ADOPTION OF SELF-SERVICE TECHNOLOGY (SSTs) TOWARDS CUSTOMER SPENDING BEHAVIOUR

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A final year project submitted in partial fulfilment of the requirement for the degree of

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DECLARATION

We hereby declare that:

(1) This undergraduate FYP is the end result of our own work and that due acknowledgement has been given in the references to ALL sources of information be they printed, electronic, or personal.

(2) No portion of this FYP has been submitted in support of any application for any other degree or qualification or any university, or other institutes of learning.

(3) Equal contribution has been made by each group member in completing the FYP.

(4) The word count of this research report is 15726 words.

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LIST OF ABBREVIATIONS

ATM	Automated Teller Machine
AVE	Average Variance Extracted
CSB	Consumer Spending Behaviour
Covid-19	Coronavirus Disease
C-TPB-TAM Acceptance	Combined Theory of Planned Behaviour/Technology
DD	Dining Duration
E-menu	Electronic Menu
ERP	Enterprise Resource Planning
F&B	Food and Beverage
HTMT	Heterotrait-monotrait
IDT	Innovation Diffusion Theory
I.R 4.0	Industrial Revolution 4.0
MCO	Movement Control Order
MPCU	Model of PC Utilization
PEOU	Perceived Ease of Use
PLS-SEM	Partial Least Square Structural Equation Modelling
POS	Point of Scale
PU	Perceived Usefulness
SCT	Social Cognitive Theory
SMEs	Small-medium Enterprise
SSTs	Self-service Technology
TAM	Technology Acceptance Model
TC	Technology Compatibility

TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
UTAUT	Unified Theory of Acceptance and Use of Technology

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PREFACE

This research is submitted for the purpose to fulfil the requirement in pursuing the course of Bachelor of Finance (HONS) in Universiti Tunku Abdul Rahman under supervision of Dr. Kuah Yoke Chin. Self-Service Technology (SSTs) is considered as a new way to service and satisfy the customer demand in restaurant. This research targets whole Malaysia in understanding the adoption of self-service technology (SSTs) towards customer spending behaviour.

To achieve the research purpose, this research has chosen four independent variables which are perceived ease of use, perceived usefulness, technology compatibility and dining duration. This research aims to understand the relationship between the independent variable, which is customer spending behaviour.

ABSTRACT

This research studies the relationship between perceived ease of use, perceived usefulness, technology compatibility, dining duration and consumer spending behaviour. The target respondents for this study is 400 people who have visited, still visiting or might visit the self-service technology-based restaurants in Malaysia. To execute this study, five statistic results were taken into account which were cronbach's alpha, composite reliability, average variance extracted, discriminant validity as well as hypothesis testing. Furthermore, the Partial Least Squares Structural Equation Modelling (PLS-SEM) had been conducted in this study. The results show that there is an insignificant relationship between perceived ease of use, perceived usefulness, technology compatibility, dining duration and consumer spending behaviour. This study is providing a wide knowledge regarding the rising self-service technology-based restaurants in Malaysia and its benefits to the society such as restaurants consumers, restaurants owners, policy makers and also government of Malaysia

CHAPTER 1: RESEARCH OVERVIEW

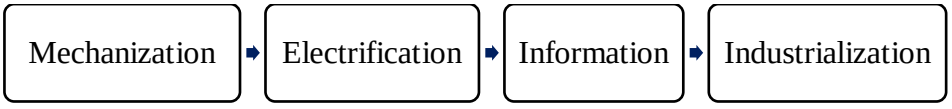
1.0 Introduction

The first chapter will be presenting an outline for this research paper that help to understand the adoption of Self-Service Technology (SSTs) towards customer spending behaviour at restaurant. There are seven components will be discussing including research background, problem statement, research questions, research objectives, hypotheses of the research, importance of the research and chapter layout.

1.1 Research Background

1.1.1 Industrial Revolution 4.0

Figure 1.1.1: The stages of Industrial Revolution



Source: (Zhou, Liu & Zhou, 2016).

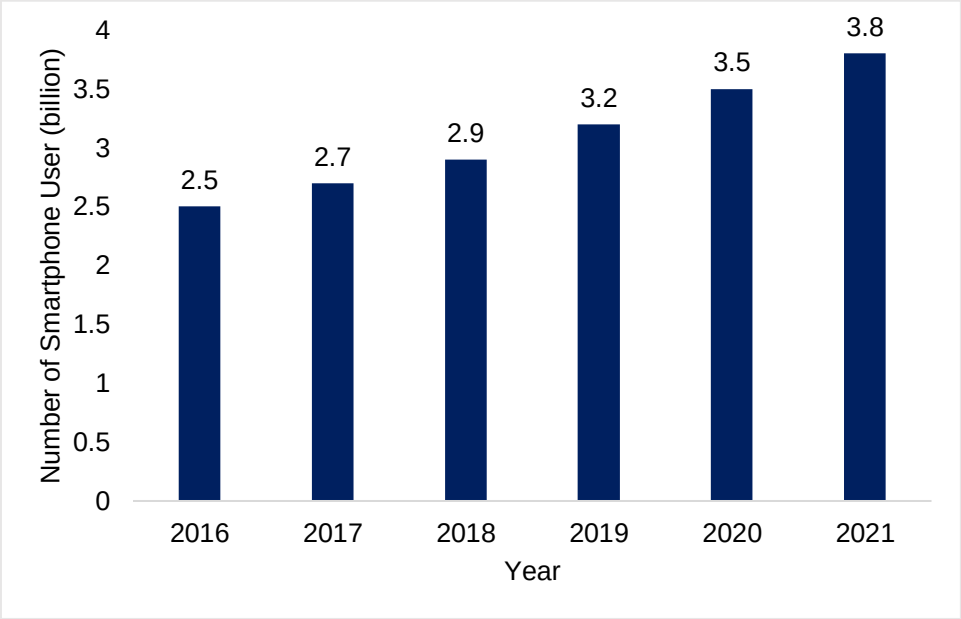
The Industrial 4.0 concept starts from mechanization, electrification, then information and lastly industrialization which also namely Industrial Revolution 4.0 (Zhou, Liu & Zhou, 2016). It is a combination between up-to-date technologies and broad-based innovation which introduced in this revolution. Industry 4.0 own 2 main characteristics which are vertical and horizontal integration. To simplify, vertical integration is connecting the traditional production level to the management level via sensor while horizontal integration is connecting the machines, equipment and production units (Hidayatno, Rahman & Rahamadhani, 2019). The aim of Industrial Revolution 4.0 is to allow people to access data and insights that leads people to make smarter, faster decisions during their business operation by optimizing all aspects in manufacturing procedures and supply chain. With these, it might help in boosting the productivity and profitability of the whole business operation.

The revolutions of industry have brought some positive impact to the society and the countries such as economic growth, productivity increased, and goods and services enhancement with better quality (Morrar, Arman, Mousa, 2017). Besides, Industrial 4.0 does not only bring advantage to the business perspective but also bring satisfaction to the end user. For example, food & beverage companies who embraced Industrial 4.0 can improve their product quality and this bring satisfaction to the consumer.

However, how can the industrial revolution be adopted in a food and beverage service? Customers are able to directly place orders by information technology or kiosk, then the order will directly be sent to the kitchen for preparation, and lastly the customer can pay the bill with kiosk, which will have a strong impact on the traditional operating model.

1.1.2 Increasing in Technology User

Figure 1.1.2: Number of Smartphone Users



Source: (O'Dea, S., 2020).

The world is changing very fast as the behaviour of individuals and way of living is greatly influenced by the emergence of technology in daily life. According to Figure 1.1.2, the number of smartphone users over the world is 3.5 billion which increase approximately 40% [(3.5-2.5)/2.5 x 100%] from year 2016 until year 2020. This also indicates 45.45% [(3.5/7.7) x 100%] of the people around the world owns a smartphone as the world population consists of 7.7 billion.

Besides, the population of Malaysia had 31.5million while the number of smartphone user in Malaysia had 20.9million. It 66.35% [(20.9/31.5) x 100%] of the total population in Malaysia and this can consider as high penetration rate. This shows that Malaysian people is digitized and have basic knowledge on interacting with simple technology.

Therefore, Malaysia government also paid high attention to the adoption of information technology. Budget 2020 is to fortify the digital economy with by improving the physical and digital infrastructure to cope with the Industrial Revolution 4.0. Based on Budget 2020, it was revealed that the government is paying more attention in the technology industry in Malaysia, which there are intent to boost up the capabilities of the local small and medium enterprise, by investing more in the technology industry (Ismail, 2019). The government is supporting all domestic business expand to the technological sphere.

1.1.3 Food and Beverages (F&B) Industry

F&B industry are transforming very fast in order to attending the customers' orders, serving the customers, receiving the payments and fast-growing technology too. In Malaysia, the F&B sector are a booming industry as well. According to The Star (2017), the food and beverage establishments were about 167,490 in the year 2015. The result of Department of Statistics Malaysia reported, this represented an annual growth rate of 5.1% from year 2010. The food industry in Malaysia is well diversified as the cultures in Malaysia with a variety of delicious food with Asian taste. Moreover, while trying to introduce other foreign countries' foods to Malaysian, the food and beverages industry is blooming day by day as everyone can see this on social media every day.

Despite the blooming F&B sector in Malaysia, business is trying to reduce costs while offering more convenience to the consumer with the advancement of technology, SSTs had become very common and affecting many industries. So does the food and beverages industry as well. As stated

by Bitner (2001), it is strongly believed that the implementation of SSTs in this industry is aiding both customer and the industry itself. In detail, a SSTs based restaurant does help to improve the customers' satisfaction through process experience and the restaurants in cutting down their cost.

1.1.4 Self-Service Technology (SSTs)

SSTs is technology which enable users to carry out services independently. Users of SSTs do not require to interact with restaurant operator or service crews since the users have to involve themselves in the process (Mexen, 2015). SSTs has commonly adopted by service providers in multiple industry since 20th century, this is because SSTs enhance adopters' productivity and competitiveness (Taillon & Huhmann, 2017).

In the early 1981, first SSTs had introduced by banking sector in Malaysia. Maybank had come out with automated teller machine (ATM). Ever since that, the pioneer has successfully opened more and more SSTs in Malaysia. Followed by Air Asia, they offered self-service kiosk in the airport so their customers can be more flexible in doing check-in via kiosk in airport.

SSTs are also being adopted by food & beverage industry. For instance, the traditional menu card had been replaced by the digital menu in the restaurant (Hanks, Line & Mattila, 2015). Moreover, the tabletop tablets devices, iPad also provides all-dimensional with more than one language menu presentation, visualize menu listings, ordering as well as paying bill (Tan & Netessine, 2017). Sakae Sushi are a good instance because they utilize numerous of SSTs in their restaurant. The restaurant is using E-menu from

iPad to take orders, and conveyor belt for sushi plate to place on. Hence, with the implementation of the SSTs, the Food & Beverage service provider can maximize the satisfaction of the customer.

1.1.5 Evolution of ordering and serving system

Table 1.1.5: Type and Challenges of Ordering System

Type of Ordering and Serving System	Explanation of the system	Challenges
Paper Menu	Menu is paper based. Waiter notes down order of customer in a piece of paper	▪Took longer time ▪Misinterpretation arises when the waiter takes order.
Kiosk	Kiosk is a machine that display food menus and able to pay through the machine.	▪Customers must collect the order on their own, it might draw away the attention during the conversation of a family or friends. ▪During rush hour, it might be a long queue
QORDER	It is a mobile device that run complete QMP POS software. The waiter will take orders with this device.	▪During peak hour, the work a lot of the waiter will increase as well.
Computerized Ordering System	This have the same order way with kiosk, but serving is done by the waiters.	▪The system will be slowed down if there are too many users in the system. ▪Payment cannot be made in this system

Source: (Zhou, Liu & Zhou,2016)

To cope with the digital era, the ordering and serving system in food and beverage restaurant had gone through evolution to maximise the customer satisfaction. The evolution of ordering and serving system arise from the

advancement of the technology (Mullemwar, Virdande, Bannore, Awari & Shriwas, 2014).

1.1.6 Consumer attitude towards SSTs

Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) can easily affects the customer's satisfaction. Therefore, quality or experience that is perceived by the consumers towards using the SSTs is very crucial in affecting their attitude. The attitude will eventually affect the spending behaviour of consumers. As the implementation of technology among the global population had grown substantially over the past few years was perceived positively by the consumer. The positive acceptance of the technology by the global population may also imply that the attitude towards SSTs is positive. The consumer attitude tends to be positive when their experience in using the SSTs was perceived optimistically. Some of the consumers had an optimistic attitude upon the usage of SSTs. This is because they believe that it can help in reducing the time taken and reduce human mistakes. Despite this, some other consumers believed that the implementation of SSTs by the business was just a strategy to encourage consumers to spend more in their shop.

1.1.7 Customer Satisfaction

Customer satisfaction is the degree of whether the goods/products and services had achieved or surpass the anticipation of customer. It is

determined by the attributes of the goods and services, the purchasing steps and the feelings of the purchaser (Biesok & Wyród-Wróbel, 2011). Fulfilling customers' requirement and their perception on the quality of a product and services is a natural base of satisfaction. Usually the owners have to get to know about their customers' needs and want more in detail in order to make them happy.

A happy employee is a happy customer that is why business owners and employees must be responsible for retaining customers' satisfaction. The employer and employee should always listen to their customers to maintain a good relationship with them. Being responsive and solving customer's problems are more than enough to make a loyal customer to stay. Other than that, apart from focusing on the new customers but giving privileges to existing customers is also a part of fulfilling customers' satisfaction indeed.

1.2 Research Problem

The world had gone through lots of transformations and revolutions, up to the 21st century, people are all living in a technology era. Society is gradually turning lifestyle into automated in the degree of fully or partially. The adoption of technology is favourably than expectation owing to the advantages it is bringing to the society. One of the advantages is saving people's time. According to Buchanan (2011), with the culture of fast and casual dining, the operator of restaurant found that to fulfil the needs of consumer with quality as well as quick services, the introduction of SSTs can increase retention and loyalty of the customer which affect the spending behaviour. The researchers, Susskind and Curry (2019) have carried out analysis and proved that application of technology in a restaurant can reduce table turn time, mainly because of consumers paying bills through the tabletop

devices. With the assistance of technology, people could make things done in a time promptly of trivial matters or certain important tasks.

Younger generations are always with the trend, including the technology trend. A survey that conduct in 2019 argued that 88% of establishments have confidence in that 'self-service' will be growing very quickly in customer service by year 2021 (Bridgwater, 2019). In pace with developments of society, everything has become rapid and hurry. Youth and middle-aged people are likely to have more affairs to deal with, less time to carry through, thus resulting in the phenomenon of acute and inefficient work. This is the main reason younger generations are the pioneers of accepting the introduction of technology in daily lives. Technology is not only aider of them but progressively become their daily needs. They need technology as an aider to boost their efficiency in fulfilling tasks. Tully (2003) said that, people aged from 16 to 26 have more demand for technologies, particularly cell phones. They structure their daily lives with this technology, and it enhances their life's flexibility.

Furthermore, the adoption of technology in the business operations has become a common practice for Small-Medium Enterprise (SMEs). The incorporation of new technology into the business operation had become a widely accepted strategy by business owners to provide them sustainable competitive advantage over their competitors (Kim & Pae, 2007). Besides that, the formal Finance Minister of Malaysia Lim Guan Eng also represents that the government will emphasize on building digital companies in Malaysia during the disclosure of Budget 2020. One of the initiatives that will be taken by the government is to allocate RM550 million to enhance the automation process in their business operation. Moreover, Lim Guan Eng also announced that it is very significant for SMEs to adopt digitalisation in their business operations. Such digital measures are electronic Point of Sale (POS) systems and Enterprise Resource Planning. This government initiative to promote the adoption of technology or digitalisation has provided a stimulus to the SMEs to enhance their business by considering the technology adoption.

In the last decade, the restaurant operator focuses in increasing operational efficiency and productivity. However, there is a change from business efficacy to customer-centric tactic in this generation. The technology of the restaurant has turn out to be top priority in increasing customer engagement. The acceptance of SSTs by customer is very significance to the adoption in the restaurants. If the customer could not accept the SSTs, the adoption is useless for the restaurant. As a mean of studying the behaviour of the consumer towards SSTs they had many researches did in the past that studied the acceptance of the consumer, for instance the theory of planned behaviour (Icek, 1991), the technology acceptance model (TAM) (Davis & Maggard, 1990) or the unified theory of acceptance and use of technology model (Venkatesh, Thong, & Xu, 2012) and etc. According to the National Restaurant Association, the customers keen to use SSTs had increased to 63%, compare to only 48% in the previous year. Hence, the reason of this research is to discover the acceptance of SSTs by focusing on the factor that affect the spending behaviour of the customer that using SSTs.

Malaysian Department of Statistics stated Food and Beverage Services generate gross output value of RM82.8 billion in year 2017. The type of establishment of in food and beverage industry had increased and ranging from dining restaurants, food trucks, airlines food service, lodging operations, institutional dining to pop-up restaurants (DiPietro & Wang, 2010). Statistically, the total revenue growth rate in food & beverage industry was growing twice as faster than the final consumption expenditure growth rate which is less than 10%. The reason that the consumption of food and beverage increase substantially than other goods or services is because the Malaysian demand more quality and satisfying food and beverages rather than just treating food and beverage as necessities. Malaysian now having higher standard and requirement towards food and beverage and willing to demand more in this sector. In order to survive in the fast growing of the F&B sector, the restaurant operator should understand the needs and wants of the customer (Yong, Siang, Lok, & Kuan, 2013).

Based on the research done by Peltier, Zhao and Schibrowsky (2012), the result of the research had shown the business owners' positive attitude or perspective towards the adoption of technology especially when it comes to customer relationship management. Besides, the reason that business owners are willing to accept the technology adoption is contributed by the lower labour cost and the cost of getting technology has become lower in the 21st Century. Leung and Tse (2001) also represent that people or business owners will adopt the technology that provide highest operational efficiency to capture the cost reduction and hence lead to higher profitability. Therefore, the positive attitude by the business owners coupled with the positive impact of technology adoption to the effect of cost savings have led to an increase of technology adoption in business operations.

There are business owners who have a positive attitude to technology, however, there will be another side that does not support the technology adoption. The main reason can be due to suitability. For a start-up non technological base company such as a food and beverage company does not require a huge investment in technology due to its business nature and their size. The high cost in technology adoption may not generate a decent return on investment due to their current stage of business cycle. Many past studies are heavily focusing on the business perspective towards SSTs and ignored the perspective from consumer. Therefore, this research will focus on how SSTs will influence the spending behaviour of customer.

1.3 Research Question

This research project will address the following question:

1. Is there any significant relationship between the perceived ease of use and consumer spending behaviour?
2. Is there any significant relationship between the perceived usefulness and consumer spending behaviour?

3. Is there any significant relationship between the technology compatibility and consumer spending behaviour?

4. Is there any significant relationship between the dining duration and consumer spending behaviour?

1.4 Research Objective

The primary objective in this research is to examine the relationship among perceived ease of use, perceived usefulness, technology compatibility and dining duration with consumer spending behaviour. Therefore, there will be 300 target respondents to be selected in Malaysia.

1. To study the relationship between the perceived ease of use and consumer spending behaviour.
2. To analyse the relationship between the perceived usefulness and consumer spending behaviour.
3. To find out the relationship between technology compatibility and consumer spending behaviour.
4. To discover the relationship between the dining duration and consumer spending behaviour.

1.5 Hypothesis of the research

A few hypotheses are developed according to research objective.

H_0: Perceived ease of use has no significant relationship with consumer spending behaviour.

H_1: Perceived ease of use has a significant relationship with consumer spending behaviour.

H_0: Perceived usefulness has no significant relationship with consumer spending behaviour.

H_1: Perceived usefulness has a significant relationship with consumer spending behaviour.

H_0: Technology compatibility has no significant relationship with consumer spending behaviour.

H_1: Technology compatibility has a significant relationship with consumer spending behaviour.

H_0: Dining duration has no significant relationship with consumer spending behaviour.

H_1: Dining duration has a significant relationship with consumer spending behaviour.

1.6 Research Significance

In this digital age, people are get used to the machines and gadget for most of our daily task. The rapidly growth in adoption of technology in people's lives, this leads the growth in adoption of technology in F&B sectors. There are various of technologies able to apply in the food & beverage industry. However, in this research focused on the SSTs applied at the restaurant. Therefore, the result of this research will help to the restaurant's owner to identify the customer acceptance on the adoption of SSTs. The consumer is willing to spend money in this restaurant again if they are satisfied on adoption of SSTs in the restaurant. This research also provides an idea for those restaurants that have not adopt SSTs.

Two ways communication is incredibly significant to the restaurant operation. The experience of consumer after using the technology in restaurant has become one of the important feedbacks for the company who created it. This research provides a direction to improve in terms of function, efficiency, design, and interface of the technology. It will help to get to know more about customer preference and experience. Hence, technology company can improve themselves to satisfy every single customer.

Finally, this research can contribute some valuable information to the policy market. The results obtained from this research offer a better explanation about the adoption of SSTs towards customer spending behaviour at restaurant in Malaysia. This will help the government to do modification on the current policy on the adopting of technology by restaurant. Moreover, this research will give government an idea of distributing the budget to help the restaurant in adopting the technology or upgrading the existing technology. It also supplies guidelines to those researchers who interested in this research field.

1.7 Chapter Layout

Chapter one will focused on the research overview which have research background, research problem, problem statement, research question, research objectives, hypothesis and concluded by significance of the research. Chapter two will be discussing relevant literature from past studies. The theoretical framework and hypotheses research will be developed in this chapter. Next, chapter three consists of research design, sampling design and data collection method. Chapter four and five will conducted the data analysis by using Smart PLS-SEM software. The findings and recommendation will be discussed in detail.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

The second chapter are going to discuss about the past researches on the SSTs and analyse the literature review which in line with this research objectives that have been discussed in chapter one. This chapter kick start with the relevant theories which contribute to the research framework. The second part discusses about the dependent and explanatory variables and follows by hypotheses development.

2.1 Theory Developments

2.1.1 Technology Acceptance Model (TAM)

Fred Davis had developed Technology Acceptance Model (TAM) (Davis, 1989). This theory has been universally used in relationship between user's acceptance and handling of any technology (Taufik & Hanafiah, 2019). It was derived from Theory of Reasoned Action (TRA), it has provided a basis of extension in developing TAM. TAM is important for anyone who do research on the topic related to acceptance of technology (Chuttur, 2009).

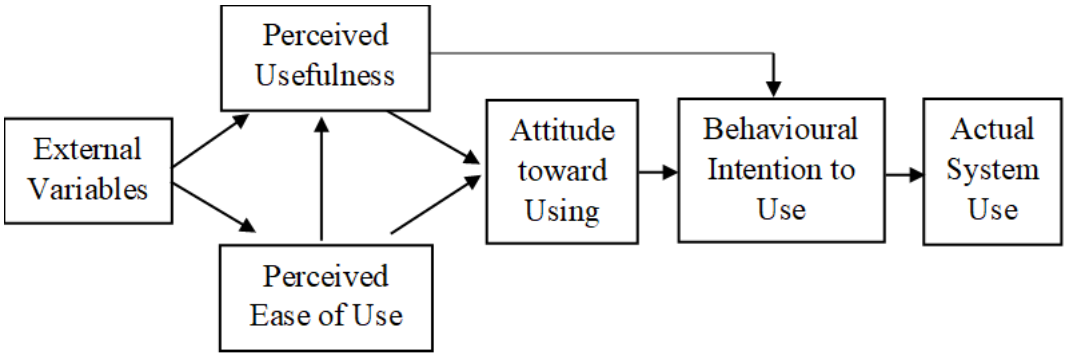
There are many past researchers used TAM to measure the degree of acceptance towards the innovative technology from two essential components which are perceived ease of use and perceived usefulness. Both are affected by external variables. External variables are acting as an important variable in figuring out the attitude. Lai (2017) highlighted that perceived usefulness and perceived ease of use affect the behaviour intention directly.

According to Davis (1989), the meaning of perceived usefulness is the trust level of an individual with a certain technology would assist them to advance their task performance and the meaning of perceived ease of use as the trust level of an individual with a certain technology would be exempted from physical and mental effort.

Modification on TAM was made by different researchers to fit in the adoption of technology in different industry. Kim and Qu (2014) studied about the traveller's behavioural intention towards the self-service kiosks that placed at hotel. These self-service kiosks used to help travellers to check in or check out. Ham, Kim and Forsythe (2008) investigate about the employees towards the acceptance level of technology in the restaurant.

In short, TAM is a popular model which adopted to build the research framework in any topic of relating to technology acceptance. Therefore, TAM can be adopted for the purpose of studying about adoption of SSTs towards customer spending behaviour.

Figure 2.1.1: Technology of Acceptance (TAM)



Source: (Davis, Bagozzi & Warshaw ,1998)

2.1.2 Theory of Planned Behaviour (TPB)

TPB was formed by Icek Ajzen in the year of 1985. The function of Theory of planned behaviour is to study people's intentions towards their actual behaviour or action. This theory is often used by researchers in behavioural research such as spending behaviour and ethical behaviour studies.

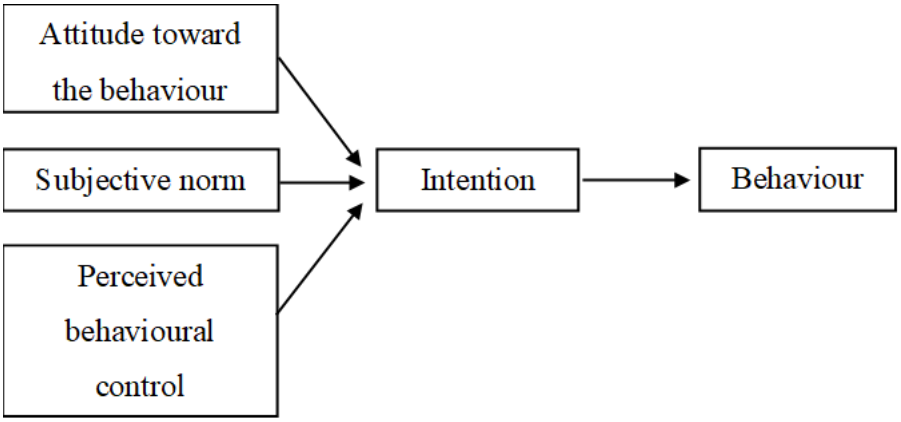
The intention of people's is often decided by attitude towards act of behaviour, subjective norm, and perceived behavioural control. If there is a positive effect to the determinants of intention, then it will reaffirm the aim of the people in conducting the action.

Based on a research done by Forward (1997), the attitude towards the behaviour is defined as personal assessment of implementing a particular action. When people perceive that the planned action makes sense to themselves, then they will tend to implement their intended action.

Fishbein and Ajzen (1975) has showed that subjective norm refers to the level of support or objection from the people who are important to the consumer. The support or objection can be in the form of agreeing or disagreeing to the opinion or attitudes of the consumer. Hence the ultimate action of the consumer will be executed only if the perceived subjective norm is positive.

Perceived behavioural control means that difficulty of executing their intention, including opportunities to carry out (Sarver, 1983) and resources accessible (Liska, 1984). To further elaborates, based on the research done by Azjen and Madden (1986), the researchers said that the perceived behavioural control is an individual insight on how liable the intention can be carried out. When there are fewer barriers or encumbrances they expect to confront, the perceived behavioural control will be higher (Azjen & Madden, 1986). This will cause a rise in the intention to their desired action.

Figure 2.1.1: Theory of Planned Behaviour (TPB)



Source:(Forward, 1997)

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

Based on Vankatesh, Morris, Davis, and Davis (2003), Unified Theory of Acceptance and Use of Technology (UTAUT) is a technology acceptance model. This theory developed by consolidating earlier research's 8 theories that had used in explaining information systems usage behaviour are the Theory of Reasoned Action (TRA), the Technology Acceptance Model (TAM), the Motivational Model (MM), the Theory of Planned Behaviour (TPB), a combined theory of Planned Behaviour/Technology Acceptance Model (C-TPB-TAM), the Model of PC Utilization (MPCU), Innovation Diffusion Theory (IDT), and Social Cognitive Theory (SCT) (Akbar, 2013). Their research focuses about why and how public adapts into a modern technology system. UTAUT developed in reviewing two of the determinants in this research which are perceived ease of use and perceived usefulness. The stream of research brought significant and special efforts to the fiction on user acceptance of information technology.

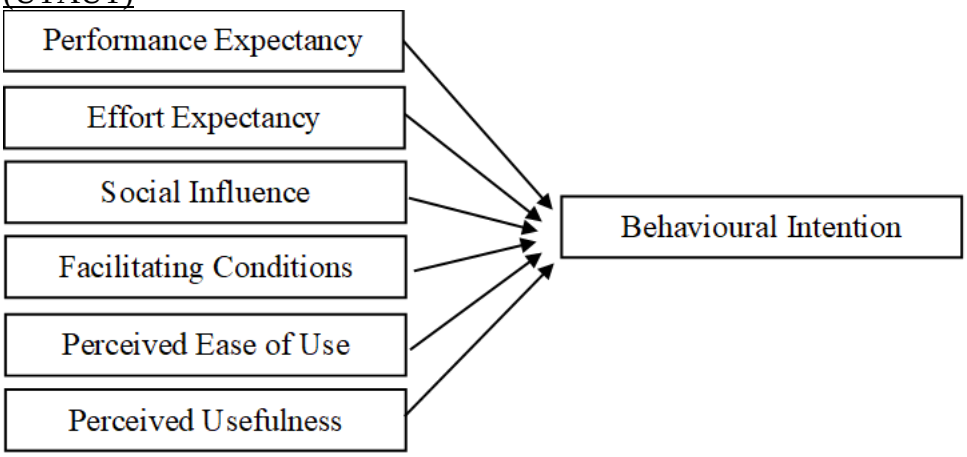
The alteration of the UTAUT model provides an interconnected understanding on how consumer spending behaviour is influenced by the SSTs. Beside perceived ease of use and compatibility, the UTAUT model which expected by Venkatesh et al. (2003) also finds the other key factors such as performance expectancy, effort expectancy, social influence, and easing conditions. Performance expectancy means an individual enhancing their job performance with the use of a technology. The meaning of effort expectancy is the ease on how to use the system. Social influence is the process by how a people attitudes or behaviour are changed by the action of others. Facilitating conditions means as people trust in the accessibility of the vital technical infrastructure for allowing the operate of a system.

UTAUT had used in a few studies in explaining the adoption of SSTs (Zhou, Lu & Wang, 2010; Wang & Shih, 2009). UTAUT is often used by the researchers in behavioural research, for example the adoption of technology in mobile banking, mobile shopping application, etc.

Although UTAUT had already been used in several earlier studies, it does not perfectly fit with the adoption of SSTs due to this model being suitable to use in the company for the employees but not for the individual. Therefore, to explain technology in customer perspective, Venkatesh et al. (2012) proposed an enhanced version of UTAUT known as UTAUT2.

In addition, along with the benefits that related to the original model of UTAUT, UTAUT2 represents a considerable development in the technology acceptance field as well. As said by Eriksson, Kerem & Nilsson (2005), from the wide research about the SSTs, the main constructs in UTAUT2 such as performance expectancy like relative advantages and perceived ease of use are showed as key drivers of customer tendencies and the adoption of SSTs. Moreover, since UTAUT2 is augmented from UTAUT, it can be considered as the most predictive theory in studying SSTs in the customers' perspective (Bagozzi, 2007).

Figure 2.1.2: Unified Theory of Acceptance and Use of Technology (UTAUT)



Source: (Vankatesg, Morris, Davis & Davis, 2003)

2.2 Review of Prior Empirical Studies

2.2.1 Customer Spending Behaviour

As the world moves forwards and decades past, the generation of today is much more different if compared to yesterday's generation. In this generation everything changes because nothing is permanent. Not forgetting the slightest factors of people's lives will change as well. In conjunction, the spending behaviour of the people nowadays is changing too as the world is moving forward like a bullet train in this era.

In this modern life, one of the acts which is spending money on goods and services is ubiquitous. It is a primary way that people meet their basic needs nowadays. For example, spending it on food, clothing, shelter, health care, transportation, education, and entertainment (Bijleveld & Aarts, 2014).

Spending behaviour is an attitude of a human being which affects the means that an individual uses their money to consume goods and services to satisfy their desires and needs without any limitation.

A consumer's spending behaviour is influenced by several factors. The factors are such as cultural, social, personal, and psychological factors. The cultural factor could influence the consumers' spending behaviour based on their culture, sub-culture, and their social class. Next, social factors affect the consumers' spending behaviour significantly. Everyone has someone around influencing their spending decisions. The essential social factors are such as groups, family, role, and status. The personal factor can influence the consumers' spending behaviour based on a person's age, their life cycle stage, lifestyle, their occupation, the current economic situation, their personality, and attitude. Finally, the consumers' motivation, perception, learning, beliefs, and attitude are how their spending behaviour could be affected by psychological factors (Lautiainen, 2015).

2.2.2 Perceived Ease of Use (PEOU)

The definition of Perceived ease of use (PEOU) is the extent to which a person who thinks that it is easy to make use of a certain system (Davis, Bagozzi & Warshaw,1989). In this research, "system" mentioned by Davis et al. (1989) is substitutes as SSTs. In short, this part of research probes the relationship between perceived ease of use in terms of SSTs and spending behaviour. The perceived ease of using SSTs is one of the consequential determinants which bring significant effect to spending behaviour. The convenience generated by using SSTs is also important because it serves as a mediator between perceived ease of use and spending behaviour.

Consumers demanding convenience is a rising trend nowadays. This trend is driven by the evolution of era where people want things to be perceived ease of use. Even many firms realize the significant impact of convenience which will lead to consumer's satisfaction and successful business (Mehmood & Najmi, 2017). When a company succeeds in aligning their strategy with client's requirement or satisfaction, clients tend to make their planned behaviour become ultimate action (Ajzen & Madden, 1986). In short, the perceived ease of use which brings convenience to marketing outcomes, which will influence consumers buying decision (Loketkrawee & Bhatiasevi, 2018). Therefore, a lot of researchers have interest on figuring out the relationship between perceived ease of use and consumer behaviour. A recent related research carried out by Jadhav and Khanna (2016) showed that perceived ease of use and spending behaviour is positively correlated. Consumers will apt to spend when they perceived ease of use during different stages of consumption, start from the planned spending behaviour until the actual spending decision or action. To further illustrate, Elizabeth Lloyd, Chan, Yip and Chan (2014) expected service convenience in the middle of planned spending behaviour, will practically influence spending behaviour positively. Perceived ease of using SSTs by consumers will achieve the convenience they demanded thus driving the spending behaviour in a positive way. Nevertheless, in the later stage of consumption, the transaction or payment is expected to be favourable as they perceived convenience and omitted the pain of pay temporarily (Boden, Maier & Wilken, 2020). With the present of consumer's perceived ease of using SSTs, payment duration can be shortened, spending behaviour is likely to increase as convenience is achieved.

Despite that, a certain amount of people still prefers to interact with people traditionally instead of SSTs. This is because not all people perceive the ease and convenience of using SSTs. Research by Tarhini, Elyas, Akour and

Salti (2016) stated that usage of SSTs is influenced by demographic profile. Some people with high ages or low education tend to face difficulties in using SSTs. Nevertheless, SSTs is not perfect as it still has the possibility to experience malfunction (Taufik & Hanafiah, 2019). Refers to the statements mentioned above, the level perceived ease of using SSTs for that specific type of people is low, the encumbrances and impediments make them have no intention to use the SSTs. In the end, the absence of convenience will lead them to refuse to spend.

Multiple researches cited above come with different conclusions. There are no unified findings probably because those researches are undergone in different situations or different outset of research objectives. The existence of arguments and two-way statements are the reason we are further researching the relationship between the perceived ease of use and spending behaviour.

2.2.3 Perceived Usefulness (PU)

The technological advancement has brought the transformation of traditional service delivery to Self- Service Technology. It has gradually occupied in many industries such as banking, hotels, airlines, restaurants. The speed of current technology development, it has evolved and played separate roles or functions in different industries (Davis, 1989).

Davis (1989) said that the definition of perceived usefulness as the level of an individual trust on using a certain technology would help to improve their job or task performance. It is one of the main predictors of human behaviour under the theory of Technological Acceptance Model (TAM). This theory

explained about the acceptance and adoption level of customer on any technology.

Cho (2011) focused on the perceived usefulness towards potential adoption of SSTs in apparel retail settings and there has significant relationship between perceived usefulness and customer's attitude towards SSTs. It shows that when the customer perceived usefulness from the SSTs, then it will motivate them to use SSTs.

In the situation of internet banking, the result showed perceived usefulness and customer behaviour formed a positive connection (Patel & Patel, 2018). Many past studies also showed that the significant positive relationship between perceived usefulness and customer's intention on the adoption of internet banking (Chau and Ngai, 2010; Chiou and Shen, 2012). According to Alalwan, Yogesh, Nripendra & William (2016), they found out perceived usefulness has a positive relationship to the actual adoption and behaviour intention in mobile banking.

In recent year, the rapid growth of air travel demand has led to the placement of self-service kiosks in the airport. Lu, Chou and Ling (2009) studied about passenger's intentions to use self-service kiosk; the result showed there is positively and significantly between perceived usefulness and attitudes towards self-service kiosk. Taufik and Hanafiah (2019) found that perceived usefulness and attitude towards self-service in airport kiosk formed a positive relationship.

Sometimes, perceived usefulness can be used as a mediator which linked the perceived ease of use to customer's intention towards SSTs. Perceived usefulness and intention to use SSTs in resort hotels formed a positive relationship (Oh, Jeong & Baloglu, 2013).

There is a different view of point towards the term of perceived usefulness. Dabholkar and Bagozzi (2002) explained perceived usefulness could be the usefulness of information displayed on the SSTs and it brought satisfaction to the user; the result showed attitude towards the actual usage of SSTs formed a positive relationship. In other word, perceived usefulness can be found from the content of the SSTs interface.

The past studies that being discussed at above shown perceived usefulness and customer's attitude towards SSTs formed a positive relationship. Therefore, hypotheses developed expected that perceived usefulness has a positive relationship with customer spending behaviour towards SSTs technology which mediated by customer's intention.

2.2.4 Technology Compatibility (TC)

Compatibility is one of the key factors to figure out the relationship between the customer intention to spend more in the restaurant. The definition of compatibility is the degree to which the technology revolution and implemented is aligning with the consumers' or users' values and needs (Ozturk, Bilgihan, Nusair & Okumus, 2016). Besides that, Chen, Gillenson and Sherrell (2002) also pointed out that compatibility is referring to as the degree to which the technology implemented is suitable or consistent with the users' experience or lifestyle. In short, if the technology implemented by the company fit the users' earlier experience and needs, then the technology implemented is likely to give a positive impact to the spending behaviour of consumers.

A few researchers had shown that compatibility is a crucial determinant that will affect the consumer attitude towards the use of technology. Kim and Qu (2014) clearly shows that travellers' attitude toward using the hotel self-service kiosks was highly influenced by the technology compatibility to the travellers. The research also showed that SSTs not only brings flexibility to the consumers, but also helps the consumers to save time due to shorter waiting duration. Another research also presented that the technology compatibility was a major influence on the consumers' loyalty intentions and convenience towards the SSTs (Ozturk et al., 2016).

Moreover, Ahn and Soe's (2018) research also showed that gadget-loving propensity will affect the consumers' response to the interactive SSTs in a restaurant. The research resulted in the perceived value to the consumer with a high gadget-loving propensity that has a larger effect on the behaviour towards SSTs. This means that if the consumer had high gadget-loving propensity, he or she will tend to have an optimistic attitude towards the SSTs technology and hence leading to higher spending.

In short, the result showed technology compatibility and consumer behaviour formed a positive connection. However, there is still a lack of studies on the technology compatibility of SSTs and consumer behaviour in food and beverage companies. Therefore, the research between the relationship of compatibility of SSTs and consumer behaviour specifically in food and beverage companies will be discussed in this research. Technology compatibility and consumer spending behaviour is expected to form a positive relationship. This means that the more SSTs implemented fit the consumers' earlier experience of lifestyle, the more the consumer is expected to spend.

2.2.5 Dining Duration (DD)

Dining duration stands for the time taken that spend in the restaurant start from ordering process to serving process and payment process. The waiting time in the restaurant increase will reduced service evaluations (Lee & Lambert, 2005), negative perceptions of service quality, and reduced customer satisfaction (Worlitz & Woll, 2020), having long waiting time in the restaurant makes the customer had bad first impression to the restaurant (Baker & Cameron, 1996; Dickson, Ford & Laval, 2005). Therefore, the reduction of waiting time in restaurant is the major objective of the restaurant operator as in the service and retail industry, perceived waiting time in restaurant represent a significant role in understand incredibly significant between SSTs experience and customer satisfaction (Djelassi, 2018).

There was some research highlighted that the time taken for dining duration will affect the customer satisfaction which eventually leads to the spending behaviour. Based on Durrande-Moreau, (1999) it was said that actual waiting time in restaurant has most significant relationship with the customer satisfaction. Other than that, there are also evidence that support the relationship between actual waiting time, perceived waiting time and customer satisfaction (Bielen & Demoulin, 2007).

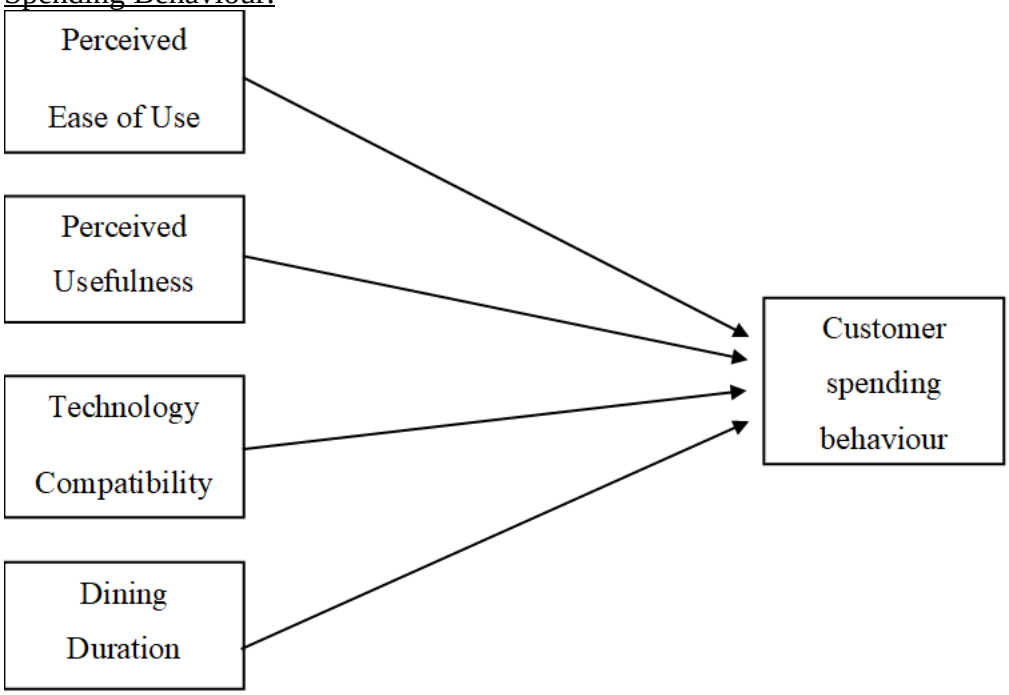
As stated by Buchanan, (2011), with the culture of fast and casual dining, the operator of restaurant found that to meet the demand of customer with quality and quick services, the introduction of SSTs can increase retention and loyalty of the customer which affect the spending behaviour. As the

introduction of SSTs, it might fulfil the needs and demand for the quick meal services.

Due to there was some limitation on earlier research, which very less researchers take dining duration into account for their research; therefore, this research chooses to identify the relationship of dining duration and the spending behaviour. To conclude, this research expects that there is a negative relationship between the dining duration and spending behaviour as the dining duration is shorter, the spending behaviour will be more favourable with the adoption of SSTs.

2.3 Proposed Theoretical Framework

Figure 2.3: Theoretical Framework of the Adoption of SSTs towards Customer Spending Behaviour.



Source: Developed for Research

2.4 Hypotheses Development

Hypothesis testing below has developed to study the research questions which are mentioned in the chapter one.

H_0: Perceived ease of use has no significant relationship with customer spending behaviour.

H_1: Perceived ease of use has a significant relationship with customer spending behaviour.

H_0: Perceived usefulness has no significant relationship with customer spending behaviour.

H_1: Perceived usefulness has a significant relationship with customer spending behaviour.

H_0: Technology compatibility has no significant relationship with customer spending behaviour.

H_1: Technology compatibility has a significant relationship with customer spending behaviour.

H_0: Dining duration has no significant relationship with customer spending behaviour.

H_1: Dining duration has a significant relationship with customer spending behaviour.

2.5 Conclusion

Chapter two has discussed about the theoretical framework and literature reviews done by past researchers which relates to the adoption of SSTs. Theory development has formed to study how does the four independent variables influenced dependent variable. Besides, the literature review covered 4 independent variables. This chapter has proposed theoretical framework for this research followed by the development of hypotheses.

CHAPTER 3: METHODOLOGY

3.0 Introduction

This chapter will be discussing on the method of research used to conduct in this research. This chapter consists of research design, method of collecting data, design of sampling, instrument of research, data processing, measurement construction and analysis of data.

3.1 Research Design

As specified by Jilcha Sileyew (2019), research design is meant to give an adequate framework of research techniques and methods, for researchers to carry out their studies. Deciding research techniques and methods are important in research design procedure because it decides how researchers obtain relevant information about their studies. A good research design will ensure the data collected is relevant and supportive, which influences the effectiveness of research in a positive way.

3.1.1 Exploratory Research

Among the techniques, exploratory research is chosen and applied in this research. Exploratory research refers to a research technique which is used to probe an issue which has not been defined yet (Swedberg, 2018). The lack of issue related knowledge and information is the main reason to implement exploratory research. Thus, the main intent of exploratory research is to have a greater comprehension of existing issues, however not more than making a decisive conclusion. The technique is usually conducted during the preliminary stage of issue, which enables the research to form a base of future conclusive research. Application of this research technique also shows that researchers are ready to change their former opinions as the exploration of new data.

3.2 Data Collection Methods

Data collection is a technique to accumulate and measure information of interested variables, which allows researchers to resolve their research questions, test hypothesis, and assess the result (Parveen & Showkat ,2017).

3.2.1 Primary Data

Primary data is made use in this research. This data is figured out as first information which is acquired by researches (Nicholson & Bennett,2009). The primary data collected should match well with the problem which researchers are curious into (Hox & Boeije, 2005). As the researchers suggest, primary data collected will be stored in archival and increase the social knowledge, which can be re-used by the research community in the future studies. In other words, primary data is considered as first-hand information bought by researchers for the intent of investigation, at the same time creating current information which can be re-applied.

To get primary data, this research uses a single survey method which is online survey (Google Form). Foremost, the method eases the distribution and collection of surveys from multiple locations and hard-to-reach respondents. Survey questions are designed and inserted properly in Google Form and, then distributed through online such as through Facebook, WhatsApp, and Instagram. This research targets both male and female respondents aged 18 and above in whole Malaysia.

After getting all survey responses, this research compiles the data collected, and analyse it by using a software which is named Smart PLS 3.0. The software is a latent variable modelling program, which owns an ease understanding interface and easy to use. It combines a series of most advanced programs, including Partial Least Square Structural Equation Modelling (PLS-SEM). This program is widely used in social science and business-related research because it is aiding research with a strong statistical tool, which considers model factor and composite (Henseler,

Hubona & Ray, 2016). In this research, the result of factor loading, P-value, compatibility and discrimination are concerned.

3.3 Sampling Design

Kabir (2016) has indicated a sample is a part of the entire population which stands for the behaviour of the certain population. Hence sampling is the procedure of opting the sample for predicting the population behaviour. In other words, it is a brief procedure of getting information of an entire population by only studying a part of it. Kabir (2016), also studied sample design, which means refers to plans and methods that need to follow to select the sample from the target population and the estimation technique formula to compute the sample statistics. Thus, these statistics are the estimates which will be used to find the population parameters. In this part, this research will discuss based on the sampling.

3.3.1 Target Population

The target population for a survey is the complete set of units for which the survey information will be utilised to put up the assumptions (Lavrakas, 2008). This research wanted to probe the outcome of adoption of SSTs towards the customers' spending behaviour in Malaysia. Hence, target population is to focus on those who have used, still using or might use the SSTs in a restaurant which is selected over 18 years old and above, male and female in whole Malaysia. To be fair in our research, we decided to distribute as equal as possible to all the age categories so that the result will

be biased towards younger generation or older generation. The reason behind choosing the younger groups as research sample is because nowadays teenagers are growing well with their extended knowledge together with the blooming technology in this current era. The elder group involve homemakers with income, retiree, working professional and other consumers and most of them are using and carrying at least one smartphone along with them. As using SSTs is considered as similar with using the smartphone, this elder group of people is chosen as research sample too. Despite owning a smartphone, these people are currently evolving well with the internet as well.

There are two main reasons for targeted populations. One of the reasons is, the younger group mentioned above is inclusive of the students from the college and universities who come from different family backgrounds with different amounts of allowances per month. Therefore, throughout these students with different amounts of allowance per month, it will be able to find out how often they will visit restaurants with SSTs and how much they would spend in the restaurant in a week. The targeted respondents may locate at different states and areas in Malaysia. The other reason is both the younger and elder people nowadays are mostly relying on their smartphones each day. Hence, these people are well educated with touch screen-based devices, browsing the internet, and most importantly reading and understanding the instructions while using the smartphones.

3.3.2 Sampling Frame and Sample Location

Sampling frames considered a list of items including entire sampling units is known as sampling frame. The list which consists of items from which the sample is to be drawn is called sampling frame (Kabir, 2016). In this research, the sampling frame involves both younger and older internet and smartphone users in Malaysia. The questionnaires for this research will be distributed in softcopy. The softcopy is distributed through an online spreadsheet program which is known as "Google Form." Google form allows to collect data from respondents easily, efficiently, reduce the data collecting time and automatically analyse it with a chart. Sampling location is the area in which the research will be conducted to collect the survey data from respondents. In this research, sample location is the SSTs adopted restaurants in Malaysia.

3.3.3 Sampling Method

Based on Etikan, Musa & Alkassim (2016) studies, convenience sampling is one of the nonprobability sampling method that depend on data collection from targeted sample size who are conveniently in taking part the research. This sampling method is to get participants in a simple way wherever the researchers can find. In this research this method is applied to gather data from the available participants at that moment.

Moreover, the target sample size for this research is 400. Krejcie and Morgan (1970) has reported that the target sample size of 384 is sufficient

to explain the population size of 100,000. Based on the research of Taherdoost (2016), the sample size is a vital feature of any empirical study in which the aim is to make assumption about a population from a sample. A random sample requires to be of adequate proportions to take a broad view from a random sample and evade sampling errors or biases. A draft of questionnaires has been prepared for 30 respondents to execute out the pilot test to assess the likelihood, time, cost, risk, and performance of a research project throughout the questionnaires. In addition, this research is targeting to reach out 400 respondents through online form within the stipulated period.

3.4 Research instrument

The only research instrument that being applied is survey questionnaire that consists of a series of question which related to this research. To be specific, an online-administered questionnaire is being applied as research instrument to obtain data. This research used online-administered questionnaire in Google forms to distribute the questionnaire to respondents.

3.4.1 Questionnaire design

Questionnaire defines as a technique to collect data from different people by using the duplicate set of questionnaires (Saunders, Lewis & Thornhill, 2012). Each set of questionnaires will consist of 42 questions in total. The setting of questions included 3 main sections which are Section A, Section

B and Section C. Section A consists of demographic question which focus on the respondents' personal details. Section A consists of 7 questions which including gender, ethnic, age, residential state, monthly allowance/income, how frequent do you visit restaurant that applied SSTs in a week, and how much do you spend in restaurant that applied SSTs each time. Next, Section B consists of 4 categories that relates to the dependent variable. It is using five points of Likert Scale questioning on the adoption of SSTs towards customer spending behaviour which affected by the perceived ease of use, perceived usefulness, technology compatibility, and dining duration. Respondents need to choose their best answer from five points of Likert Scale. Scale 1 implies that respondent strongly disagree with the statement and scale 5 implies strongly agree with the statement. Section C consists of 1 question which is an open-ended question and asking respondent's opinion towards SSTs that applied in restaurant.

3.4.2 Pilot Test

Pilot test is a tool that used in helping researcher on testing the research techniques in preparation for a bigger research (Hassan, Schattner & Mazza, 2006). It is a test on administering the designed survey questionnaire on a sample size of target respondent from the population. This is to ensure that respondents are clear in understanding the questions and able to answer to allow the researchers in getting valid and reliable data (Hair, Money, Samouel & Page, 2007). Total 30 sets of questionnaires are given to the target respondents. So, the collected 30 sets are being used to run the pilot test is because the Smart PLS can do bootstrapping. Hair, Sarstedt and Ringle (2017) mentioned that bootstrapping is a process that drawing subsamples from the original data for an amount of 5,000. Therefore, using 30 samples is sufficient since Smart PLS has this in-built function to ease

the pilot test. The data will be inserting into the Smart PLS software 3.0 after the collection of data. Lastly, the designed questionnaire will be adjusted according to the feedbacks and comments received from all these target respondents.

3.5 Construct Measurement

The survey questionnaires are created based on the 4 independent variables which affecting the spending behaviour on the adoption of SSTs among Malaysian those who are 18 years old and above.

3.5.1 Scale of Measurement

Scales of measurement used to define and categorize variables or numbers. Every single scale of measurement has their certain characteristic and bring different impact on the research. There are 4 measurement scale which including nominal scale, ordinal scale, interval scale and ratio scale, however, this research only included nominal, interval and ordinal. Measurement of scale can bring higher effectiveness to this research as it can turn the data that collected into useful information.

3.5.1.1 Nominal Scale

The nominal scale used only labels and letters to identify and or classify an object (Stevens, 1946). Nominal scale only deals with quantitative variable. The collected data can be classified into two or more categories that used to identify the personalities of the respondent in this questionnaire (Velleman & Wilkinson, 1993). The questions with nominal scale that presented in this questionnaire are as shown below:

Q1. Gender

- Male
- Female

Q2. Ethnic

- Malay
- Chinese
- Indian
- Others

Source: Developed for Research

3.5.1.2 Ordinal Scale

The ordinal scale is develop based on the action of rank-ordering (Velleman & Wilkinson, 1993). In fact, the majority scales that used generally and by the psychologists are the ordinal scale (Stevens, 1946). The reason that ordinal scale used widely is because of the characteristic of the respondent can be rank or arrange in order, for example the monthly income of the respondent is rank using ordinal scale. The questions with ordinal scale that used in this questionnaire are as shown below:

Q3. Age
- 17 and below
- 18 - 20
- 21 - 25
- 26 – 30
- 31 – 35
- 36 – 40
- 41 and above

Q5. Monthly allowance
- RM1,000 and below
- RM1,001 to RM3000
- RM3001 to RM6000
- RM6001 and above

Q6. How frequently do you visit restaurant that applied SSTs in a month?
- None
- 1-2 times
- 3-5 times
- 6 times and above

Source: Developed for Research

3.5.1.3 Interval Scale

The interval scale is one of the qualitative measurement scales which the deviances between the two choices is meaningful (Stevens, 1946). Interval scale involve a deviance instead of rank (Velleman & Wilkinson, 1993). The reason the widely usage of interval scale is because interval scale included the feature of nominal scale and ordinal scale. Likert scale is one of the examples of interval scales. The questions with interval scale that used in this questionnaire are as shown below:

No	Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	Self - Service Technology is complicated to use.	1	2	3	4	5

Source: Developed for Research

3.5.2 Scaling Technique

As stated by James T Croasmun and Lee Ostrom (2011), Likert scale is recognised as one of the most often scaling technique that used in educational and social sciences research. Likert scale used to measure human attitudes and behaviours. The respondent is requested to answer their level of agreement from strongly disagree to strongly agree based on the

given statement on a metric scale. The Likert scale that apllied in this research is 5-point scale as 4-point scale or 7-point scale which offer too less choices or too much choices will cause the research result to be less effective and precise (Joshi, Kale, Chandel & Pal, 2015).

3.6 Data Processing

Data processing is a procedure of converting the collected data into usable information for research purpose. There are 5 stages of process which are questionnaire checking, data checking, data editing, data coding and data transcribing. Amounting 400 sets of questionnaires are given to target respondent in Malaysia and all the data are inserted into Smart PLS 3.0 for analysing purpose.

3.6.1 Questionnaire Checking

Before distributing to the questionnaire, it is compulsory to check through all the question to avoid any mistake in terms of grammar and language. The purpose of checking on grammar and language is to make sure that questionnaires has no error and express the professionalism of this research to the target respondents. Moreover, the designed question requires to be comprehensive to avoid misunderstanding of the question. Any minor mistake may result the collected data become invalid and not reliable.

3.6.1.1 Data Checking

The aim of data checking is to enhance the quality and standard of the collected data. If the collected data is incomplete, then the complete set of questionnaires will be eliminated at once. It is to ensure the respondent answer the questionnaire completely to avoid any invalid data.

3.6.2 Data Editing

Data editing will be doing after the collect back all the questionnaires. It is an essential process to help in detecting the errors, bias, or omission of data within a set of questionnaires. All collected data should be edited to make sure that the information provided by respondents complete and consistent. This is to avoid the inaccurate data sources which may results in misleading the research outcomes.

3.6.3 Data Coding

In this research, every choice for Section A and Section B is categorised by a series of number in the questionnaires. For example, in section A, male respondent was coded as 1 while female respondent was coded as 2. Five-point Likert scale is being applied in Section B which strongly disagree was

coded as 1, disagree was coded 2, neutral was coded as 3, agree was coded as 4 and strongly agree was coded as 5.

3.6.4 Data Transcription

Data transcribing is a procedure of converting the data into a written or electronic text documents. The data transcription is saved as future reference and analysed by using Smart PLS 3.0.

3.7 Data Analysis

3.7.1 Descriptive Analysis

Descriptive analysis is the transformation of collected data from the questionnaire into a descriptive information, which is a summary of data that is simple to interpret and understand (Zikmund, Babin, Carr & Griffin, 2003). In general, descriptive analysis is being used to summarize the set of sample's data in tables, charts, or graphs to stand for the population. This can help to enhance the understanding the meaning of analysed data in this research. The section A in the questionnaire is about respondents' demographic profile. All the data collected from this section is to stand for the demographic information of the respondents. The data collected in Section A of the questionnaire is being analysed by using descriptive

analysis. The demographic data is being defined as the statistical data of the respondents' characteristics in this research paper.

3.7.2 Review of Data Analysis

The validity evaluation is compulsory to be satisfied because the significance and reliable coefficient may not necessarily imply a precise measure. Furthermore, before the testing on how the independent variables affect the spending behaviour of the customers being carried out, the measurement models must include the level of awareness validity and reliability. Ringle, Wende and Will had developed a computer software called Smart PLS in 2005 (Wong, 2013). Smart PLS is applied to study the collected data in this research.

3.7.3 Evaluation of Outer Model

Wong (2013) had stated that inner and outer model are needed to be set up before other validity test. The inner model should explain how the independent latent variable affect the dependent latent variables. Meanwhile, the outer model should explain the relationship between the latent variables and their own observed indicators. After the outer and inner model have been set up, it is recommended to run the PLS-SEM algorithm (Hair, Sarstedt, Hopkins and Kuppelwieser, 2016).

However, this research needs to differentiate between the reflectively or formatively measured construct when setting up the outer mode. In general, formative indicators can have positive, negative or no correlations among the indicators. Therefore, the reliability and validity are not needed to make known because there is no meaning for a latent variable constitute of uncorrelated measures.

The indicators are highly correlated for the reflective indicators. Thus, it is important to test the validity and reliability of the latent variables. The internal consistency reliability, convergent validity and discriminant validity were being used as the measurement for reflective outer model (Wong, 2013).

3.7.4 Internal Consistency Reliability

Composite reliability and Cronbach's alpha were being applied to identify and ensure the reliability of the indicators. They are being applied to evaluate the internal consistency reliability. Cronbach's alpha should portray a value of 0.7 or higher to ensure the reliability. In general, the level of reliability will be higher when the value of Cronbach's alpha is higher (Wong, 2013).

3.7.5 Convergent Validity

Convergent validity is recognized as a procedure or method to measure the construct converged to interpret the variance of its items. To explain the convergent validity, the examination of the outer loadings of the indicator and the average variance extracted (AVE) is needed. The value of the outer loading should be at least 0.70 to pass the convergent validity. The value should be at least 0.50 for the AVE to ensure the convergent validity (Hair, Risher, Sarstedt & Ringle, 2019).

3.7.6 Discriminant Validity

Discriminant validity denotes to the degree to which the construct is empirically dissimilar from other constructs (Hair et al. 2016). There are three methods to access the discriminant validity.

First, the method used to identify the discriminant validity is using the Fornell-Larcker criterion. Fornell and Larcker (1981) have stated that using the square root of AVE in each latent variable is a way to evaluate discriminant validity. To satisfying the discriminant validity, the value for square root of AVE must be larger other correlation values among the latent variables.

The second method to identify the discriminant validity is to detect from the cross loadings of the indicators. Hair, Ringle and Sarstedt (2019) mentioned that this method is often more liberal. To pass the discriminant validity, the loadings of each indicators on its construct should be higher than the cross loadings on other constructs.

Finally, another method to measure the discriminant validity is by using the Heterotrait-monotrait (HTMT) ratio. Hamid, Sami and Sidek (2017) pointed that the HTMT ratio enable to achieve sensitivity rates and higher specificity. If the value of HTMT ratio is more than 1, it implies that there is a deficiency of discriminant validity. For the aim of satisfying the discriminant validity, the value of HTMT ratio must be lesser than 1.

3.8 Conclusion

To conclude, the research method is explained in chapter three. Research design, methods of collecting data, sampling design, research instruments, measurement construction, data processing and analysis of data are being discussed in this chapter. Thus, the results will be further analysed and discussed in next chapter.

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

Chapter 4 focus on the data analysis and data interpretation which generated from survey questionnaire. This chapter included the customer demographic profile and followed by the descriptive analysis. SMART PLS 3 was applied by this research to figure out the factors of adopting SSTs towards customer spending behaviour. The results of descriptive analysis will be presented in PLS-SEM to give a better understanding.

4.1 Participation Rate

According to Department of Statistics Malaysia, Malaysia's population in 2019 is estimated at 32.6m million. To decide a specific amount of respondent needed, Krejcie and Morgan sampling method was used in this research. Based on the table for deciding sample size from a given population created by Krejcie and Morgan, a total of 1,000,000 of population size needed about 384 of sample size. So, this research target 400 of respondent and 431 set in total of survey questionnaire were received from the target respondent. However, only 400 sets of survey questionnaire fulfilled requirement. All the survey questionnaire was collected via Google Form.

The reason to eliminate 31 respondents among all because these responses are not qualified. This research set a threshold of 18 years old and above to be an eligible respondent therefore respondent below 17 years old will not consider. This research

will also automatically eliminate respondents which did not use SSTs before as their opinion are in fact not appropriate to this research. This research also figures out the justifiability of respondents by including contradict question in survey. 2 questions with same meaning are set up in opposite direction way. In case respondents react differently to these 2 questions, this research will square up respondent as illegibility and remove.

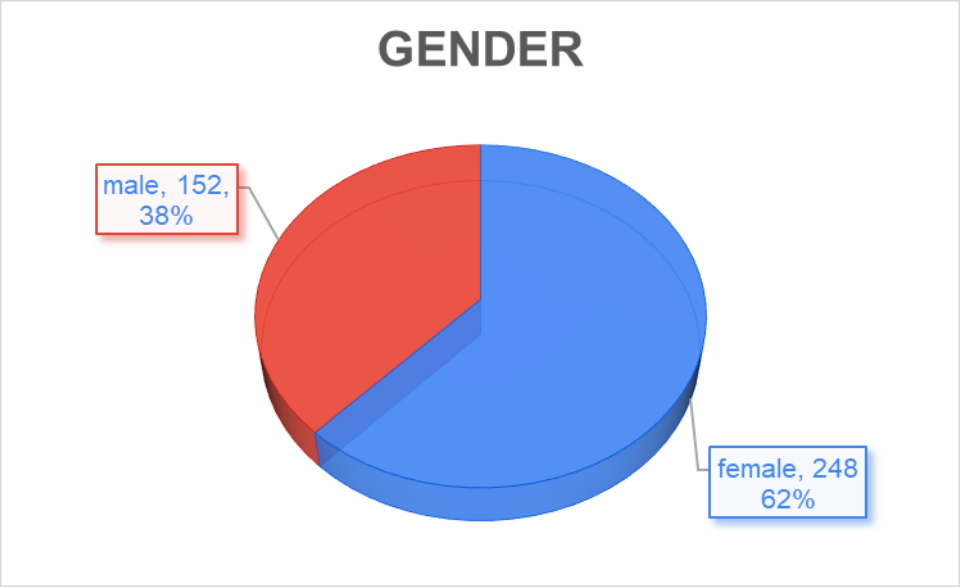
4.2 Descriptive Analysis

Descriptive analysis is a method applied by researchers to summarize their collected data and explain it through a simple construction such as graphs, charts, pictures and so on. The aim of descriptive analysis is to interpret the results obtained, clearly and precisely. In this research, descriptive analysis is used in explaining data collected in Section A of survey.

4.2.1 Respondent's Demographic Profile

Section A of survey represent the demographic profile of each respondents. This research has reached up to 400 respondents within Malaysia.

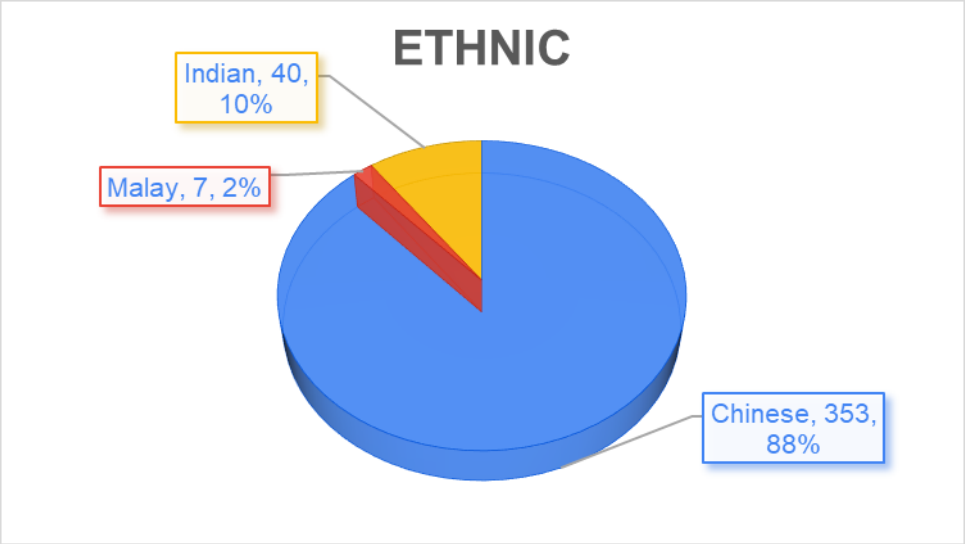
Figure 4.1: Gender



Source: Developed for Research

Figure 4.1 displays the gender of respondents who took part in the survey. Obviously, female respondents are more than male respondents in this research. Female have 248 people accounted for 62% while males have 152 people accounted for 38%. Females have exceeded males' respondent in 96 peoples or 24% in total.

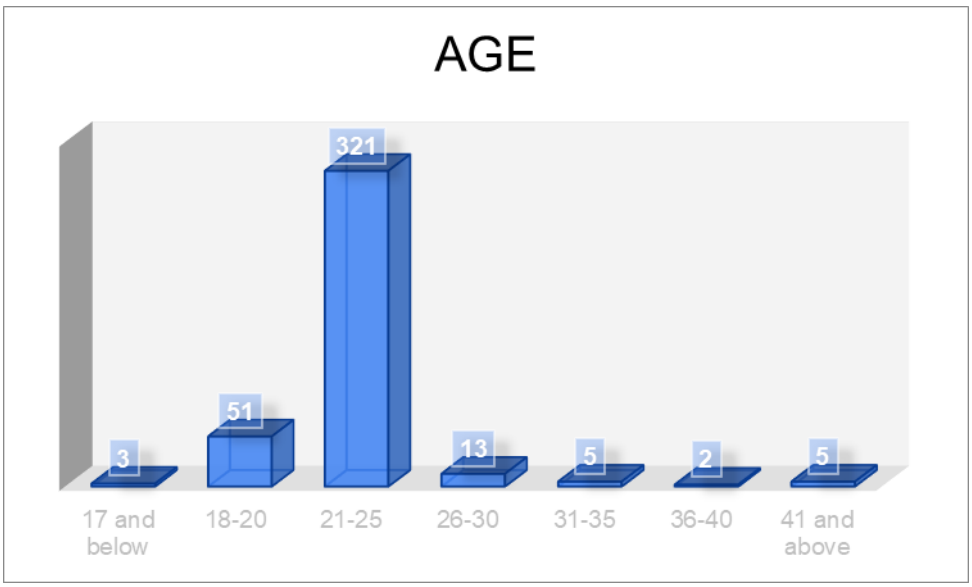
Figure 44.2.2: Ethnic



Source: Developed for Research

Figure 4.2 shows the ethnic of respondents in this survey. As the survey reached only within Malaysia, therefore the respondents are Chinese, Malays and Indians. With the greatest number of people, Chinese respondents have 353 people accounted for 88%, follow by Indian respondents 40 number of people accounted for 10% and Malay respondents of 7 people accounted for 2%.

Figure 4.3: Age

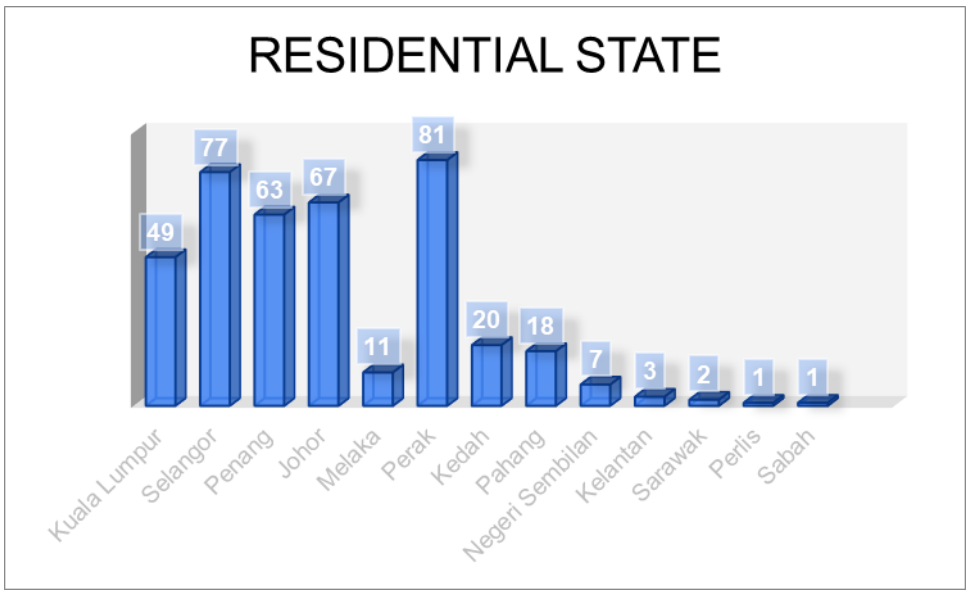


Source: Developed for Research

Figure 4.3 classify the age group of the respondents in the survey. Following the figure, most of the respondents are youth and decrease steeply when age reaches 26 years old. The highest number of respondents come from age group 21-25 which has 321 people accounted for 80.25%. Next, age group of 18-20 has 51 people accounted for 12.75%. Follow by age group 26-30 which has 13 people accounted for 3.25%.

The rest of age group took a minimal part of respondent, both 31-35 and 41 and above age group took 5 people each, 17 and below took 3 people and 36-40 took 2 people. These age groups accounted for 1.25%, 0.75% and 0.5% respectively.

Figure 4.4: Residential State



Source: Developed for Research

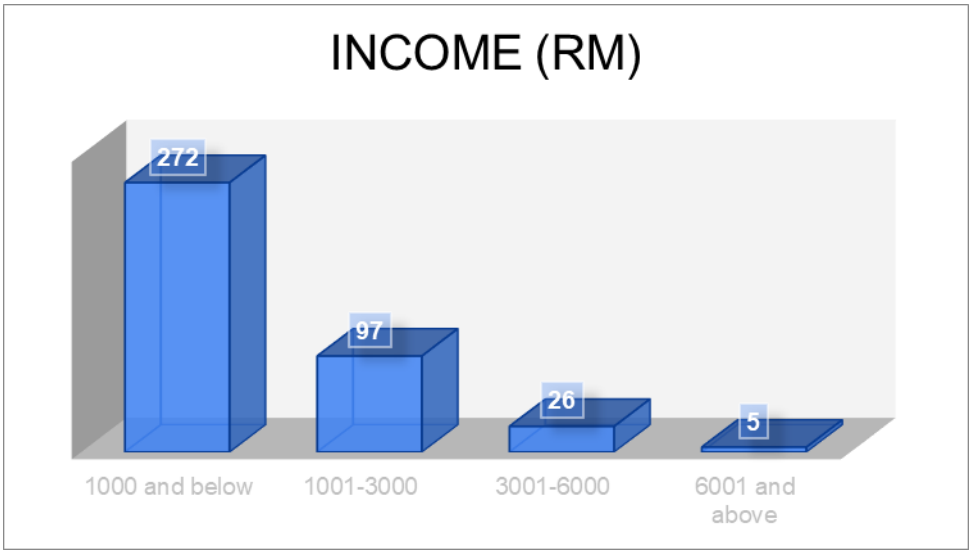
Figure 4.4 denotes the residential state of respondents in Malaysia. Based on the figure, results can be separate into two where Kuala Lumpur, Selangor, Penang, Johor, and Perak have higher respondents while Melaka, Kedah, Pahang, Negeri Sembilan, Kelantan, Sarawak, Perlis, and Sabah have lower respondents.

Most of the respondents come from Perak which has 81 people accounted for 20.25% and Selangor which has 77 respondents accounted for 19.25%. Follow by Johor which has 67 people accounted for 16.75%, 63 people from Penang accounted for 15.75% and 49 people from Kuala Lumpur accounted for 12.25%.

The minimal group of respondents come from Kedah which has 20 people accounted for 5%, Pahang has 18 people which accounted for 4.5%, Melaka has 11 people which accounted for 2.75%, Negeri Sembilan has 7 people which accounted for 1.75% and Kelantan has 3 people which accounted for

0.75%. Sarawak has only 2 people accounted for 0.5% while Perlis and Sabah each has 1 people accounted for 0.25% respectively.

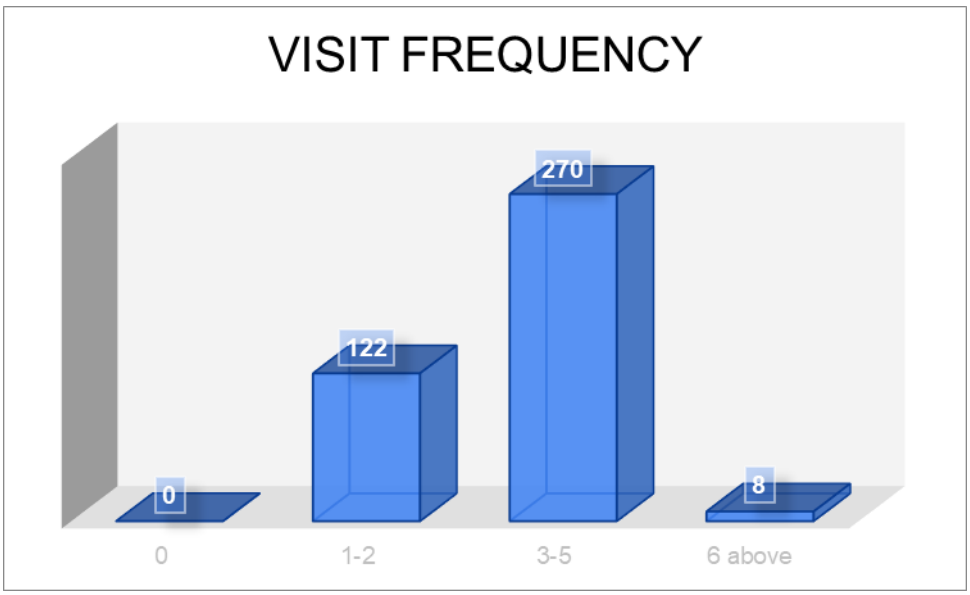
Figure 4.5: Income



Source: Developed for Research

Figure 4.5 displays the income of respondents from this survey. Through the figure, number of people decrease as the income level increase. Starts from income level RM1000 and below which took 272 people accounted for 68%, RM1001-3000 has 97 people which accounted for 24.25%, follow by RM3001-6000 which has 26 people accounted for 6.5% and RM6001 and above took only 5 people and accounted for 1.25%.

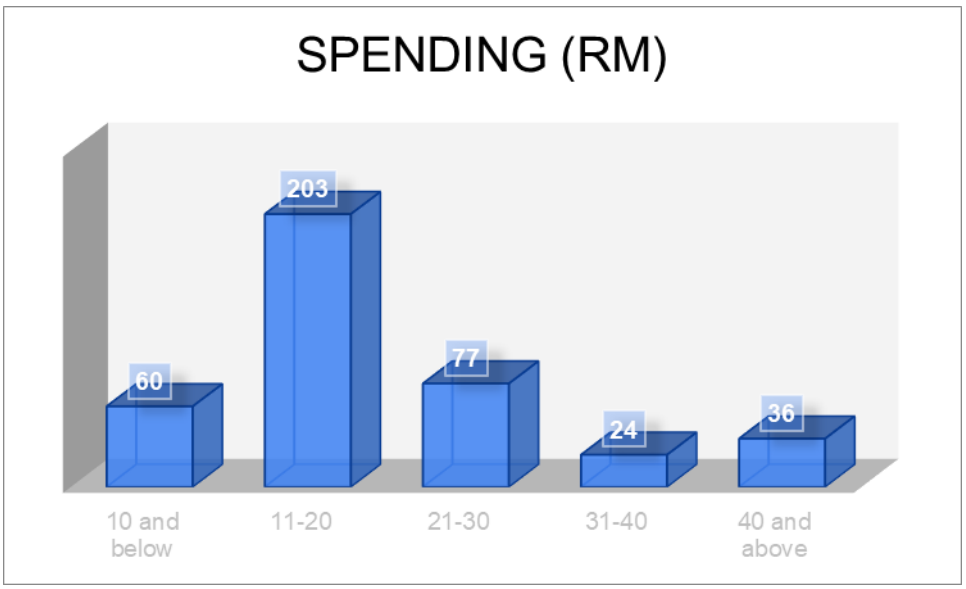
Figure 4.6: Visit frequency



Source: Developed for Research

Figure 4.6 shows the visit frequency of respondents from this survey. Vast majority respondents visit SSTs equipped restaurants 3-5 times weekly, number of people up to 270 accounted for 67.5%. Follow by 122 people accounted 30.5% visit SSTs restaurant 1-2 times and 8 people accounted 2% visit SSTs restaurant 6 times above weekly.

Figure 4.7: Spending



Source: Developed for Research

Figure 4.7 signifies the amount of spending in restaurant that implemented SSTs. More than half of the respondents or 203 people accounted 50.75%, spend RM11-20 each time visit. 77 people accounted for 31.5% spend RM21-30 per visit. 15% or 60 people spend RM10 and below each time visit. 9% or 36 people spend RM40 and above each time visit. Lastly, 6% or 24 people spend RM31-40 per visit.

4.3 Measurement and structural model

PLS-SEM is widely applied in many social science researches. The PLS-SEM method is very favourable by many researchers as it helps them to evaluate complex models and analyse the relationships simultaneously (Hair,Risher,Sarstedt & Ringle, 2019). In this part of the research will evaluate the result of PLS-SEM and analyse it accordingly.

4.3.1 Internal Consistency Reliability

4.3.1.1 Cronbach's Alpha, Composite Reliability, Average Extracted (AVE)

Cronbach's alpha also known as coefficient alpha is developed by Lee Cronbach in year 1951. It examines the internal consistency in primary data research. The general rule of thumb for Cronbach's alpha is 0.7 and greater than 0.7 is desirable.

Table 4.1: Cronbach's Alpha, Composite Reliability, Average Variance Extracted (AVE)

Constructs	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Consumer Spending Behaviour	1.000	1.000	1.000
Perceived Ease of Use	0.847	0.887	0.611
Perceived Usefulness	0.814	0.865	0.566
Technology Compatibility	0.856	0.895	0.629
Dining Duration	0.894	0.867	0.566

Source: Developed for Research

From the table 4.1, all the constructs are exceeding 0.7 and this indicates that the results of Cronbach's alpha are acceptable. The Cronbach's Alpha value of Customer Spending Behaviour showed 1.000 which is considered as the highest value among all the variables. It indicates that an excellent internal consistency. The variable of perceived ease of use, perceived usefulness, technology compatibility and dining duration showed that the Cronbach's Alpha value is 0.847, 0.814, 0.869 and 0.894, respectively. All these value falls between 0.8 to 0.9 is considered as good internal consistency.

Composite Reliability is also another measurement to measure the internal consistency. However, it is more reliable compared to Cronbach's alpha as it includes weightage when computing the data.

The composite reliability value of Consumer Spending Behaviour showed 1.000 which is considered as the highest value among all the variables. The variable of perceived ease of use, perceived usefulness, technology compatibility, and dining duration showed that the composite reliability value is 0.887, 0.865, 0.895, and 0.867, respectively. All the value is exceeded 0.8, thus it shows that the constructs is highly reliable and consistency in explaining the internal consistency.

Average Variance Extracted (AVE) is used to measure the convergent validity that consider of the value of variance by each construct in relation to the value of variance that arises from the measurement error. A minimum value of 0.5 for AVE aim to pass the reliability. Any value that falls below 0.5 indicates there is a measurement error occurred in the variance.

The average variance extracted value of Customer Spending Behaviour showed 1.000 which is considered highest value among all the variables. The variable of perceived ease of use, perceived usefulness, technology compatibility and dining duration of the average variance extracted value is 0.611, 0.566, 0.629 and 0.566, respectively. Thus, it can be summarized that all the variables in this model is considered as reliable.

4.3.2 Discriminant Validity

Discriminant validity is used to decide whether the independent variable is unrelated to each other. Fornell-Larcker Criterion is the most familiar and efficient method in measuring the discriminant validity. As stated by Fornell-Larcker, discriminant validity can be found out by contrasting the number of the variance captured by Average Variance Extracted and the variance extracted in each construct. As you can see the table below, the variance for each construct had exceeded its squared correlation. It can be said that the result can prove the discriminant validity of this measurement model (Fornell & Larcker, 1981).

Table 4.2: Fornell-Larcker Criterion

Variables	C	CSB	DD	PEOU	PU
C	**0.793**				
CSB	0.060	**1.000**			
DD	0.485	0.049	**0.795**		
PEOU	0.698	0.099	0.476	**0.782**	
PU	0.668	0.103	0.535	0.682	**0.752**

Notes: (a) Inter-construct correlations: off diagonal element (b) Square root of the AVE: Bold diagonal element

Based on table 4.2, it can see that the AVE of technology compatibility accounted to 0.629, however when applying square root in Fornell-Larcker Criterion, it becomes 0.793. The figure is greater than other values in the

same column. It also applied to other variables. Hence, discriminant validity is well developed in this model and this model is considered fit.

Table 4.3: Factor Loadings

C	TC	CSB	DD	PEOU	PU
TC1	0.79				
TC2	0.807				
TC3	0.801				
TC4	0.753				
TC5	0.816				
D1			0.762		
D2			0.917		
D3			0.867		
D4			0.679		
D5			0.727		
E1				0.778	
E2				0.800	
E3				0.762	
E4				0.804	
CSB		1.000			
U1					0.705
U2					0.835
U3					0.754
U4					0.735
U5					0.726

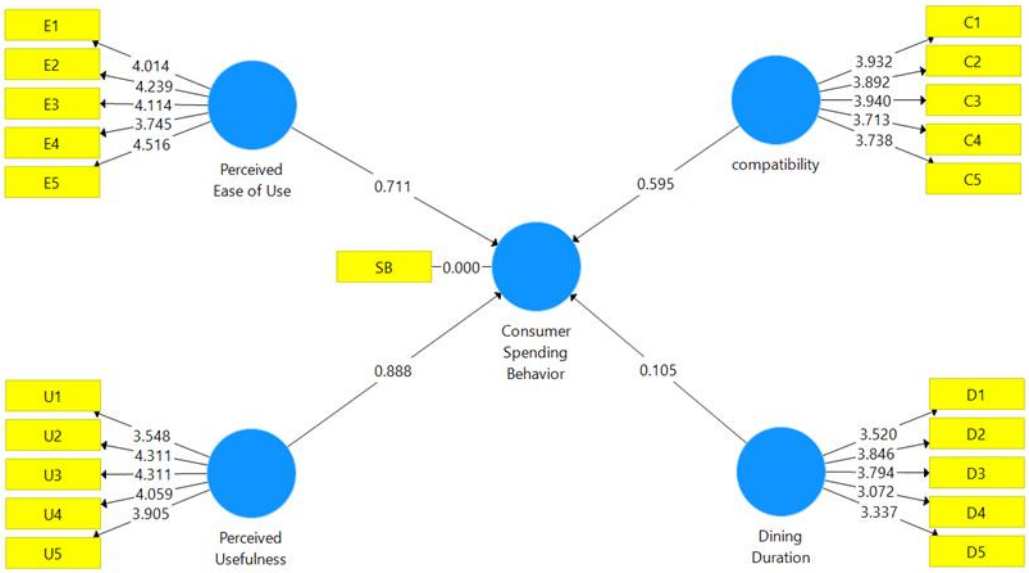
Notes: TC = Technology Compatibility; CSB = Customer Spending Behaviour; DD = Dining Duration; PEOU = Perceived Ease of Use; PU = Perceived Usefulness

The outer factor loadings should explain the estimated relationship between the latent variables and its indicators. According to Fornel Lacker (1981), the minimum value to pass the outer loadings factor is 0.70. Based on the table above, all items had passed 0.70 the minimum requirement, excluding D5. However, D5 still acceptable in this model because it is near to the minimum requirement of 0.70. Each of the items were load greater than 0.7,

therefore they do not have a strong relationship between each other. Discriminant Validity is valid in this model.

4.3.3 Path Coefficient

Figure 4.3: Structural Model (Bootstrapping)



Source: Developed for Research

Table 4.4: Summary of Structural Model

Hypo-thesis	Relationship	Sample Mean (M)	Standard Deviation (STDEV)	T Statistic	P values	Results
H_1	PEOU -> CSB	0.086	0.106	0.711	0.477	Unsupported
H_1	PU -> CSB	0.091	0.100	0.882	0.378	Unsupported
H_1	TC -> CSB	-0.009	0.076	0.609	0.543	Unsupported
H_1	DD -> CSB	-0.047	0.104	0.106	0.378	Unsupported

Notes: TC=Technology Compatibility; CSB =Customer Spending Behaviour; DD=Dining Duration; PEOU= Perceived Ease of Use; PU=Perceived Usefulness

In this research, the significance level （alpha) used to be 5% or 0.05 because 0.05 is a convention level (Kim & Choi, 2019). Lower significance levels indicate that you require stronger evidence to reject the null hypothesis. Malhotra and Person (2006) has reported that the model is treated as significant at that level if p-value is smaller than 0.05. A p-value that does not exceed 0.05 is statistically significant. It proved that strong evidence against null hypothesis, as only 5% probability the null is proper. Therefore, this shall reject the null hypothesis and accept the alternative hypothesis. However, based on the table above the p-value is exceeds 0.05, therefore it indicates all the hypotheses are insignificant. In addition, the four independent variables are insignificant to explain the dependent variable in this research because the p-values are less than 0.05.

4.4 Analysis of Outer Loading

4.4.1 Perceived Ease of Use

Table 4.5: Descriptive Statistic for Perceived Ease of Use

Statement	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Values
E1	0.778	0.700	0.193	4.027	0.000***
E2	0.800	0.729	0.185	4.325	0.000***
E3	0.762	0.696	0.183	4.155	0.000***
E4	0.764	0.693	0.203	3.764	0.000***
E5	0.804	0.728	0.190	4.229	0.000***

Note: When the P-value less than 5% or 0.05 considered as significant***

Table 4.5 portrays the descriptive statistic for perceived ease of use. The statement with the highest and the lowest original sample is statement E5 (0.804) and E3 (0.762) respectively. The table also shows that the statement E2 has the highest sample mean (0.729) and t-statistics (4.325) while the statement E4 has the lowest sample mean (0.693), t-statistics (3.764) and the highest standard deviation (0.203). The statement E3 has the lowest standard deviation (0.183).

4.4.2 Perceived Usefulness

Table 4.6: Descriptive Statistic for Perceived Usefulness

Statement	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Values
U1	0.705	0.641	0.188	3.742	0.000***
U2	0.835	0.767	0.192	4.341	0.000***
U3	0.754	0.690	0.173	4.363	0.000***
U4	0.735	0.675	0.178	4.141	0.000***
U5	0.726	0.667	0.175	4.145	0.000***

Note: When the P-value less than 5% or 0.05 considered as significant***

Table 4.6 displays the descriptive statistics for Perceived Usefulness. It shows that statement U1 has the lowest original sample (0.705), sample mean (0.641) and t-statistics (3.742). Meanwhile, statement U1 inherits the highest original sample (0.835), sample mean (0.767) and standard deviation (0.192). Besides that, the statement U3 has the lowest standard deviation (0.173) and the highest t-statistics (4.363).

4.4.3 Technology Compatibility

Table 4.7: Descriptive Statistic for Technology Compatibility

Statement	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Values
C1	0.790	0.694	0.211	3.742	0.000***
C2	0.807	0.724	0.217	3.712	0.000***
C3	0.801	0.718	0.209	3.826	0.000***
C4	0.753	0.670	0.203	3.701	0.000***
C5	0.816	0.707	0.216	3.782	0.000***

Note: When the P-value less than 5% or 0.05 considered as significant***

Table 4.7 above stands for the descriptive statistic for technology compatibility. For the original sample, the statement of C5 has the highest record (0.816). The statement of C2 has the highest record for both mean (0.724) and standard deviation (0.217) compared to other questions. Moreover, the statement of C3 shows the highest record for t-statistic which is 3.826. Meanwhile, the statement of C4 has the lowest record for all which are, original sample (0.753), mean (0.670), standard deviation (0.203) and the t-statistic (3.701).

4.4.4 Dining Duration

Table 4.8: Descriptive Statistic for Technology Compatibility

Statement	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Values
D1	0.762	0.727	0.221	3.454	0.001***
D2	0.917	0.730	0.240	3.813	0.000***
D3	0.867	0.722	0.227	3.811	0.000***
D4	0.679	0.676	0.230	2.948	0.003***
D5	0.727	0.733	0.227	3.211	0.001***

Note: When the P-value less than 5% or 0.05 considered as significant***

Table 4.8 above stands for the descriptive statistic for dining duration. The statement of D2 has the highest record for original sample (0.917), standard deviation (0.240) and t-statistic (3.813). For the mean value, the statement of D5 shows the highest record which is 0.733. Meanwhile, the statement of D4 has the lowest record for original sample (0.679), mean (0.676) and t-statistic (2.948). The statement of D1 had the lowest standard deviation with the value of 0.221.

4.5 Conclusion

In short, the data collected from the respondents had been conducted by using SMART PLS 3 to generate the results. The pie chart and bar chart constructed aim to show the summary data for respondent demographic. Data analysis is done by the PLS-SEM and figure out the variable's validity and reliability.

CHAPTER 5: DISCUSSION AND CONCLUSION

5.0 Introduction

This chapter focus about the statistical analysis and discussion of major findings to confirm the hypotheses in the earlier chapter. This chapter followed by implication, limitation, recommendation for future researchers and end up with the conclusion.

5.1 Summary of Statistical Analysis

Table 5.1: Summary of Bootstrapping Result

No	Test	Hypothesis	Hypothesis Decision	Result
1.	Perceived Ease of Use to Consumer Spending Behaviour	H_0: There is no significant relationship between perceived ease of use and consumer spending behaviour H_1: There is a significant relationship between perceived ease	Decision rule: Reject H0 if p-value is smaller than 0.05. Otherwise, do not reject H0. Decision making: H1 is not supported. Hence, do not reject H0.	Insignificant **(p-value=0.477)**

		of use and consumer spending behaviour.		
2.	Perceived Usefulness to Consumer Spending Behaviour	H_0: There is no significant relationship between perceived usefulness and consumer spending behaviour $H_{1:}$ There is a significant relationship between perceived usefulness and consumer spending behaviour	Decision rule: Reject H0 if p-value is smaller than 0.05. Otherwise, do not reject H0. Decision making: H1 is not supported. Hence, do not reject H0.	Insignificant **(p-value=0.378)**
3.	Technology Compatibility to Consumer Spending Behaviour	H_0: There is no significant relationship between technology compatibility and consumer spending behaviour $H_{1:}$ There is a significant relationship between technology compatibility and consumer spending behaviour	Decision rule: Reject H0 if p-value is smaller than 0.05. Otherwise, do not reject H0. Decision making: H1 is not supported. Hence, do not reject H0.	Insignificant **(p-value=0.543)**

4.	Dining Duration to Consumer Spending Behaviour	H_0: There is no significant relationship between perceived dining duration and consumer spending behaviour H_1: There is a significant relationship between dining duration and consumer spending behaviour	Decision rule: Reject H0 if p-value is smaller than 0.05. Otherwise, do not reject H0. Decision making: H1 is not supported. Hence, do not reject H0.	Insignificant **(p-value=0.378)**

Source: Developed for Research

5.2 Discussion of Major Findings

5.2.1 Perceived Ease of Use (PEOU)

Perceived ease of use is the easiness of user using certain system (Davis, Bagozzi & Warshaw, 1989). The respondents of this research had responded that perceived ease of use is insignificant to influence their spending behaviour. Therefore, result gets from this research showed that perceived ease of use is insignificant to influence on their spending behaviour. The respondents of this research pointed out that some of the restaurants do provide SSTs, however, the layout or the user interface is confusing. Thus, using SSTs consider as complicated to them. Besides that, the respondents

also think order food with SSTs limits the food customization to suit their needs. Hence, SSTs might not be suitable for those customers that have specific requirements. The respondents also experienced SSTs that are slow and lag. This will reduce consumer satisfaction. Therefore, they think that SSTs is complicated. Taufik and Hanafiah (2019) has reported that perceived ease of use and flight passenger behaviour formed a significant connection because the airport helps the passenger to free the extra effort during the check-in and baggage drop process. Therefore, the SSTs should emphasize on reducing the effort of the consumers such as providing more languages and improving the user interface to reduce the customers' confusion.

5.2.2 Perceived Usefulness (PU)

Davis et al. (1989) stated TAM use to find out how a system can affects someone's intention and behaviour by using the system. For instance, the usefulness of SSTs affects the customers' intention and behaviour to use the system which eventually might affect the customers spending behaviour. To be precise, usefulness is described as how a system can improve the performance of the system itself. In conjunction with this, an insignificant relationship exists betwixt customer spending behaviour and its determinants in this research. This proved by the analysis that has been generated, the results show the p-value of perceived usefulness is 0.378 which is larger than 0.05. As stated by Hanjaya, Kenny & Gunawan (2019), the improvement on the performance of a system, the effectiveness of the system, productivity in terms of searching and surfing the system, and the usefulness in providing some the information on the technology based system will be targeting the satisfaction of the consumers to obtain and consume the desired products and services. Thus, by referring to the

opinions by the respondent in this research, it was stated that they need more language preferences such as adding Chinese language besides Malay language and English. Moreover, they prefer some improvement in customizing their ordered foods and beverages, such as ordering beverages without ice. The opinion also stated that they need more correct and reliable information of the menu provided such as displaying the exact image of the foods. Hence, this can say that the usefulness of the SSTs might need more improvement and that is why the relationship between the perceived usefulness and customer spending behaviour has insignificant relationship in this research.

5.2.3 Technology Compatibility (TC)

The definition of compatibility is the level to which the technology revolution and implementation is compatible with the consumers' or users' standards and desires (Ozturk, Bilgihan, Nusair & amp; Okumus, 2016). The respondents who attended the survey of this research think that the SSTs is inconsistent with their values and needs. Hence, the result indicated that compatibility is not significant to influence the spending behaviour of the consumers. According to Iberahim, Mohd Taufik, Mohd Adzmir and Saharuddin (2016), their research showed that the consumer satisfaction is not influenced by the technology implemented but consistency, dependability, and timeliness. The respondents of this research also opined that the reason that they are satisfied in using SSTs is because it is fast, efficient, and convenient. Hence, whether using the latest technology in the restaurant is not the concern of the consumer but the dependability and timeliness is more of their concern. Besides that, the respondents of this survey pointed out that some of the young kids or senior citizens are not used to SSTs. Therefore, it is extremely hard to influence their spending

behaviour because they are not familiar with SSTs. There is also another opinion saying that SSTs is slow and lag. Therefore, influencing their spending behaviour because the living rhythm nowadays is faster than old days. Hence, timeliness is more significant in influencing the spending behaviour of the consumers (Iberahim et. al, 2016).

5.2.4 Dining Duration (DD)

The meaning of dining duration is the time taken to spend in a restaurant including ordering process, eating process, payment process for a person. This also includes the waiting time for a customer if there is a long queue or delayed meal preparation. In this era, with this fast-paced generation, everything needed to be done in a short time. Same goes to the people who wish to finish their meals in a short time especially when they are busy, they can visit the SSTs based restaurants to reduce their dining duration. Hence, the dining duration would be significant to influence the spending behaviour of the customers. However, after conducting the survey, the respondents who have taken part in the survey have conveyed that the dining duration has insignificant relationship between their spending behaviour which contradict with our hypothesis. According to Giebelhausen, Robinson and Cronin (2011), it was stated that even though some research says that the longer waiting time has given negative evaluation to the product and service provider, however it is not difficult to notice that some of the circumstances in which customers are willing to wait. Customers often spend some time to consume or enjoy the products and services. For instance, customers wait to be seated in a restaurant, for salon appointments, for concert tickets and for latest launched smartphones. Customers often seem to be attracted by the queue (Giebelhausen, Robinson & Cronin, 2011). A single-minded assumption will be made that the longer the dining duration, the customer

evaluation will be negative, and they will be not satisfied with the product and services provided, hence it will affect their spending behaviour. However, Giebelhausen, Robinson and Cronin (2011), has mentioned that the waiting time does not generate negative insights but instead of it will able to increase the perceived quality, buying intention and finally satisfactions. Sometimes the value, features of the product, provider reputation and branding of the products and service make it worth to wait. Hence, it can be said that the consumers' spending behaviour does not really depend on dining duration.

5.3 Implication of the Research

In this research, knowledge of the citizens in Malaysia towards SSTs is considered low as all our determinants have an insignificant relationship with the adoption of SSTs. Therefore, it can contribute some practical implication to the policy maker or practitioners. The restaurants that were familiar to us that used SSTs only had some Japanese restaurants, for instance Sushi King, Sakae Sushi, Macdonald, BarbQ Plaza etc. Compared to other countries, the number of restaurants that implement SSTs in Malaysia is considered exceptionally low.

The fast growth of technology encourages the development of SSTs that brings convenience to the consumers in the services facility. In this technology era, every one of us is well educated and has had high exposure towards smartphones and laptops since young. This has triggered research questions in this society since the people are having less knowledge in SSTs. Therefore, the policy maker and practitioner should utilise technology in service facilities by distributing some budget for the purpose of aiding the food and beverage sector in adopting self-service or improving their existing technology. The policy maker or the practitioner

can help in increasing the awareness of SSTs in Malaysia by helping the business to transform their business operation by utilising more technology.

The impact of the technology is unquestionable, it has immersed people's routine and is also vital to the development of the country. Therefore, the spending behaviour that results from the adoption of SSTs is common to research with opportunities for future research. However, in this research, result is insignificant which indicates that theory that used might not be correct in this part. After this research, there are some theories with theoretical implication that might bring some benefit to the future research. The theory that able to apply in the future is the theory of reasoned action and the innovation adoption process.

Not only that, the target respondent and reachability bring significant effect in conducting the research. Due to the Movement Control Order that arises from the pandemic of Covid-19, the research questionnaire can only be distributed by Google Form. Instead of distributing to the customer that physical went to the restaurant using SSTs, distributing online will cause the survey to have lack accuracy. Therefore, the further researcher should take note of this.

Besides, there are some implications for the managerial level. Educating the knowledge of the SSTs on the employees is very important. They must create awareness of the SSTs services to the customer and provide aid to the customer. This is helping in maximise customer satisfaction, reduce the customer waiting time and utilise the resources of the business effectively. Besides, it provides information of the preference and the difficulties of the customer when using SSTs, this can help the managerial level in doing improvement on it.

5.4 Limitations of Research

This research confronts multiple limitations which spur the continuation of further research. First, this research is conducted just at the time when Coronavirus outbreak. Owing to pandemics, Malaysia has implemented Movement Control Order (MCO) throughout the country, constraining this research from reaching out more survey respondents. Due to MCO, this research has collected responses only through virtual survey such as Google Form. A limited amount of respondent collection and low ratio of respondents in relation to Malaysia population, prone to be disadvantage for this research.

Instead of carrying out practical survey, the survey is propagated through online which led to illegibility of responses. As virtual survey is conducted in this research, had consequently made the survey missed inquired into irrelevant or inappropriate respondents, which is out of control under given survey choice. This research might also omit the possible situational factor such as usage of respondent on SSTs in affecting the survey results, indirectly influencing the quality of research.

Furthermore, SSTs is yet to be widespread across Malaysia. To date, only the capital city of Malaysia, Kuala Lumpur's restaurant are widely adopted with SSTs compared to other states which has lower adoption. Even the big city itself, is not highly or fully popularize with restaurant SSTs in the extent where less than half of restaurants act as adopters. Therefore, this encumbrance restricted this research from a more detailed and comprehensive investigation.

Initially, the distribution of the questionnaire to the customer of the restaurant that adopting SSTs as the target respondent, however, due to the outbreak of Covid-19 pandemic, the implementation of Movement Control Order (MCO), it increases the difficulty level by not able to distribute questionnaire physically to the target respondent. Hence, distribute questionnaire through google form as the alternative plan. However, this also brings some limitation which could not control the age range of the respondent. The respondents 90% age range from 18-25 years old, and

10% is range from 25 – 41 years old and above. This will cause the research to be biased.

Finally, this research only focused on the SSTs adoption towards spending behaviour in food and beverage industry or restaurants. The focus of this research is not generalized enough and insufficient to prove the relationship between SSTs and spending attitudes.

5.5 Recommendation for Future Researchers

For a deeper probe and better comprehension in particular research subject, this research act as support to prompt a further research. In the situation of unprecedented pandemic which restricted movement, future researchers could carry out virtual survey by using interpersonal relationship efficiently, targeting all reachable people as respondents through online. Researchers should start collecting respondents as early as possible in this critical time, the more respondent the better instead of stopping collection after hitting target. After obtained an excessive number of respondents, researchers can later filter the responses selectively to keep the quality of information acquired.

The future survey should also consider giving survey in more concentrated way such as targeting more related respondents through associated platform to obtain more precise information. The unexpected situational issue, the usage of SSTs by respondents should be considered by understanding the relevant information through questionnaire. The future survey should include the question about respondent's usage frequency, expecting higher frequency indicates higher accuracy and more reliable the information provided by respondent.

Majority of the respondents in our research are about 21 years old to 25 years old. One of the actions that can be taken to include more age categories in our research is to collaborate with those restaurants that provide SSTs. A QR code can be put in the restaurants so that the customers visiting the restaurant can access our survey questionnaire more conveniently. By collaborating with those restaurants, opinion from respondents of different age categories can be obtained more easily. Also, this can help to reduce the bias to a particular age category and to be more focus on the entire population in Malaysia.

Lastly, popularity of SSTs in Malaysia and narrow direction of research subject limited this research to be beneficial and informative. These limitations are challenging as they are beyond the ability or researchers. One of the ways to overcome these limitations is to carry out research across countries. Future researchers can refer to first tier developed countries on how their adoption of SSTs works. Hence, future researchers can broaden the coverage of research purpose, develop the scope of research by squaring up other sectors which is concerned with SSTs. Pursuing enhancement for this research implied that future researchers should own critical thinking and impactful justification as prerequisite.

5.6 Conclusion

To sum up, this research discusses about the adoption of SSTs towards customer spending behaviour. The determinants that affect customer spending behaviour towards the adoption of SSTs are perceived ease of use, perceived usefulness, technology compatibility and dining duration. This research result stated that all the determinants have insignificant connection with the adoption of SSTs

Moreover, this research had highlighted some limitations and recommendations. The limitations are limited amount of respondent collection and low ratio of respondents in relation to Malaysia population, illegibility of responses, SSTs is not common in Malaysia, and the research only focuses on the food and beverage industry instead of the wider sector. To solve the limited number of respondents, the research questionnaire should be carried out by using interpersonal relationships efficiently and distributing it as early as possible. Besides, distributing the survey in a more concentrated way can eliminate the problem of illegibility of responses. Lastly, the researcher can carry out research across countries and broaden the research coverage.

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APPENDICES

Appendix 3.1: Survey Questionnaire Permission Letter

UNIVERSITI TUNKU ABDUL RAHMAN
Wholly Owned by UTAR Education Foundation (Company No. 578227-M)

11th May 2020

To Whom It May Concern

Dear Sir/Madam,

Permission to Conduct Survey

This is to confirm that the following students are currently pursuing their *Bachelor Of Finance (Hons)* program at the Faculty of Business and Finance, Universiti Tunku Abdul Rahman (UTAR) Perak Campus.

I would be most grateful if you could assist them by allowing them to conduct their research at your institution. All information collected will be kept confidential and used only for academic purposes.

The students are as follows:

Name of Student	Student ID
Hor Cindy	17ABB00474
Kong Jia Hui	17ABB00100
Lay Yi Cong	17ABB00199
Rathneswary A/P Sridhar	17ABB00860
Tan Kok An	17ABB00735

If you need further verification, please do not hesitate to contact me.

Thank you.

Yours sincerely,

.....

Ms Kuah Yoke Chin
Supervisor and Head of Department
Faculty of Business and Finance
Email: kuahyc@utar.edu.my

Kampar Campus : Jalan Universiti, Bandar Barat, 31900 Kampar, Perak Darul Ridzuan, Malaysia
Tel: (605) 468 8888 Fax: (605) 466 1313
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Tel: (603) 9086 0288 Fax: (603) 9019 8868
Website: www.utar.edu.my

Appendix 3.2: Survey Questionnaire Sample

UNIVERSITI TUNKU ABDUL RAHMAN

QUESTIONNAIRE

Dear respondent,

We are the students from Universiti Tunku Abdul Rahman (UTAR). We are currently conducting a survey on the **Adoption of Self-Service Technology (SSTs) Towards Customer Spending Behaviour** for our final year project (FYP).

Your co-operation in answering this questionnaire is highly important to us. This will be a tremendous help for the completion of our research and in the achievement of its purpose. We truly appreciate you for taking your time and effort in completing these questions. All of the information obtained with regards to this research will be kept **strictly confidential**. This information is solely for academic research purposes.

Thank you very much for your time and participation. If you have any enquiry, please do not hesitate to contact any one of our team members.

Yours sincerely,

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Please be informed that in accordance with Personal Data Protection Act 2010 ("PDPA") which came into force on 15 November 2013, Universiti Tunku Abdul Rahman ("UTAR") is hereby bound to make notice and require consent in relation to collection, recording, storage, usage and retention of personal information.

Acknowledgment of Notice

- I have been notified by you and that I hereby understood, consented and agreed per UTAR above notice.
- I disagree, my personal data will not be processed.

……

Date:

Section A: Demographic Profile

The following questions refer to the demographic profile to the respondents. Please provide the appropriate information by placing a (√) in the bracket provided to represent your answer.

Notes: Self Service Technology is technological interfaces allowing customers to use services independent of involvement of direct service employee.

Example: place order using a tablet, mobile app or kiosks.

1. Gender
    - Male
    - Female

2. Ethnic
    - Malay
    - Chinese
    - Indian
    - Others: ___

3. Age
    - 17 and below
    - 18 – 20
    - 21 – 25
    - 26 – 30
    - 31 – 35
    - 36 – 40
    - 41 and above

4. Residential State
    - Kuala Lumpur
    - Selangor
    - Penang
    - Johor
    - Others: ___

5. Monthly allowance/income
    - RM1,000 and below
    - RM1,001 to RM3,000
    - RM3,001 to RM6,000
    - RM6,001 and above

6. How frequently do you visit restaurant that applied Self-Service Technology in a month?
    - None
    - 1-2 times
    - 3-5 times
    - 6 times and above

7. How much do you spend in restaurant that applied Self-Service Technology each time?
    - RM10 and below
    - RM 11 to RM 20
    - RM 21 to RM 30
    - RM 31 to RM 40
    - RM 41 and above

Section B

Note: Scale 1 indicates that you strongly disagree with the statement and 5 indicates you strongly agree with the statement.

Perceived ease of use

		Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1.	Self-Service Technology is complicated to use.	1	2	3	4	5
2.	Self-Service Technology is user friendly.	1	2	3	4	5
3.	Self-Service Technology is easy to use and do not need the assistance from staff.	1	2	3	4	5
4.	Self-Service Technology provides a simple and understandable language.	1	2	3	4	5

5.	Self-Service Technology provides a clear food & beverage image.	1	2	3	4	5
6.	Self-Service Technology enhance my ordering experience.	1	2	3	4	5
7.	Self-Service Technology is organised to fit best interest of customer.	1	2	3	4	5
8.	It is easy to get Self-Service Technology to do what I want it to do.	1	2	3	4	5
9.	Self-Service Technology requires little action to place order.	1	2	3	4	5

Perceived usefulness

		Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1.	Self-Service Technology enhances my effectiveness in ordering process.	1	2	3	4	5
2.	There is too much information presented on the Self-Service Technology	1	2	3	4	5
3.	Self-Service Technology helps me to browse the meal items conveniently.	1	2	3	4	5
4.	Self-Service Technology provides integrated functions. (i.e.	1	2	3	4	5

	ordering, payment and feedback)					
5.	Self-Service Technology shows ordering status.	1	2	3	4	5
6.	Self-Service Technology is well organised in terms of menu categorisation.	1	2	3	4	5
7.	Self-Service Technology reduces error in the ordering process.	1	2	3	4	5
8.	Self-Service Technology achieves user expectation.	1	2	3	4	5

Technology Compatibility

		Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1.	Self-Service Technology is compatible with my educational level.	1	2	3	4	5
2.	Self-Service Technology does not suitable with my needs.	1	2	3	4	5
3.	Implementation of Self-Service Technology is suitable to the current stage of their business.	1	2	3	4	5
4.	Implementation of Self-Service Technology suitable with current trend towards cashless society.	1	2	3	4	5
5.	Implementation of Self-Service Technology allows	1	2	3	4	5

	me to follow the current technology trend.					
6.	Self-Service Technology requires less verbal communication.	1	2	3	4	5
7.	I like interacting with staff instead of Self-Service Technology.	1	2	3	4	5
8.	Self-Service Technology suitable for all age.	1	2	3	4	5
9.	Self-Service Technology fits well with my lifestyle.	1	2	3	4	5
10.	Implementation of Self-Service Technology is not suitable to the current stage of their business.	1	2	3	4	5

Dining Duration

		Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1.	Self-Service Technology shortens my ordering process.	1	2	3	4	5
2.	Self-Service Technology is faster than the traditional ordering system.	1	2	3	4	5
3.	Self-Service Technology allows me to get my meal in a timely manner.	1	2	3	4	5
4.	Self-Service Technology allows me to make payment instantly.	1	2	3	4	5

5.	Self-Service Technology shortens my overall meal duration at **peak hour** as compared with restaurant without Self-Service Technology.	1	2	3	4	5
6.	Self-Service Technology instantly confirmed my order without delaying.	1	2	3	4	5
7.	Self-Service Technology saves my time.	1	2	3	4	5

Section C

As a customer, what are your opinions towards self-service technology that applied in restaurant?

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