M., & Nuruzzaman, M. (2022)	1. I have internet access to access QR code menus. 2. I have digital devices to use QR code menus. 3. I have a QR code scanner to scan the QR code menus on my devices. 4. I feel like using a QR code menu can speed up ordering.

Construct	Measurement	Sources	Adapted
			5. I would ask a staff member for assistance if I had trouble utilizing a QR code menu.

3.5 Scientific Canons

3.5.1 Pilot test

A pilot test is a preliminary test conducted on a smaller scale. A pilot study may provide crucial data that can help direct the direction of a more in-depth gear study or research project (Dovetail, 2016). A pilot test typically involves 30 to 50 participants (Junyong, 2017). Bartlett (2013) mentions that the goal of the pilot test was to demonstrate the validity and reliability of the questionnaire. Before gathering actual data, pilot testing can determine any practicality, identify any improvements that may be required in the questionnaire design, and guarantee the study's hypothesis testing (Leon et al., 2011). A small sample of respondents was examined in the first stage of this pilot test to determine whether the questionnaire could gather the data the researcher needed. Due to time constraints and to improve the validity and reliability of the questionnaire, at least 30 participants who have been using QR code menus to order the food were selected for the pilot test (Jarina et al., 2019). Afterwards, the data were entered into the statistical program SPSS in order to assess their reliability.

Table 3.3 Reliability Statistic of Variable in Pilot Test

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.955	.957	30

Source from: SPSS Output

From the table 3.3 the entirety of questionnaire's Cronbach's Alpha is 0.955. Saunders et al. (2019) report that the strength of the relationship is excellent. Thus, it may be said that the items have an elevated level of internal consistency an elevated level of internal consistency among the items.

3.5.2 Reliability

In the book by Saunders et al. (2016), reliability is defined as "replication and consistency." Reliability was used to evaluate a process' capacity to deliver consistent results. There are a few methods you may use to evaluate reliability. The reliability was evaluated by the researchers using Cronbach's alpha approach. To assess the validity of the test and scales developed for a study endeavor, statisticians utilize Cronbach's Alpha. Based on Saunders et al. (2016), it consists of an alpha coefficient in Cronbach's Alpha that varies from 0 to 1. Acceptable Cronbach's Alpha was defined as equal to or greater than 0.7. Cronbach's Alpha values of more than 0.8 are considered good, while values greater than 0.9 are considered exceptional. Cronbach's Alpha of less than 0.6 was deemed mediocre, while less than 0.5 was considered intolerable. The Cronbach's Alpha Coefficient Range and Strength of Association are shown below.

Table 3.4 Cronbach's Alpha Coefficient Range

Cronbach's Alpha Coefficient Range	**Strength of Association**
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor

Source from: (Saunders, Lewis, and Thornhill, 2016)

Table 3.5 Reliability Statistic of item in Pilot Test

Variable	Cronbach's Alpha	Number of Items	Strength of Association
Independent Variable			
ATT	0.857	5	Good
PE	0.905	5	Excellent
EE	0.894	5	Good
SI	0.834	5	Good
FC	0.713	5	Acceptable
Dependent Variable			
BI	0.904	5	Excellent

Source from: SPSS Output and (Saunders, Lewis, and Thornhill, 2016)

Table 3.5 output refers from Table 3.3, which indicates that a Cronbach's Alpha of less than 0.7 is questionable. All the variables in the pilot test are acceptable since the factor of facilitating conditions with 5 items has the lowest Cronbach's Alpha, which is 0.713 among the other independent and dependent variables; social influence ranks second from the bottom with 0.834. Attitude is 0.857 and effort expectancy is 0.894. The highest of all the independent and dependent variables is performance expectancy, which is 0.905; the dependent variable, behavioural intentions, is 0.904.

Table 3.6 Reliability Statistic of Variable in Pilot Test

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.955	.957	30

Source from: SPSS Output

From the table 3.6 the entirety of questionnaire's Cronbach's Alpha is 0.955. Saunders et al. (2019) report that the strength of the relationship is excellent. Thus, it may

be said that the items have an elevated level of internal consistency an elevated level of internal consistency among the items.

3.5.3 Validity

Validity refers to the appropriateness of the measure used, accuracy of the analysis of the results (Saunders et al., 2016). Validity is trying to explain the truth of research findings (Zohrabi,2013). A high validity value would suggest a high level of trust in the study's findings (Drost., 2011). A research instrument's validity is evaluated based on how well it achieves its intended goals (Robson., 2011). Internal validity was employed to assess whether the scale items were included in the questionnaire for this study. For example, internal validity would be proven when a collection of survey questions could be statistically demonstrated to be connected with an analytical factor or outcome. The researcher used pilot test in a small population to avoid validity threats. Researcher will proceed to actual focus group if the questionnaire has a strong validity.

3.6 Sampling Design

3.6.1 Target Population

Population is the subset of the target population available for the research. The target population of this research is the Malaysian people. In general, the population of Malaysia in 2023 is 33.4 million (Department of Statistic Malaysia, 2023) So, for this research, the target population is 33.4 million.

3.6.2 Sampling Technique

Sampling involves drawing inferences about the entire population from a small sample of that group (Jemain et al., 2007). The sample is a portion of the population comprising a few selected people (Al-Omari et al., 2008). An appropriate sampling approach was utilized to reach out to the public for this research, and the simple random sample method was used as an extension of the researcher's probability sampling. The real benefit of this strategy is that it eliminates favoritism by giving every member of the population an equal chance to be chosen (Ross K. et al., 2005). The researcher used the random sampling method because the respondent would have been anyone from Malaysia.

3.6.3 Sampling Size

The researcher used Raosoft InterForm software to calculate the sample size. Researchers were advised to utilize Raosoft, Inc. to determine survey sample sizes for bigger populations or populations with unknown sizes. A minimum suggested sampling size of 385 persons was required, according to Raosoft, Inc.'s calculation. However, the past studies by Krejcie & Morgan (1970) mention that the population of 32.7 million with a 95% confidence level of the sample size equals the Raosoft calculation. Therefore, the researcher used 385 as a sample since the software and Krejcie & Morgan conducted the same. Furthermore, based on Krejcie & Morgan's (1970) table, this kind of number population generated the same number of samples generated by Raosoft InterForm software. However, refers to Hair et al (2018) the research need at least 100 samples for most research situation, so for this research study the research collected 152 respondents.

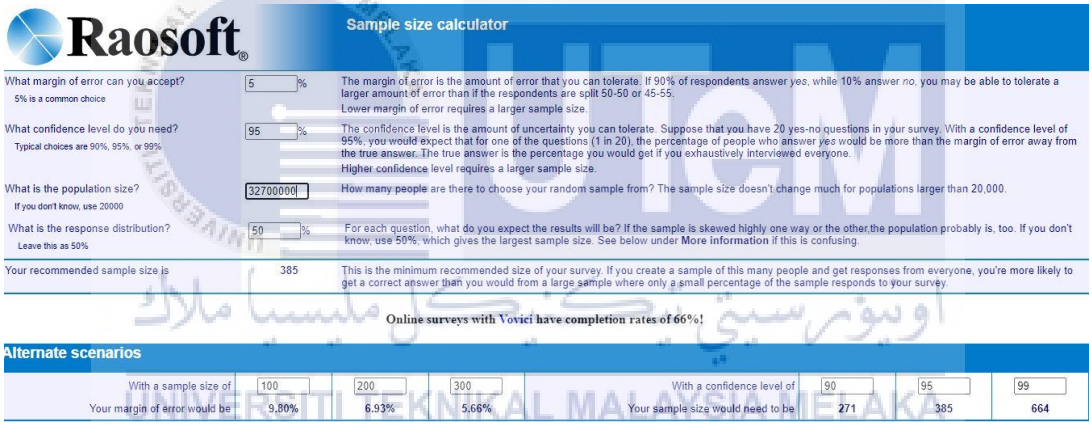

Figure 3.1 Sample Size calculator by Raosoft

3.7 Data Collection Methods

3.7.1 Primary Data Collection

The decision-maker, a marketing firm, a university, or an Extension researcher collects primary data specifically to address the problem. (2008) Curtis, K. R. From Saunders et al. (2016), primary sources consist of unfiltered original work such as surveys, experiments, questionnaires, one-on-one interviews, and observations. Primary data may be gathered through surveys, focus groups, in-depth interviews, taste tests, and other studies (Curtis, K. R., 2008). In this study, the primary data was gathered using an online

questionnaire to examine the factors that could influence the determinants of the behavioural intention to use QR Code Menus among Malaysian Consumers. The researcher used social media to spread the questionnaire as the sampling size was 385 people. Plus, the researchers used snowball sampling to get the data. However, the researcher only gets turning respondents for 152 over 385 people this may be because of the time constraints.

3.7.2 Secondary Data Collection

Information that has previously been collected and is often available in print or electronic form is called secondary data (Curtis K. et al., 2008). Secondary data may only have limited applicability for certain forms of market research since it is often collected, evaluated, and structured with a specific goal in mind (Curtis K. et al., 2008). The secondary data sources include books, government publishing websites, internal papers, journal articles, and internal documents (Saunders et al., 2016). In this research study, secondary data was used to complete the task that is hard to find as primary.

3.8 Data analysis tools

3.8.1 Pearson's Correlation Coefficient

The Pearson coefficient, which measures the correlation between two variables recorded on the same interval or ratio scale, illustrates this relationship (Kenton 2021). The Pearson coefficient measures the strength of the relationship between two continuous variables (Kenton 2021). The Pearson coefficient, which has a numerical expression similar to a correlation coefficient used in linear regression and has a range of -1 to +1, varies from -1 to +1. In contrast, 0 denotes a fully independent association (Saunders et al., 2016). This research investigated the link between 5 independent factors and one dependent variable.

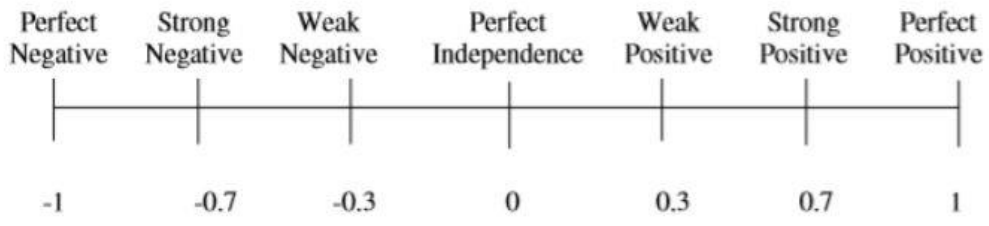

Figure 3.2 Pearson Correlation Coefficient
Source from: (Saunders, M.., Lewis, P., and Thornhill, A 2009)

3.8.2 Regression Analysis

Regression is a statistical technique that connects one or more independent variables to a dependent variable (Beers, 2022). If there is a relationship between changes in one or more explanatory factors and changes in the dependent variable, it may be shown using a regression model (Beers, 2022). Various regression analysis prediction techniques are available. Other elements that affect the choice of the technique include the number of independent variables, the pattern of the regression line, and the kind of dependent variable (Sharma, 2022). A statistical technique called multiple regression uses several explanatory variables to predict the outcome of a response variable (Kenton, 2022). In this research, the researcher used multiple regression. Multiple regression was used since there is only one dependent variable, behavioural intention to use QR code menus, and five independent variables: attitude, performance expectancy, social influence, effort expectancy, and facilitating conditions. The equation of multiple regression analysis is shown below:

$$Y=\alpha + \beta_1X_1+\beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5$$

Where:

Symbol	Meanings
Y	Dependent variables (behavioural intention to use QR code menus)
A	Constant
β_1	Coefficient 1
β_2	Coefficient 2
β_3	Coefficient 3

Symbol	Meanings
β_4	Coefficient 4
β_5	Coefficient 5
X_1	Independent Variables 1 (Attitude)
X_2	Independent Variables 2 (Performance Expectancy)
X_3	Independent Variables 3 (Effort Expectancy)
X_4	Independent Variables 4 (Social Influence)
X_5	Independent Variables 5 (Facilitating Conditions)

3.9 Time Horizon

The time horizon is the time it takes to complete (Saunders et al., 2016). Short-term, medium-term, and long-term are the three types of temporal horizons (Reaume, 2022). For this research, the researcher used a cross-sectional study because it can study a phenomenon at a specific time.

3.10 Time Scale

The completion date for each project component is specified in the time scale. It establishes the project's profitability and offers appropriate times for each component (Academic, F., 2010). The timetable has to adequately consider the amount of time and ongoing financial resources required to finish your research (Academic, F., 2010). Below is the Gantt Chart for Final Year Project 1.

Table 3.7 Gantt Chart

Gant Chart Final Year 1

Task	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14
Briefing PSM														
Distribution of Supervisor														
Searching for topics and idea														
Proposed Topic for Supervisor														
Identify problem statement														
Identify research questions and objectives.														
Identify framework														
Writing Chapter 1														
The proposed new framework for supervisor														

Task	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14
Writing Chapter 2														
Searching for hypothesis														
Start writing Chapter 3														
Proposed measurement of the construct														
Completed Chapter 3														
Editing the proposal														
Prepare the slides														
Prepare the video														
Submit reports, slides, and videos.														
Presentations														

Gantt Chart Final Project 2

Task	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14
Submitted questionnaires for check														
Completed questionnaires														
Collect 30 people for pilot test														
Completed pilot test														
Run the reliabilty analysis														
Collected actual data														
Writing back chapter 3 and insert output for pilot test														
Editing previous chapter with past tense														

Completed actual data for 152 respondents														
Start writing chapter 4														
Export data from microsoft excell														
Insert data in SPSS														
Run the descriptive statistic														
Run multiple regression, pearson correlation														
Writing chapter 5														
Prepare discussion for chapter 5														
Final hypothesis result														
Make slides presentation														
Presentations VIVA														

3.11 Summary

Each research approach and method was covered in detail in this chapter. Primary and secondary data sources were used to gather the research's data. In this study, the researcher used cross-sectional time for the questionnaire design, sample design, and pilot testing. The researcher supported scientific canons, including reliability, validity, and pilot testing. The use of multiple regression analysis and Pearson's correlation coefficient as data analysis techniques are both thoroughly discussed.

CHAPTER 4

DATA ANALYSIS AND RESULTS

4.1 Introduction

The data and results of this research are presented in this chapter. First, a reliability analysis was carried out. Second, descriptive analysis was used to examine every item's measurement. Next, the normality test was used to select appropriate statistical methods. Then, Pearson correlation analysis was used to measure the strength and direction of linear relationships between variables. Also, the variance inflation factor (VIF) aids in the identification and evaluation of multicollinearity. Subsequently, the main data analysis was conducted to evaluate the proposed hypotheses and identify the primary influencing factor for this research. Lastly, it shows the tested d and finalized hypotheses.

4.2 Reliability Test Actual Data

The accuracy of the data collection is validated with reliability tests. To analyze the strength of reliability and consistency, the researcher used Cronbach's Alpha analysis. The factor of this study's independent and dependent variables is computed with Cronbach's Alpha.

Reliability Statistics

Cronbach's Alpha	N of Items
.980	30

Figure 4.1 Reliability Statistics of Variable in Actual Data
Source from: SPSS Output

Table 4.1 Reliability Statistic of Item in Actual Data

Variable	Cronbach's Alpha	Number of Items
Independent Variable		
Attitude	0.921	5
Performance Expectancy	0.939	5
Effort Expectancy	0.944	5
Social Influence	0.916	5
Facilitating Conditions	0.935	5
Dependent Variable		
Behavioural Intention	0.941	5

Source from: SPSS Output

Table 4.1 demonstrates an excellent measure of internal consistency across the independent variables, including attitude (0.921), performance expectancy (0.939), effort expectancy (0.944), social influence (0.916), and facilitating conditions (0.935). Likewise, for the dependent variable behavioural intention (0.941). Saunders, Lewis, and Thornhill (2016) claimed a range over 0.90 for Cronbach's Alpha Coefficient is considered excellent. Consequently, as Figure 4.1 illustrates, the overall result indicated that 0.980 is an excellent range and is approved in the reliability test.

4.3 Descriptive Statistics Analysis

The researcher used descriptive statistical analysis to assemble a population and distribute it to several categories. In addition, it gives a clear view of details with the help of visual data about the respondents and measures to make things easier to understand. For the summary data of each construct, IBM SPSS version 27 was used to interpret the data.

4.3.1 Respondent's Demographic Profile

In a survey, a demographic profile is a list of questions used to find out about the background of the people who fill out the survey. Demographic profiles such as gender, age group, race, education level, and occupation were discussed in this chapter.

4.3.1.1 Gender Group

Table 4.2 Gender Group

		Frequency	Percent (%)
Valid	Female	107	70.4
	Male	45	29.6
	Total	152	100

As shown in Table 4.2, all 152 people who completed the surveys were of a certain gender. Out of the 152 people who answered, 70.4% were women (107 respondents), and 29.6% were men (45 respondents). There were a few more female respondents than male respondents.

4.3.1.2 Age Group

Table 4.3 Age Group

		Frequency	Percent (%)
Valid	Baby boomer (born 1946-1964)	6	3.9
	Generation X (born 1965-1980)	12	7.9

	Generation Y/Millennial (born 1981-1996)	34	22.4
	Generation Z (born 1997-2012)	100	65.8
	Total	152	100

As indicated in Table 4.3, there are four groups of ages. Overall, most of the respondents (100 of them, or 65.8%) were fromere Generation Z. Then there were 34 respondents (22.4%) who were Generation Y, and 12 respondents (7.9%) who were Generation X, the lowest respondents were baby boomer who are 6 respondents (3.9%) only.

4.3.1.3 Race

Table 4.4 Race

		Frequency	Percent (%)
Valid	Malay	138	90.8
	Chinese	4	2.6
	Indian	9	5.9
	Others –Siamese	1	0.7
	Total	152	100

Table 4.4 preserves track of the number of races. Malay made up the largest group of responders (138, or 90.8%), while Siamese only 1 respondent made up the smallest group (1, or 0.7%). Meanwhile, 9 people, or 5.9%, said they were Indian, and 4 respondents, or 2.6%, said they were Chinese.

4.3.1 Highest Education

Table 4.5 Highest Education

		Frequency	Percentage
Valid	SPM	21	13.8
	Stpm/Matriculation/ Diploma	53	34.9
	Bachelor's Degree	70	46.1
	Master's Degree	3	2.0
	PHD	1	0.7
	Others	4	2.5
	Total	**152**	**100**

Table 4.5 shows that the highest education level of respondents. The highest education of most of the respondents is a bachelor's degree, which mades up 70 of the respondents, or 46.1%. The second most responses came from people with an STPM/ Matriculation/Diploma, making up 53 people or 34.9%. After that, 21 people or 13.8%, wrote with an SPM level. The next group of respondents was those with a Master's Degree qualification, which had 3 people, or 2.0%. The next group was those with a PhD, with only

1 respondent, or 0.7%. Last but not least, there are only 4 responders, with 2.5% in the other group, which is PMR and standard 6.

4.3.1.5 Occupation

Table 4.6 Occupation

		Frequency	Percent (%)
Valid	Student	56	36.8
	Government Sector	15	9.9
	Private Sector	58	38.2
	Self-employed	7	4.6
	Unemployed	16	10.5
	Total	152	100

Table 4.6 shows statistics about the occupations of the people who answered the survey. Most of the people who answered the question were people who work in the private sector (58 people, or 38.2%), followed by students (56 people, or 36.8%). Sixteen people, or 10.5%, said they were unemployed, and 15 people, or 9.9 %, said they were people who worked in the government sector. Lastly, 7 people, or 4.6%, said they were self-employed.

4.3.2 General Questions About Technology QR Code Menus

This section covers the respondent's knowledge and experience with QR code menus. In this part, the researcher can find out what the participant in the survey knows about QR code menus.

Table 4.7 General Question about QR code Menus

General Question about QR Code Menus		Frequency	Percentage
Do you know about QR code menus?	Yes	151	99.3
	No	1	0.7
If your answer is Yes, where you have seen the QR code menus?	Restaurant	136	90.1
	Cafe	119	78.8
	Food truck	58	38.4
	Foodcourt	70	46.4
	Fast Food Restaurant	89	58.9
Do you think QR code menus are more practical than physical menus?	Yes	124	81.6
	No	28	18.4
Do you believe QR code menus are an excellent way to gain better restaurant eating experiences?	Yes	120	78.9
	No	32	21.1
Do you be more prefer to go to a restaurant that offers menus with QR codes?	Yes	108	71.7
	No	44	28.9

Table 4.7 shows that overall, of the people who answered know about QR Code Menus, 151 (99.3%) and only 1 person (0.7%) do not know about QR code menus. Furthermore, the location that used QR code menus the highest is on restaurants 136 (90.1%), second highest café 119 (78.8%), followed by fast food restaurants 89 (58.9%), foodcourt 70 (46.4%) and the lowest food truck 58 (38.4%). Next, 124(81.6%) think that QR code menus are more practical than physical menus, but 28 people (18.4%) said no. In the question about whether QR code menus are an excellent way to have a better eating experience, 120 respondents (78.9%) agree about it, and only 32 (21.1%) disagree. For the last question, did respondents prefer to go to a restaurant that offers QR code menus, 108(71.7%) said yes, and 44(28.9%) decided to choose no.

4.3.3 Independent Variable

4.3.3.1 Attitude

Table 4.8 Descriptive Statistic Attitude

Code	Item	N	Mean	Std. Deviation
AT1	I like scanning the QR code to access the menu.	152	3.58	1.204
AT2	Scanning a QR code while reviewing the menu is brilliant method.	152	3.63	1.211
AT5	Using QR codes for ordering menus is an excellent idea	152	3.82	1.134
AT4	Using QR codes to see menus could prevent the spread of viruses.	152	4.05	1.118
AT3	Seeing menus by using QR codes can help with social distancing.	152	4.12	1.079
Overall mean			**3.84**	

Table 4.8 displays the mean and standard deviation under the first independent variable, which is attitude. The overall mean score was 3.84 for all five items. The highest

was AT3, with a 4.12 mean and 1.079 standard deviation. The second highest for the mean is AT4, which is 4.05, and the standard deviation is 1.118. Under AT5, the mean is 3.82, and the standard deviation is 1.134. The next one is AT2, which has a mean of 3.63 and a standard deviation of 1.211. AT1 had the lowest mean, at 3.58, and a standard deviation of 1.204.

4.3.3.2 Performance Expectancy

Table 4.9 Descriptive Statistic Performance Expectancy

Code	Item	N	Mean	Std. Deviation
PE4	QR code menus provide the information that I want.	152	3.55	1.161
PE3	QR code menus allow for more accurate orders.	152	3.70	1.206
PE5	QR code menus can improve the quality of service.	152	3.72	1.152
PE2	Using a QR code menu is easy.	152	3.74	1.195
PE1	QR code menus are helpful to me.	152	3.82	1.092
Overall mean			**3.71**	

Table 4.9 illustrates the mean and standard deviation for performance expectancy. After looking at all of the items, the average is 3.71. Therefore, PE1 and PE2 had the highest mean values, at 3.74 and 3.82, the standard deviation of 1.195 and 1.092, respectively. PE5, the mean is 3.72, and the standard deviation is 1.152. PE3 stated the mean is 3.70, and the standard deviation is 1.206; the lowest mean is PE4, which is 3.55, and the standard deviation is 1.161.

4.3.3.3 Effort Expectancy

Table 4.10 Descriptive Statistic of Effort Expectancy

Code	Item	N	Mean	Std. Deviation
EE1	Using QR code menu interfaces is easier.	152	3.71	1.102

EE2	QR code menus are simple to use.	152	3.78	1.097
EE5	QR code menus are used by me due to their efficiency.	152	3.85	1.138
EE3	I can quickly learn how to use QR code menus.	152	3.89	1.111
EE4	QR code menus are easy to scan even when seated.	152	4.07	1.084
Overall mean			**3.86**	

Table 4.10 presents the effort expectancy mean and standard deviation. Examining every component, the average comes out to be 3.86. Based on this, EE3 and EE4 had the greatest mean (3.89) and standard deviation values (1.111), respectively, of 4.07 and 1.084. The standard deviation is 1.138, and the mean is 3.85 for EE5. The mean and standard deviation for EE2 and EE1 are 3.78 and 1.097, respectively, with EE1 having the lowest mean and standard deviation, 3.71 and 1.102, respectively.

4.3.3.4 Social Influence

Table 4.11 Descriptive of Statistic Social Influence

Code	Item	N	Mean	Std. Deviation
SI1	I used QR code menus because of the influence of my family and friends.	152	3.32	1.176
SI2	I will use QR code menus if I see others doing so.	152	3.41	1.209
SI4	People who influence my behaviour think I should use QR code menus to order.	152	3.47	1.162
SI3	People who are important to me suggest using QR code menus	152	3.61	1.123

	for ordering is easy.			
SI5	Many people around me have positive comments on the QR code menus.	152	3.62	1.115
Overall mean		152	**3.48**	

Table 4.11 shows the descriptive statistic of independent variable social influence. The social influence variable's score for each of the five items is 3.48. With a mean of 3.32 and a standard deviation of 1.176, SI1 had the lowest values. With a mean of 3.41 and a standard deviation of 1.209, SI2 is the following. The mean and standard deviation under SI4 are 3.47 and 1.162, respectively. SI3, with a mean of 3.61 and a standard deviation of 1.123, has the second-highest mean. With a 3.62 mean and 1.115 standard deviation, SI5 had the highest value.

4.3.3.5 Facilitating Conditions

Table 4.12 Descriptive Statistic of Facilitating Conditions

Code	Item	N	Mean	Std. Deviation
FC4	I feel like using a QR code menu can speed up ordering.	152	3.88	1.145
FC1	I have internet access to access QR code menus.	152	4.04	.996
FC3	I have a QR code scanner to scan the QR code menus on my devices.	152	4.09	1.054
FC2	I have digital devices to use QR code menus.	152	4.13	1.012
FC5	I would ask a staff member for assistance if I had trouble utilizing a QR code menu.	152	4.16	.966

Overall mean	**4.06**	

Table 4.12 displays the descriptive statistics of facilitating conditions. The average mean, after evaluating every item, is 4.06. Consequently, the mean values of FC2 and FC5 were the highest, at 4.13 and 4.16, with corresponding standard deviations of 1.015 and 0.966. FC3 has a mean of 4.09 and a standard deviation of 1.054. The lowest mean, 3.88, and the lowest standard deviation, 1.145, are reported by FC4; the mean, 4.04, and the standard deviation, 0.996, are given by FC1.

4.3.4 Dependent Variable

4.3.4.1 Behavioural Intention to Use QR Code Menus Among Malaysian Consumers

Table 4.13 Descriptive Statistic of Behavioural Intention

Code	Item	N	Mean	Std. Deviation
BI4	If given the option, I will order from menus using QR codes compared to physical ones.	152	3.59	1.257
BI2	I recommend others to scan the QR code to read the menu.	152	3.78	1.192
BI5	I will continue to use the QR code in the future to see the menu.	152	3.81	1.144
BI1	I regularly use my phone to scan the QR code to view the menu.	152	3.84	1.128
BI3	I will practice reading the menu using the QR code.	152	3.85	1.096
Overall mean			**3.77**	

Table 4.13 shows the dependent variable for descriptive statistics: a behavioural intention to use QR code menus among Malaysian consumers. Across the board, the overall mean is 3.77. The mean and standard deviation of BI4 were the lowest, 3.59 and 1.257,

respectively. BI2, with a mean of 3.78 and a standard deviation of 1.192, is the next. The mean and standard deviation are 3.81 and 1.144, respectively, under BI5. With a standard deviation of 1.128, BI1 has the second-highest mean of 3.84. At 3.85 mean and 1.096 standard deviations, it was the highest.

4.4 Normality Test

The values of skewness and kurtosis for each variable may be used to determine if the data distribution is normal. A normal distribution is defined as a bell-shaped, symmetrical distribution of data with properties that serve as a standard for assessing data patterns of dispersion (James, 2016). If the test's findings indicate that most participants are in the centre and that very few are on the right or left tails, the test is deemed typical. It shows the centre data cluster and the symmetry. Skewness should range from -2 to 2 for bigger samples and from -7 to 7 for Kurtosis (Hair et al.2010). The researcher investigated normality testing using SPSS and analysed Skewness and Kurtosis.

Table 4.14 Analyse of Skewness and Kurtosis

Descriptive Statistics					
	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
ATT	152	**-1.079**	.197	**.880**	.391
PE	152	**-.781**	.197	**.208**	.391
EE	152	**-1.005**	.197	**.784**	.391
SI	152	**-.360**	.197	**-.382**	.391
FC	152	**-1.130**	.197	**1.115**	.391
BI	152	**-.758**	.197	**-.107**	.391
Valid N (listwise)	152				

Table 4.14 shows the value of Skewness and Kurtosis to test the normality of the variables. Based on Hair et al. (2010), the value of Skewness is obtained between -2 and 2. From this research, the value of Skewness is still in the range of -2 and +2. The values of Skewness and Kurtosis were within the range, indicating that all variables are normal. If any

outputs from any variables are out of the range, the variables are non-normal (Hair et al. 2010).

4.5 Pearson Correlation Analysis

The correlation coefficient would be used to determine the strength of the link between independent and dependent variables (Saunders et al., 2016). In this research paper the independent variable are attitude, performance expectancy, effort expectancy, social expectancy, facilitating conditions and the dependent variables are behavioural intention to use QR code menus.

Table 4.15 Pearson Correlation Coefficient

Correlations							
		ATT	PE	EE	SI	FC	BI
ATT	Pearson Correlation	1	.898**	.887**	.607**	.751**	.846**
	Sig. (1-tailed)		.000	.000	.000	.000	.000
	N	152	152	152	152	152	152
PE	Pearson Correlation	.898**	1	.903**	.650**	.732**	.866**
	Sig. (1-tailed)	.000		.000	.000	.000	.000
	N	152	152	152	152	152	152
EE	Pearson Correlation	.887**	.903**	1	.625**	.797**	.886**
	Sig. (1-tailed)	.000	.000		.000	.000	.000
	N	152	152	152	152	152	152
SI	Pearson Correlation	.607**	.650**	.625**	1	.614**	.694**
	Sig. (1-tailed)	.000	.000	.000		.000	.000
	N	152	152	152	152	152	152
FC	Pearson Correlation	.751**	.732**	.797**	.614**	1	.742**
	Sig. (1-tailed)	.000	.000	.000	.000		.000
	N	152	152	152	152	152	152
BI	Pearson Correlation	.846**	.866**	.886**	.694**	.742**	1
	Sig. (1-tailed)	.000	.000	.000	.000	.000	
	N	152	152	152	152	152	152
**. Correlation is significant at the 0.01 level (1-tailed).							

Table 4.15 shows the Pearson correlation coefficient analysis results between independent variables (attitude, performance expectancy, effort expectancy, social

influence, facilitating conditions) and dependent variables (behavioural intention to use QR code menus). The relationship between attitude and behavioural intention was a strong one, relationship, with an R value of 0.846 and a significance level of 0.000. Next, there was an extraordinarily strong relationship between performance expectancy and behavioural intention, as the R value represents 0.866 and a significance level of 0.000. The coefficient of effort expectancy has the greatest value with 0.886 and a significance level of 0.000, also an extraordinarily strong relationship towards behavioural intention. Besides, the relationship between social influence and behavioural intention was a strong relationship with an R value of 0.694. For the facilitating condition variables, the R values are 0.742, which means an extraordinarily strong relationship. In summary, every independent variable had a positive correlation with the dependent variable.

4.6 Variance Inflation Factor (VIF)

The Variance Inflation factor is the statistic used to measure collinearity (Saunders et al., 2016). A variance inflation factor is a tool to help identify the degree of collinearity. To determine if collinearity among the variables in this study was possible, the variance of inflation factors (VIF) was used.

Table 4.16 Variance of Inflation Factors

Coefficients'								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.583	.827		-.706	.482		
	ATT	.150	.089	.143	1.686	.094	.159	**6.299**
	PE	.196	.093	.195	2.104	.037	.133	**7.517**
	EE	.476	.098	.454	4.853	.000	.131	**7.643**
	SI	.197	.048	.188	4.075	.000	.536	**1.865**
	FC	.016	.066	.014	.240	.811	.334	**2.992**
a. Dependent Variable: BI								

Table 4.16 shows Variance Inflation Factors (VIF). Small values for the tolerance indicate the lack of collinearity. Hair et al. (2013) declare that high collinearity is shown by

a tolerance value of 0.10 or less or a VIF value of 10 or more. The values of VIF for attitude (6.299), performance expectancy (7.517), effort expectancy (7.643), social influence (1.865), and facilitating conditions (2.992) are in order. Given that the VIF value is much less than 10 (VIF < 10). Due to this analysis, multicollinearity among independent variables is not an issue.

4.7 Main Data Analysis

Regression analysis is a collection of mathematical techniques for determining and defending the magnitude of a dependent variable based on the values of one or more independent variables. Regression generates a figure that represents the practical estimate of a dependent variable from a set of independent variables. Multiple regression analysis was used to ascertain the degree and importance of the relationship between the variable attitude, performance expectancy, effort expectancy, social expectancy, facilitating conditions and the dependent variables are behavioural intention to use QR code menus.

Table 4.17 Model Summary Of Multiple Regression

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.913[a]	**.833**	.827	2.17865
a. Predictors: (Constant), FC, SI, ATT, PE, EE				

Table 4.17 shows the summary model of this study. R-squared is an essential statistic that tells how much of the variation in the dependent variable can be explained by the variation in the independent variables. R-squared usually shows the strength of the model. The multiple regression analysis model summaries showed that the R-value was positive. For multiple coefficients of regression, R = 0.913 shows that there is a strong and positive correlation between the independent and dependent variables. Consequently, the correlation coefficient (R) is higher than ± 0.70, suggesting a strong and positive relationship (Saunders et. al., 2016). Next, the value of R square is 0.833. This suggests that the behavioural intention to use QR code menus (dependent variable) is influenced by an independent

variable of 83.3%. The rest of the 16.7% is influenced by other factors or causes that were not mentioned in this research.

Table 4.18 Anova

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3456.378	5	691.276	**145.639**	.000[b]
	Residual	692.991	146	4.747		
	Total	4149.368	151			
a. Dependent Variable: BI						
b. Predictors: (Constant), FC, SI, ATT, PE, EE						

Table 4.18 indicates Anova, The purpose of Anova is to compares the means of two sets of data to look at the variance, or range, of those numbers within and between those sets (Saunders et al., 2016). The F-test value was 145.639 with a significant level of p=0.000 (p<0.05). The whole regression is a good fit for the data, and it can be concluded that there was a significant link between the independent and dependent variables based on the F-test value of 145.639, which demonstrated a higher value. It was clear that each independent variable's impact on the dependent variable was statistically significant.

Table 4.19 Coefficient Multiple Regression

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.583	.827		-.706	.482
	ATT	.150	.089	.143	1.686	.094
	PE	.196	.093	.195	2.104	**.037**
	EE	.476	.098	.454	4.853	**.000**
	SI	.197	.048	.188	4.075	**.000**
	FC	.016	.066	.014	.240	.811
a. Dependent Variable: BI						

Table 4.19 revealed the coefficient analysis of the factors affecting behavioural intention to use. This is the significant factor that effect the relationship. Firstly, the unstandardized coefficient of performance expectancy was 0.196, with a t-value of 2.104. The p-value of the performance expectancy factor is significant since $p < 0.05$. Secondly,

the unstandardized coefficient of effort expectancy was 0.476, with a t-value of 4.853. The p-value of the effort expectancy factor is significant since $p < 0.05$. Next, the unstandardized coefficient of social influence was 0.197, with a t-value of 4.075. The p-value of the social influence factor is significant since $p < 0.05$. As summary, the researcher got 3 the significant values which is performance expectancy (0.037), effort expectancy (0.000) and social influence (0.000). Meanwhile, there is no significant relationship between attitudes and facilitating conditions because the p-value is higher than 0.05. The effort expectancy has the highest beta value compare with others, so it shows that effort expectancy has the most significance factor the determinants of the behavioural intention to use QR code menus.

Based on table 4.19, the linear equation was developed as below:

Behavioural Intention to Use QR Code Menus = -0.583 + 0.196PE + 0.476EE + 0.197SI

Based on the above equation, when performance expectancy (PE), effort expectancy (EE) and social influence (SE) take values of 0, the regression intercept, which represents the anticipated value of behavioural intention to use QR code menus, takes the value –0.583. Likewise, the regression slope, or unstandardized coefficient, with values of 0.19, 0.476 and 0.197 for PE, EE and SI (independent variables), respectively, indicates the degree to which the researcher predicts behavioural intention to use QR code menus to change for an I unit increase in EE and SI.

4.8 Hypothesis Testing

A total of five hypotheses were covered, and the conclusions about their acceptance or rejection were formed. From Hypothesis 1 to Hypothesis 5, the relationship between the independent and dependent variables was examined using a statistical method known as Pearson Correlation Analysis and Multiple regression analysis.

Hypothesis 1:

H1: There is a positive relationship between attitudes towards behavioural intention to use QR code menus.

Hypothesis 1 used Multiple regression analysis and Pearson Correlation to determine. From Table 4.15 Pearson Correlation analysis showed that there is very strong relationship between attitudes and behavioural intention to use since the R-value is 0.846. Based on Table 4.16, multiple regression indicates that the p-value of the attitude factor is not significant since $p > 0.05$. The p value appears to be 0.094, which is higher than 0.05. Therefore, **the hypothesis 1 was not supported.**

Hypothesis 2:

H2: There is a positive relationship between performance expectancy towards behavioural intention to use QR code menus.

With an R-value of 0.866 from Pearson Correlation analysis Table indicates very strong relationships, the results of Table 4.19 in multiple regression indicate that the p-value of the performance expectancy factor is significant since $p < 0.05$. The p value appears to be 0.337, which is lower than 0.05. Subsequently, **the hypothesis 2 was supported.**

Hypothesis 3:

H3: There is a significant positive relationship between effort expectancy and behavioural intention to use QR code menus.

From Table 4.15 Pearson Correlation analysis showed that there is very strong relationship between effort expectancy and behavioural intention to use since the R value is 0.886. The results in Table 4.19 indicate a substantial positive link between these two variables, effort expectancy and behavioural intention to use QR code menus, with a significant value of p 0.000. The reason for the significance is the $p < 0.05$. This means that **hypothesis 3 was supported.**

Hypothesis 4:

H4: There is a significant positive relationship between social influence and behavioural intention to use QR code menus.

Table 4.15 Pearson Correlation analysis showed that there is strong relationship between social influence and behavioural intention to use when the R value is 0.846. The results in Table 4.19 indicate a strong positive link between these two variables, social influence and behavioural intention to use QR code menus, with a significant value of p 0.000. The reason for the strong significance is the $p < 0.05$. Thus, **the hypothesis 4 was supported.**

Hypothesis 5:

H5: There is a positive relationship between facilitating conditions towards behavioural intention to use QR code menus.

Table 4.15 Pearson Correlation analysis showed that there is very strong relationship between facilitating conditions and behavioural intention to use when the value is 0.846. The findings of Table 4.16 in the multiple regression analysis show that there is no significant correlation between behavioural intention to use and facilitating conditions since the significant value in the multiple regression analysis's coefficient table seems to be 0.811, which is quite high since the significant must be $p < 0.5$. As a result, **the hypothesis 5 was not supported.**

Table 4.17 Summary of Hypotheses

Research Objectives	Hypotheses	Resuls	Decision
RO1: To identify factors that could influence the behavioural intention to use QR Code Menus among	H1: There is a positive relationship between attitudes towards behavioural intention to use QR code menus.	P-value: 0.094 β value: 0.0143	Not supported

Research Objectives	Hypotheses	Resuls	Decision
Malaysian Consumers. RO2: To analyse the relationship between these factors and the behavioural intention to use QR Code Menus among Malaysian Consumers. RO3: To examine the most significance factors that could influence the behavioural intention to use QR Code Menus among Malaysian Consumers.	H2: There is a positive relationship between performance expectancy towards behavioural intention to use QR code menus.	P-value: 0.037 β value: 0.195	**Supported**
	H3: There is a significant positive relationship between effort expectancy and behavioural intention to use QR code menus.	P-value: 0.000 βvalue: 0.454	**Supported**
	H4: There is a significant positive relationship between social influence and behavioural intention to use QR code menus.	P- value : 0.000 β value: 0.188	**Supported**
	H5: There is a positive relationship between facilitating conditions towards behavioural intention to use QR code menus.	P-value: 0.811 β value: 0.014	Not supported

4.9 Summary

Overall, this research included survey questionnaires and the collection of data from 152 respondents. Several tests, including the normality test, Pearson correlation analysis, variance inflation factor, and data analysis, were used in this chapter to analyse the data that was gathered from respondents using questionnaires. The results were displayed using. tables and figures. Since SPSS software was utilised, the evaluated Questionnaires' Dependability was found to be very good. 3 hypotheses in all have been accepted because the p-value is less than 0.05, while the other 2 have been rejected because the p-value is more than 0.05. The next chapter delivers the thesis's final chapter, which serves as a conclusion and suggestions for more research.

CHAPTER 5

DISCUSSION, RECOMMENDATIONS AND CONCLUSIONS

5.1 Introduction

The results of the data analysis from Chapter 4 were discussed in this chapter. The research objectives and hypotheses that were developed in Chapters 1 and 2, respectively, were addressed by the results of the data analysis. In addition, the limitations of the study were further investigated, and this chapter's recommendations for the future were also covered in the end.

5.2 Summary of Research

This study aims to identify factors that could influence the determinants of the behavioural intention to use QR Code Menus among Malaysian Consumers. QR code menu technology has been selected as the context of the research because the QR codes are best used there because of the substantial workforce involved in the service industry. New improvements in customer service may be seen via this kind of new technology.

This research adopted Venkatesh et al. (2003) developed the unified theory of acceptance and use of technology (UTAUT) based on a collection of previous models and hypotheses used to consider technology acceptance and also adopted the theory of planned behaviour (TPB), which was developed from the concepts of multiattribute attitude (TMA) and the theory of reasoned action (TRA) (Ajzen & Fishbein, 1973), is a social-psychological theory that explains how people make behavioural decisions with the aim of understanding and forecasting individual behaviour. So, combining these two theories can answer the purpose of the study, which is to identify factors that could influence the determinants of the behavioural intention to use QR Code Menus among Malaysian Consumers. Consequently,

the research model for this study will be built using an extended of the UTAUT framework, which might provide additional insights.

In this quantitative study, 152 consumers of QR code menus who were the intended responders were given questionnaires. Statistical Packages for Social Sciences (SPSS) were used to gather and analyze the data from the respondents. Then, six analytical procedures were used to analyze to and analyze the SPSS results: reliability test, descriptive statistics analysis, normality test, Pearson correlation analysis, variance inflation factor, main data analysis, and hypothesis testing. In Chapter 4, the findings from every analysis were presented. This chapter goes on to address the study findings, implications, limitations, and recommendation in light of the outcomes.

5.3 Discussion of Main Findings

The results of the research are discussed in this section. This part outlines the demographics of the respondents before going into the research objectives' findings. The research objective and hypotheses will then be provided based on the analysis's findings. This section's accompanying discussion centres on the research's topic of study.

5.4 Discussion of Research Findings

5.4.1 Research Objective 1

Research Objective 1: To identify factors that could influence the behavioural intention to use QR Code Menus among Malaysian Consumers.

Table 5.1 Descriptive Result

Label	Construct	Main Score	Rank
SI	Social Influence	3.489	1
PE	Performance Expectancy	3.7066	2
ATT	Attitudes	3.8395	3
EE	Effort Expectancy	3.8605	4
FC	Facilitating Conditions	4.0592	5

Based on the descriptive statistic analysis findings, facilitating conditions have been shown to be the most effective variable for reaching the first objective. Based on the descriptive analysis results presented in Table 5.1, it was clear that the facilitating conditions are higher for the overall mean compared to another variable. This is due to the fact that facilitating conditions demonstrated the highest overall mean, with 4.0592. The second highest overall mean is effort expectancy because by examining every component, the average is 3.8605. The third highest is the attitude overall mean score was 3.8395 for all five items. Then, after looking at all of the items, the average of performance expectancy is 3.7066, The lowest overall mean for the construct social influence for the five items is 3.489.

The result has been proven by Rita (2020), where the facilitating conditions and behavioural intention to use are significantly and favourably correlated. The accessibility of these materials includes the availability of auxiliary infrastructures, including mobile device usability, Internet connectivity, and file sizes that impact access speed. There is a great chance that more people will use technology. Besides, Ahmed Shuhaiber (2016) claimed that, facilitating conditions could act as an adoption enabler if available resources and facilities are adequate, and accordingly individuals may exhibit positive attitudes toward the use of virtual lectures. Conversely, facilitating conditions could lead to negative attitudes towards virtual lectures should those conditions are not found satisfying to users.

Therefore, the most important factor is facilitating conditions because they can expedite the ordering process. Customers no longer have to wait for a waiter or waitress to collect their order; instead, they can submit their order using QR code menus, and the order can be accessed in the kitchen. Hence, facilitating conditions is the factors that could influence the behavioural intention to use QR Code Menus among Malaysian Consumer.

5.4.2 Research Objective 2

Research Objective 2: To analyse the relationship between these factors and the behavioural intention to use QR Code Menus among Malaysian Consumers.

Hypothesis 1 : There is a positive relationship between attitudes towards behavioural intention to use QR code menus.

Based on the data findings in Chapter 4, Hypothesis 1 used Pearson Correlation, Multiple regression analysis and multicollinearity. The result of Table 4.15 in Pearson Correlation analysis showed that attitude and behavioural intention had a very strong relationship, with an R-value of 0.846. Next, table 4.19 in multiple regression indicates that there is no significant relationship between attitude and behavioural intention to use. The significant value in coefficient table of Multiple Regression analysis appears to be 0.094 which is higher than 0.05. Therefore, the hypothesis 1 result from the previous chapter was not supported.

Based on previous research by Yang et al. (2017), attitude is used to integrate theory to grasp the benefits of QR codes for consumers. Certain attitudes can impact a person's purpose in acting. Also, supported by (Mantik J. 2022), The higher the benefits of using QR codes when looking at restaurant menus, the more likely someone will have a favourable attitude toward their use. This is done to prevent the spread of Covid 19. A previous study has shown that an optimistic attitude increases a person's behavioural intention to use (Wu, 2020; Yang et al., 2017).

This result was inconsistent with the previous study by Zhang et al. (2020), which found that response efficacy and self-efficacy influence a person's attitude towards embracing technology. The ease of use of the programme led someone to conclude that they could pick it up. When reading the menu, the application offers other advantages. For example, the user may see the menu and make an order by using a smartphone to scan a QR code. A user's Choice to utilise an application is influenced by its advantages and convenience (Yang et al., 2017).

However, the result suggested attitude does not influence a person's attitude towards embracing technology. As evidence, 70.4 % of the respondents in this research were female, and 29.6 % were male. There were more female responses than male responders. Therefore, these research findings show gender inequalities may occur in certain attitudes. Chang et al. (2021) also said attitude becomes a crucial term containing positive or negative experiences.

Hypothesis 2: There is a positive relationship between performance expectancy towards behavioural intention to use QR code menus.

Regarding the data results in Chapter 4, With an R-value of 0.866, the results of Table 4.15's Pearson Correlation analysis demonstrated a very significant association between attitude and behavioural intention. Next, table 4.19 in multiple regression indicates that there is significant relationship between performance expectancy and behavioural intention to use as the significant value in the coefficient table of Multiple Regression analysis appears to be 0.037, which is lower than 0.05. As a consequence, the preceding chapter's hypothesis 2 finding was supported.

Following earlier studies published by Huang and Kao (2015), they discovered that PE is the most powerful determinant of an individual's behavioural intention to use a tablet. In consumer e-commerce travel acceptance research, performance expectancy has been a powerful predictor (Garg, A., 2019).

This outcome similar the findings of the earlier research by Garg (2019), who found that performance expectancy greatly impacts customers when deciding to use a tablet-based menu ordering system. Previous research (Ayeh, Leung, Au, & Law, 2012; Okumus et al., 2018) has proven performance expectancy to be a key determinant of technology utilization in tourism contexts.

Hypothesis 3: There is a significant positive relationship between effort expectancy and behavioural intention to use QR code menus.

As shown in Table 4.15 of the Pearson Correlation analysis, effort expectancy and behavioural intention to use have a strong positive correlation because of the correlation value of 0.886. Through the use of multiple regression analysis, the results shown in Table 4.19 indicate a substantial positive link between the two variables, with a significant value of 0.000. This means that hypothesis 3 was supported.

Garg A (2019) said that effort expectancy positively influences customer behavioural intention to use tablets; customers are more likely to adopt a system if they perceive it is

more adaptable and straightforward (Amaro & Duarte, 2013). As new behaviours develop, effort-oriented modifications are anticipated to become less noticeable as instrumental concerns take precedence (Davis, 1989; Venkatesh, 1999; Venkatesh et al., 2003). For this research, Effort expectancy is a highly significant factor in influencing intention to use.

This outcome is similar to the research study by Baptista and Oliveira (2015) and Zhou et al. (2010); the effort expectancy results are consistent with the findings of earlier research. This may be because customers find it extremely simple to use and quickly adapt to the expanded usage of additional mobile technology. This may be because customers find it extremely simple to use and quickly adapt to the expanded usage of additional mobile technology.

Hypothesis 4: There is a significant positive relationship between social influence and behavioural intention to use QR code menus.

The Pearson Correlation analysis is shown in Table 4.15. The correlation value of 0.694 indicates a significantly strong relationship between social influence and behavioural intention to use. With a significant value of 0.000, the results of the multiple regression analysis shown in Table 4.19 demonstrate a robust positive relationship between the two variables. Thus, hypothesis 4 was supported.

Garg A (2019) claimed that Social Influence positively influences customer Behavioural Intention to use tablet menus. A person's internalization of the subjective culture of the social system is referred to as a social factor (Huang & Kao, 2015). The image reflects how much a person believes using a cutting-edge invention would improve his standing in a social organization (Huang & Kao, 2015).

This result is similar to Garg, A. (2021) research, these were the social influence factors that were found to be more important than the performance expectancy and effort expectancy used in this study. This most probably can allow users to share menu items with their family and friends.

Hypothesis 5: There is a positive relationship between facilitating conditions towards behavioural intention to use QR code menus.

The findings of Table 4.15's Pearson Correlation analysis showed a very significant correlation between facilitating conditions and behavioural intention, with an R-value of 0.742. Next, table 4.19 in the multiple regression analysis shows that there is no significant correlation between behavioural intention to use and facilitating conditions since the significant value in the multiple regression analysis's coefficient table seems to be 0.811, which is quite high. As a result,about the hypothesis 5 was not supported.

Garg A (2019) confirmed the role of facilitating conditions in people's technology-related behaviours, and the conclusions of these studies demonstrated that Facilitating conditions significantly affects both actual technology use and behavioural intentions to apply technologys.

But this research goes against what Garg (2019) said about facilitating conditions in individuals' behaviours towards technology, and the results of these studies recognised and reinforced that facilitating condition has a significant impact on actual usage and behavioural intentions to apply technology.

Even so, customers' behavioural intentions were unaffected by facilitating conditions. This might be because of the occupation; the people who answered the question were people who work in the private sector (58 people), just 2 people different from students (56 people). 16 people said they were unemployed, and 15 said they worked in the government sector. Lastly, 7 people said they were self-employed. This occupation can significantly impact the affordability of devices and internet access, creating a major barrier for low-income populations, as students are the second-highest respondents.

5.4.3 Research Objective 3

Research Objective 3: To examine **the most significant** factors that could influence the behavioural intention to use QR Code Menus among Malaysian Consumers.

Based on the Beta value and a significant value in Multiple Regression analysis, the main factor that affects behavioural intention to use has been found. The findings showed that consumers believe effort expectancy factors contribute the most to the behavioural intention to use, followed by social influence—performance expectancy, attitude and facilitating conditions. The unstandardised β value for effort expectancy was 0.476, which is very high and significant at 0.000. The researchers agreed that effort expectancy should be the first thing people think about when using QR code menus.

The effort expectancy results are consistent with other research findings (Baptista & Oliveira, 2015; Zhou et al., 2010). This might be because of the complex application of new mobile technologies, which users find very simple and quickly adapt to. In our nation, people are becoming more used to technology. Therefore restaurants would benefit from investing in this sort of equipment. The system will not only address labour expenses, poor service, hesitant clients, and wait times, but it will also act as a declaration of purpose for restaurants to stay updated with technological advancements to satisfy their customers' needs and expectations (Garg, 2019). Based on their study's findings, looking at the overall results on the state of respondents' behavioural intention towards the system, this ordering system can be a success or a big hit in the future (Antunes, 2016).

This finding most likely reflects age demographics since it shows that Generation Z and Y comprise the majority of research respondents. Based on the age group demographic profile, slightly 100 people of the sample were Gen Z, born between 1997 and 2012, and 34 people were Generation Y, born between 1981 and 1996. Prensky (2016) explained that those exposed to modern digital tools at ung age and were born after the 1980s have different technical skills than the last generation because they grew up in a world with lots of new technology.

This is because young people are very good at learning and using new tools because they grew up with the internet and technology that is constantly changing. Seymor (2019) brought up in a world of tremendous technical advancements and developments between 1997 and 2012, gen Z are the first generation to grow up digitally. Those who are either on social media or entered adulthood with the emergence of cell phones, social media, and immediate access to information are not like them. Regarding technology usage and

dependence, Generation Z is emerging as the digital shepherd of a new era. They are probably more inclined than their grandparents to embrace and use technology like their counterparts in other nations (Jason, 2022).

Based on the literature, effort expectancy is defined as the "degree of ease/effort associated with consumers' use of the technology" (Venkatesh et al., 2003; Venkatesh, Thong, & Xu, 2012). Rogers (2003), added complexity is the degree to which a person observes an advanced technology as moderately challenging to utilize and recognise. Rogers (2003) also said that the more advanced technology is complex, the more adversely its influence on its acknowledgement.

Furthermore, a person who intends to utilize QR codes because they have a favourable view of the technology. The effort expectancy can be formed because the application provides numerous benefits, is simple to use, and eliminates the risk of Covid 19 transmission (Wong, 2020). The easiest information regarding the usage of QR codes even the person can order by sitting will improve a person's behavioural intention to use them (2020), Yang et al. (2017), and Wu (2020). Hence, the effort expectancy is the most significant factor to answer of this research objective 3.

5.6 Research Contributions

Based on the research results of this study, reliable facts support every theory presented in the preceding chapter. The study's findings may be extensively used and essential to persons or organisations connected conceptually and practically. As an academic contribution, this work may serve as a reference for future technology management research, providing further information via comprehension. In the meantime, this research might be helpful for managers and company owners to decide whether or not to adopt and use this QR code menu technology in their businesses.

5.6.1 Academic Contributions

The Unified Theory of Acceptance and Use of Technology (UTAUT) model developed by Venkatesh et al. (2003) and the Theory of Planned Behaviour (TPB) were expanded by the researchers in this study research article in order to adapt and evaluate the

technology acceptance model. Performance expectancy, effort expectancy, social influence, facilitating conditions, and the addition of attitudes from the TPB framework make up the UTAUT construct. Therefore, it will added to the literature in the body of knowledge in technology management research.

Academic research such as this thesis has contributed to academics' understanding of innovation processes and factors influencing the adoption and diffusion of new technologies. Researchers looked at innovation, technology transfer, and adoption models to guide organisations' methods for introducing and adopting new technologies guide organisations' methods.

Students may also gain a lot of knowledge by researching others' opinions a lot of knowledge by researching the opinions of others on QR code selections. It enables them to learn more about a particular subject within the larger context of how people behave as consumers and utilise technology. Students develop their critical thinking, problem-solving, and information-analysis skills through study. These are useful abilities in the industry and the classroom.

5.6.2 Practical Contribution

The results of the research would have provided practitioners with useful details on users' preferences and methods of using QR code options. Managers and company owners may have chosen to adopt and utilise QR codes in their establishments if they had known what factors influence customers to accept and use this technology. With this knowledge, companies may modify their system ordering and offerings to better serve their clients' demands and enhance their overall dining experience.

First, this study suggests that restaurant managers and business owners learn more from the study's findings and develop an implementation plan to continue using QR code menus for taking orders. This is because using QR code menus allows instantaneous, remote updating, which ensures accuracy and reflects changes in pricing or availability.

In this context, the research results about the significant factors influencing behavioural intention to use QR code menus is effort expectancy can also be useful to those

who develop software and designers for QR code menus. By doing so, they can enhance user interfaces and provide visible signage, thereby adding user value. Thus, it is possible to positively impact QR code menus to help developers set standards for the technology that will make it effective.

Since the majority of research participants were members of Generation Z, who are known to be interested in new technologies, effort expectancy was found to be the most significant factor that could influence behavioural intention to use QR code menus. This suggests that developers of QR code menus should increase their focus on positive reviews about their interface in order to leverage social proof and attract in new users.

Nonetheless, this study additionally points to some detrimental impacts of technology on the researcher. For example, older people could find it more comfortable to utilize traditional menus rather than QR code menus, and they might not be as familiar with smartphones or QR codes as younger generations.

5.7 Limitations of Research

This research was carried out to investigate QR code menus. QR code menus provide a new viewpoint to the collection of current knowledge. While the research journey and effort were valuable in gaining a deeper understanding of all the variables influencing the behavioural intention to use QR code menus, there were limitations as well.

The first limitation is the limited amount of time available for data collection and processing was the main research study limitation. The research encountered difficulties acquiring the whole data within the designated period due to temporal limitations. This is because, based on calculations made by Raosoft, Inc., a sample size of 385 participants was necessary for this research. Despite the time constraint, only 152 respondents were gathered for the study.

Secondly, secondary data sources are hard to access because they are not open to the public and cost money to get the whole record. Trouble that the the secondary data is not open to the public and can only be accessed by a limited number of people. This may limit

how complete the study is. The problem comes up when the researcher wants to write up for the research background and literature review. The website requires the reader to pay to read the paper.

Next, it is essential for people to be honest when filling out the questionnaire; some may not say what is going on to give a proper answer. This might due to, responses that don't fully represent the participants' actual experiences or ideas may result from fear of being judged or a desire to show oneself in a positive light.

5.8 Recommendations for Further Research

Use purposive sampling to select important participants while making the most use of limited time and resources, or investigate more strategic sampling strategies that concentrate on specific demographic subgroups. Plus, purposive sampling also good to improve current research context of theory and method. Since the population of Malaysia comprises the sample, the research scope is broad and massive due to the vast population. The following researcher may reduce the sample size by focusing primarily on the Klang Valley or any other state with a tiny population.

Look into the potential for creating data-sharing agreements with the universities or entities that own the data. Even if they are not students, prospective researchers may be there; prospective researchers may nonetheless attempt to get study materials from the university library and browse their websites.

Finally, researchers in the future may develop fresh assessment techniques that reduce the possibility of social desirability bias. This may include evaluating attitudes or behaviours using implicit or indirect metrics instead of relying as opposed to depending only on self-reporting.

5.9 Conclusion

This research fills a knowledge gap about the determinants of the behavioural intention to use QR code menus. To create theoretical research frameworks and hypotheses based on modifying the TPB model and UTAUT theory's components. By empirically testing the hypotheses, this study seeks to answer the research questions and accomplish the research objective.

The results identify the variable as the most significant factor that could influence the behavioural intention to use QR Code Menus among Malaysian Consumers. This study's Multiple Regression analysis revealed that, compared to other factors, the effort expectancy variables significantly influenced the behavioural intention to use. So, by this result the research objective 3 is achieved.

Furthermore, business owners should consider facilitating conditions as the variable is the most effective for achieving the first objectivethe variable is the most effective for achieving the first objective, business owners should consider facilitating conditions. As a result, every objective and question raised by the research has been answered. Plus, the researcher has recognised the limitations of the data collecting and in conducting this research. Besides, to provide more confidence in the findings, the researcher also made some helpful recommendations for further research. The study's contribution will function to spark interest in this field and encourage the use of QR codes on menus in the food and beverage industries.

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APPENDIX A

List Of Questionnaires

DETERMINANTS OF THE BEHAVIOURAL INTENTION TO USE QR CODE MENUS AMONG MALAYSIAN CONSUMERS

PENENTU NIAT TINGKAH LAKU UNTUK MENGGUNAKAN MENU KOD QR DI KALANGAN PENGGUNA DI MALAYSIA

Dear Sir/Madam,

I am Nur Hanisah Binti Hassan, a final year student pursuing a Bachelor of Technology Management (Technology Innovation) with Honours at Universiti Teknikal Malaysia Melaka (UTeM). I am conducting a research on "Determinants of the behavioural intention to use QR code menus among Malaysian consumers". This research will serve to guide the researcher with factors that could influence the behavioural intention to use QR code menus among Malaysian consumers. The inputs are necessary for the analysis to proceed.

It will take 5 to 10 minutes to complete the following questions. It would be very appreciated if you could answer this question with sincerity and compassion. Please be informed that the data collected for this research will be kept private and used exclusively for academic reasons. I appreciate your cooperation and important time. If you have any further questions, please do not hesitate to get in touch with me.

Yours Sincerely,
Name: Nur Hanisah Binti Hassan
Course: Bachelor of Technology Management (Technology Innovation) with honours
Email: b062010405@student.utem.edu.my

Supervisor: Dr. Johanna binti Abdullah

JaafarEmail: johanna@utem.edu.my
Address: Faculty of Technology Management and Technopreneurship, Universiti TeknikalMalaysia Melaka, 76100 Hang Tuah Jaya, Melaka.

Tuan/Puan yang dihormati,

Saya Nur Hanisah Binti Hassan merupakan pelajar tahun akhir bagi kursus Ijazah Sarjana Muda Pengurusan Teknologi (Teknologi Inovasi) dengan kepujian dari Universiti Teknikal Malaysia Melaka (UTeM). Saya sedang menjalankan penyelidikan mengenai topik "Penentuan niat tingkah laku untuk menggunakan menu kod QR dalam kalangan pengguna di Malaysia". Penyelidikan ini akan menjadi panduan kepada pengkaji tentang faktor-faktor yang mempengaruhi niat tingkah laku menggunakan menu kod QR dalam kalangan pengguna di Malaysia. Input adalah penting untuk meneruskan analisis.

Ia akan mengambil masa 5 hingga 10 minit untuk menyelesaikan soalan ini. Saya amat menghargai sekiranya anda dapat menjawab soalan ini dengan penuh keikhlasan dan belas kasihan. Untuk pengetahuan, data yang dikumpul untuk penyelidikan ini akan dirahsiakan dan digunakan secara eksklusif untuk tujuan akademik. Saya menghargai kerjasama dan masa yang diberikan oleh anda. Jika anda mempunyai sebarang pertanyaan lanjut, jangan teragak-agak untuk menghubungi saya.

Yang Ikhlas,

Nama: Nur Hanisah Binti Hassan

Kursus: Ijazah Sarjana Muda Pengurusan Teknologi (Teknologi Inovasi) dengan kepujian
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JaafarEmail: johanna@utem.edu.my
Alamat: Fakulti Pengurusan Teknologi dan Teknousahawanan, Universiti TeknikalMalaysia Melaka, 76100 Hang Tuah Jaya, Melaka.

SECTION A: DEMOGRAPHIC BACKGROUND
BAHAGIAN A: LATAR BELAKANG DEMOGRAFI

Please mark (/) the appropriate answer.
Sila tandakan (/) jawapan yang sesuai.

1. Gender
   Jantina

Male ☐
Lelaki

Female ☐
Perempuan

2. Age group.
   Kumpulan umur.

Baby Boomer (born 1946-1964) ☐
Baby Boomer (lahir 1946-1964)

Generation X (born 1965-1980) ☐
Generasi X (lahir 1965-1980)

Generation Y/Millennial (born 1981-1996) ☐
Generasi Y/Milenium (lahir 1981-1996)

Generation Z (born 1997-2012) ☐
Generasi Z (lahir 1997-2012)

3. Race.
   Bangsa

Malay ☐
Melayu

Chinese ☐
Cina

Indian ☐
India

Others races: ☐

_____

Kaum lain: _____

4. Highest education.
Pendidikan tertinggi.

SPM ☐
SPM
STPM/Matriculation/Diploma ☐
STPM/Matrikulasi/Diploma
Bachelor's Degree ☐
Ijazah Sarjana Muda
Master's Degree ☐
Ijazah Sarjana
PhD (Doctorate) ☐
PhD (Kedoktoran)
Others category: _____ ☐
Kategori lain: _____

5.Occupation.
Pekerjaan.

Student ☐
Pelajar
Government Sector ☐
Sektor Kerajaan
Private Sector ☐
Sektor Swasta
Self-Employed ☐
Bekerja Sendiri
Unemployed ☐
Tidak Bekerja

SECTION B: GENERAL QUESTIONS ABOUT TECHNOLOGY QR CODE MENUS

BAHAGIAN B: SOALAN UMUM MENGENAI TEKNOLOGI MENU KOD QR

A QR code menu is a digital alternative to a physical menu that can be accessed by scanning it with a smartphone. When a QR code is scanned, it brings the user to a particular website where they may place their order without having to wait for staff alerts.

Menu kod QR ialah alternatif digital bagi menu fizikal yang boleh diakses dengan mengimbasnya dengan telefon pintar. Apabila kod QR diimbas, ia membawa pengguna ke laman web tertentu di mana mereka boleh membuat pesanan tanpa perlu menunggu pemantauan dari pekerja.

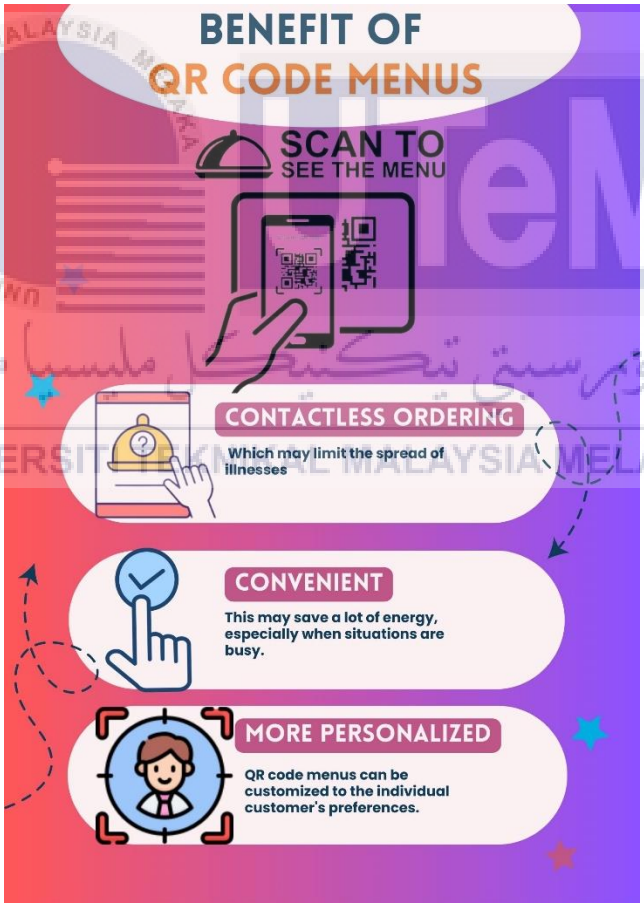

Figure 1: Benefits of QR code menus

Rajah 1: Kepentingan menu kod QR

Please mark the box with (/) at the appropriate answer in the list below.

Sila tandakan kotak dengan (/) pada jawapan yang sesuai dalam senarai di bawah.

1. Do you know about QR code menus?
Adakah anda mengetahui tentang menu kod QR?

Yes. ☐
Ya.
No. ☐
Tidak.

2. If your answer is Yes, where you have seen the QR code menus?
Jika jawapan anda Ya, di manakah anda pernah lihat menu kod QR?

Restaurant ☐
Restoran

Cafe ☐
Kafe

Food truck ☐
Lori makanan

Food court ☐
Medan selera

Fast food Restaurant ☐
Restoran makanan segera

3. Do you think QR code menus are more practical than physical menus?
Adakah anda fikir menu kod QR lebih praktikal daripada menu secara fizikal?

Yes. ☐
Ya.

No. ☐
Tidak.

4. Do you believe QR code menus are an excellent way to gain better restaurant eating experiences?
Adakah anda percaya menu kod QR ialah platform terbaik untuk mendapatkan pengalaman makan di restoran?

Yes.

Ya. ☐

No. ☐
Tidak.

5. Do you be more prefer to go to a restaurant that offers menus with QR codes?
Adakah anda lebih memilih untuk pergi ke restoran yang menawarkan menu dengan kod QR?

Yes. ☐
Ya.

No. ☐
Tidak.

SECTION C: FACTORS THAT INFLUENCE THE BEHAVIOURAL INTENTION TO USE QR CODE MENUS AMONG MALAYSIAN CONSUMERS

BAHAGIAN C: FAKTOR YANG MEMPENGARUHI NIAT TINGKAH LAKU MENGGUNAKAN MENU KOD QR DALAM KALANGAN PENGGUNA DI MALAYSIA

This section C describes the factors influencing a person's decision to use and continue using QR code menus. The following statements below depict to measure of attitude, performance expectancy, effort expectancy, social influence, and facilitating conditions. Using a 5-point Likert Scale, respondents must rate each item according to how strongly they disagree, disagree, neutral, agree or strongly agree about it. If you agree or disagree with the following statement, please tick with (/) on the box to each question.

Bahagian C ini menerangkan faktor yang mempengaruhi keputusan seseorang untuk menggunakan dan terus menggunakan menu kod QR. Pernyataan di bawah menggambarkan untuk mengukur sikap, jangkaan prestasi, jangkaan usaha, pengaruh sosial, keadaan memudahkan. Menggunakan Skala Likert 5 mata, responden mesti menilai setiap item mengikut sejauh mana mereka sangat tidak bersetuju, tidak bersetuju, neutral, bersetuju atau sangat bersetuju mengenainya. Jika anda bersetuju atau tidak bersetuju dengan pernyataan berikut, sila tandakan dengan (/) dalam kotak di setiap soalan.

Score *Skor*	**1**	**2**	**3**	**4**	**5**
Scale *Skala*	Strongly Disagree *Sangat Tidak Setuju*	Disagree *Tidak Setuju*	Neutral *Neutral*	Agree *Setuju*	Strongly Agree *Sangat Setuju*

FACTORS: ATTITUDE
FAKTOR: SIKAP

The level of feelings that can manipulate the user to use QR code menus.
Tahap sikap perasaan yang boleh memanipulasi pelanggan untuk menggunakan menu kod QR.

Label *Label*	Items *Item*	**1**	**2**	**3**	**4**	**5**
AT1	I like scanning the QR code to access the menu. *Saya suka mengimbas kod QR untuk mengakses menu.*					
AT2	Scanning a QR code while reviewing the menu is brilliant method. *Mengimbas kod QR semasa menyemak menu adalah kaedah terbaik.*					
AT3	Seeing menus by using QR codes can help with social distancing. *Melihat menu dengan menggunakan kod QR boleh membantu dengan penjarakan sosial.*					
AT4	Using QR codes to see menus could prevent the spread of viruses. *Menggunakan kod QR untuk melihat menu boleh menghalang penyebaran virus.*					
AT5	Using QR codes for ordering menus is an excellent idea. *Menggunakan kod QR untuk memesan menu adalah idea yang sangat baik.*					

FACTORS: PERFORMANCE EXPECTANCY
FAKTOR: JANGKAAN PRESTASI

The level to which using QR code menus will benefit the user in performing certain activities.
Tahap menggunakan menu kod QR akan memberi manfaat kepada pengguna dalam melakukan aktiviti tertentu

Label *Label*	Items *Item*	**1**	**2**	**3**	**4**	**5**
PE1	QR code menus are helpful to me. *Menu kod QR sangat membantu saya.*					
PE2	Using a QR code menu is easy. *Menggunakan menu kod QR adalah mudah.*					
PE3	QR code menus allow for more accurate orders. *Menu kod QR membolehkan pesanan yang lebih tepat.*					
PE4	QR code menus provide the information that I want. *Menu kod QR menyediakan maklumat yang saya mahukan.*					
PE5	QR code menus can improve the quality of service. *Menu kod QR boleh meningkatkan kualiti perkhidmatan.*					

FACTORS: EFFORT EXPECTANCY
FAKTOR: JANGKAAN USAHA

The level of ease that consumers experience with QR code menus
Tahap kemudahan yang dialami pengguna dengan menu kod QR

Label *Label*	Items *Item*	**1**	**2**	**3**	**4**	**5**
EE1	Using QR code menu interfaces is easier. *Menggunakan antara muka menu kod QR adalah lebih mudah.*					
EE2	QR code menus are simple to use. *Menu kod QR mudah digunakan.*					
EE3	I can quickly learn how to use QR code menus. *Saya boleh belajar dengan cepat cara menggunakan menu kod QR.*					
EE4	QR code menus are easy to scan even when seated. *Menu kod QR mudah diimbas walaupun semasa duduk.*					
EE5	QR code menus are probably used by me due to their efficiency. *Menu kod QR mungkin digunakan oleh saya kerana kecekapannya.*					

FACTORS: SOCIAL INFLUENCE
FAKTOR: PENGARUH SOSIAL

The level to which a person believes significant people think they should use QR code menus.
Tahap di mana seseorang percaya orang penting berpendapat mereka harus menggunakan menu kod QR.

Label *Label*	Items *Item*	**1**	**2**	**3**	**4**	**5**
SI1	I used QR code menus because of the influence of my family and friends. *Saya menggunakan menu kod QR kerana pengaruh keluarga dan rakan saya*					
SI2	I will use QR code menus if I see others doing so. *Saya akan menggunakan menu kod QR jika saya melihat orang lain berbuat demikian.*					
SI3	People who are important to me suggest using QR code menus for ordering is easy. *Orang yang penting bagi saya mencadangkan menggunakan menu kod QR untuk membuat pesanan adalah mudah.*					
SI4	People who influence my behaviour think I should use QR code menus to order. *Orang yang mempengaruhi tingkah laku saya berpendapat saya harus menggunakan menu kod QR untuk memesan.*					
SI5	Many people around me have positive comments on the QR code menus. *Ramai orang di sekeliling saya mempunyai komen yang positif tentang menu kod QR.*					

FACTORS: FACILITATING CONDITIONS
FAKTOR: KEADAAN YANG MEMUDAHKAN

The level to which a person thinks that the technology required is in place to enable the usage of QR code menus.
Tahap di mana seseorang berfikir bahawa teknologi yang diperlukan telah tersedia untuk membolehkan penggunaan menu kod QR.

Label *Label*	Items *Item*	**1**	**2**	**3**	**4**	**5**
FC1	I have internet access to access QR code menus. *Saya mempunyai akses internet untuk mengakses menu kod QR.*					
FC2	I have digital devices to use QR code menus. *Saya mempunyai peranti digital untuk menggunakan menu kod QR.*					
FC3	I have a QR code scanner to scan the QR code menus on my devices. *Saya mempunyai pengimbas kod QR untuk mengimbas menu kod QR pada peranti saya.*					
FC4	I feel like using a QR code menu can speed up ordering. *Saya rasa dengan menggunakan menu kod QR boleh mempercepatkan pesanan.*					
FC5	I would ask a staff member for assistance if I had trouble utilizing a QR code menu. *Saya akan meminta bantuan daripada pekerja jika saya menghadapi masalah menggunakan menu kod QR.*					

SECTION D: BEHAVIOURAL INTENTION TO USE QR CODE MENUS AMONG MALAYSIAN CONSUMERS
BAHAGIAN D: NIAT TINGKAH LAKU UNTUK MENGGUNAKAN MENU KOD QR DALAM KALANGAN PENGGUNA DI MALAYSIA

The individual willingness to use QR code menus.
Kesediaan individu untuk menggunakan menu Kod QR.

Label *Label*	Items *Item*	**1**	**2**	**3**	**4**	**5**
BI1	I regularly use my phone to scan the QR code to view the menu. *Saya kerap menggunakan telefon saya untuk mengimbas kod QR untuk melihat menu.*					
BI2	I recommend others to scan the QR code to read the menu. *Saya mengesyorkan agar orang lain mengimbas kod QR untuk membaca menu.*					
BI3	I will practice reading the menu using the QR code. *Saya akan berlatih membaca menu menggunakan kod QR.*					
BI4	If given the option, I will order from menus using QR codes compared to physical ones. *Jika diberi pilihan, saya akan memesan dengan menu menggunakan kod QR berbanding menu fizikal.*					
BI5	I will continue to use the QR code in the future to see the menu. *Saya akan terus menggunakan kod QR pada masa hadapan untuk melihat menu.*					

APPENDIX B

Overall Mean Score

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
AT1	152	1	5	3.58	1.204
AT2	152	1	5	3.63	1.211
AT3	152	1	5	4.12	1.079
AT4	152	1	5	4.05	1.118
AT5	152	1	5	3.82	1.134
BI1	152	1	5	3.84	1.128
BI2	152	1	5	3.78	1.192
BI3	152	1	5	3.85	1.096
BI4	152	1	5	3.59	1.257
BI5	152	1	5	3.81	1.144
EE1	152	1	5	3.71	1.102
EE2	152	1	5	3.78	1.097
EE3	152	1	5	3.89	1.111
EE4	152	1	5	4.07	1.084
EE5	152	1	5	3.85	1.138
FC1	152	1	5	4.04	0.996
FC2	152	1	5	4.13	1.012
FC3	152	1	5	4.09	1.054
FC4	152	1	5	3.88	1.145

att mean 3.84 bi mean 3.77 ee mean 3.86 fc mean 4.06 pe mean 3.71 si mean 3.48

Turnitin Percentage