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The Future of Fast Food: Examining the Intention the Use of Self-Service Technology at Quick Service Restaurants in the Post-Pandemic Era

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Abstract

The COVID-19 pandemic has significantly transformed consumer behaviours, especially in the quick-service restaurant (QSR) industry. With heightened concerns about hygiene and safety, the adoption of self-service technologies (SSTs) has accelerated. This study explores the factors influencing customers' intentions to use SSTs in QSRs in a post-pandemic environment, highlighting the importance of understanding these dynamics to enhance customer experience, operational efficiency, and overall restaurant performance. A quantitative research approach was employed to gather data from a sample of QSR customers. Surveys were distributed, collecting responses that measure various factors such as perceived ease of use, perceived usefulness, perceived risk, and customer satisfaction. The Technology Acceptance Model (TAM) served as the theoretical framework for this study, providing a basis for analyzing the collected data. Statistical analysis, including regression models, was utilized to determine the relationships and impact of these factors on customers' intention to use SSTs. The findings indicate a strong positive correlation between perceived ease of use and perceived usefulness of SSTs with the intention to use them. Additionally, the study reveals that perceived risk significantly moderates the relationship between perceived usefulness and the intention to use SSTs. Customers who perceive high usefulness in SSTs but also high risk are less likely to use these technologies. Moreover, customer satisfaction plays a crucial role, with satisfied customers showing a higher propensity to adopt SSTs. The study suggests several areas for future research, including a deeper investigation into the long-term effects of SST adoption on customer loyalty and business profitability. Further research could also explore demographic differences in SST adoption, such as variations in behavior across

different age groups or cultural backgrounds. Additionally, examining the impact of technological advancements and continuous innovation in SSTs on customer acceptance could provide valuable insights for the industry.

Keyword: Service Technology, Qsr, Quick-Service Restaurant, Self-Service Technology, Customer Satisfaction, Technology Adoption.

Introduction

Quick-service restaurants' (QSRs') operations have seen a substantial change in the post-pandemic era, especially with the growing usage of self-service technologies. In order to improve customer satisfaction and operational effectiveness, this technology—which includes digital kiosks, smartphone apps, and online ordering systems—has emerged as a crucial element in the QSR sector (Smith & Johnson, 2023). The COVID-19 epidemic has hastened the use of self-service technology in QSRs as companies look to reduce human interaction and follow safety procedures (Brown, 2022).

Examining the application and effects of self-service technology (SST) in QSRs in the post-pandemic period is the goal of this paper. Information and communication technology (ICT) known as self-service technology (SST) allows users to create services for themselves with little to no help from employees or service providers (Meuter, Ostrom, Roundtree, Bitner, & Encounters, 2000). By eliminating the need for human intervention, these technologies enable customers to place orders and make payments, cutting down on wait times and increasing order accuracy (Williams, 2024). Because of the service's rapid payment option, the client was able to avoid lengthy lines, which is particularly useful at busy times and during the holidays.

One major factor influencing QSRs' adoption of self-service technology is the COVID-19 pandemic. These technologies have given rise to a safer and more effective substitute for conventional ordering systems in the presence of social distancing measures (Brown, 2022). Additionally, by enabling takeout and delivery services, they have made it possible for QSRs to continue operating during lockdowns (Smith & Johnson, 2023). Companies in the QSR sector have seen years of change as a result of the COVID-19 crisis, which has sped up the digitization of internal operations, supply-chain and customer interactions, and consumer interactions by three to four years (McKinsey, 2020).

In the post-pandemic period, self-service technology utilization in QSRs is probably going to continue to rise. QSRs will need to keep spending money on these technologies' advancement as consumers grow increasingly acclimated to them. To personalize client experiences, this entails improving user interfaces, combining with loyalty programs, and utilizing artificial intelligence (Williams, 2024). QSR managers must comprehend these elements in order to increase customers' inclination to use self-service technologies. Restaurants can foster successful adoption of the technology and generate a great customer experience by addressing usability, safety, and social influence.

Literature Review and Hypothesis Development

Intention to Use

Intention to use, also known as Behavioural Intention to use (BI), is an important module that derives from the technology acceptance model (TAM), which is primarily concerned with the

study of consumer intentions to adopt new technology. Teo, Zhou, and Noyes (2016) posit that an intention is formed when an individual readies themselves to execute a specific behaviour and feels prepared to achieve it. According to Wong et al. (2013), a person's behavioural motivation for acting determines whether or not they will engage in a given action. Stated differently, an individual's behaviour or choice of action will cause them to engage in a specific activity in order to achieve the desired outcome (Iqab, Hassan & Habibah, 2018).

To put it briefly, "behavioural intention" refers to a person's inclination to adopt new technologies (Tsai, 2012). It is feasible to draw the conclusion that behavioural intention, or BI for short, is always associated with an individual's subjective norms or estimated likelihood of engaging in a given behavior. Perceived usefulness, usability, effectiveness, and trust in the service are among the factors that are considered independent in this study. All of these factors were taken into account when fast service restaurants decided to use self-serve technology.

Efficiency

Examples of the independent variables in the model that moderate effects and have a moderating impact are consumer attributes and environmental factors. The first thing to take into account is self-efficacy, which is essentially a person's belief in their ability to do a specific behavioral pattern (Dabholkar & Bagozzi, 2002). Some consumers may have greater experience using the SST system than other students, which would imply that they have a higher degree of self-efficacy (Dabholkar & Bagozzi, 2002).

According to Norman Chiliya (2014), consumers who have a higher level of self-efficacy are more likely to have increased confidence in their ability to use an SST. Because of this, consumers who are less confident in their own abilities will place less value on the SST's usability and ease of use than those who do. Higher self-efficacy consumers are more likely to focus on the issue of whether employing an SST to complete the service is desirable. Still, it is easy to see the positive aspects of an activity when one feels confident in their capacity to do it. Therefore, there will be a stronger correlation between attitude and perceived usefulness when self-efficacy is higher.

H: Efficient positively influenced customer’s intended use of Self-Services Technology

Perceive ease of use

In the future, consumers will embrace new technology that is simple to use and doesn't take as much work to do tasks. According to Davis (1989), "the degree to which a person believes that using a specific system or technology will be devoid of exertion" is how the data frameworks depict ease of use. Additionally, SSTs can help you save time and money by reducing wait times and offering you greater control over the provision of your service (Curran, 2003).

Consumers can conduct and provide services using SSTs without the assistance of employees, leading to more effective and customized services (Meuter, 2000). For instance, thanks to SST's technology, customers may check in at a hotel or the airport without having to stand in a long line. Due to the fact that smartphones are becoming lighter and smaller, customers

may complete the check-in process more quickly while using mobile check-in. According to Lin and Hsieh (2006), the majority of customers favor SSTs with straightforward websites and solid support when switching from traditional to SST services.

H2: Perceive ease of use positively influenced customer's intended use of Self-Services Technology.

Perceive usefulness.

As defined by Davis (1989), "perceived usefulness" is the degree to which an individual thinks that using a certain technology system will boost performance, productivity, and efficacy. One important determinant of whether or not individuals adopt a certain technology is their level of belief about its value to them. For example, the results of Cho's (2011) study on self-service technology show that consumers' attitudes are significantly influenced by how useful they believe a product to be.

Research conducted in the banking, airport, and trade industries has led to the conclusion that views regarding SSTs are mostly influenced by perceived utility (Cho, 2011; Liu, Huang, and Chiou, 2012; Esman et al., 2010). Dabholkar and Bagozzi claim that because consumers do not own the technology they use, it is hard to assess the usefulness of SST. Because of this, evaluating the technology's efficacy is challenging (2002). This construct cannot be accepted as valid during task performance if it is not measured in a consistent and precise manner.

H3: Perceived usefulness positively influenced customer's intended use of Self-Services Technology.

Service Trust

Wall (2020), asserts that being able to take care of your own needs and ensure your own safety is a sign of self-trust. Being self-reliant also demonstrates your self-assurance. It shows that you value kindness more than perfection in your daily life and that you are confident in your capacity to adapt to changing circumstances. She continued by saying that it means you aren't going to give up on yourself easily. This is a term that can be applied to any kind of trust that serves professional practices or other kinds of commercial enterprises, including hybrid, unit, and discretionary trusts. In most cases, the people who own a commercial company or professional practice will be the ones in charge of that entity or practice.

H4: Service Trust positively influenced customers' intended use of Self-Services Technology

Research Framework

This study developed the research model and hypotheses that were consistent with the real situations of this study which are customer satisfaction influenced by information quality, system quality, service quality, support and net benefit. Therefore, four hypotheses were obtained as shown in figure 1.

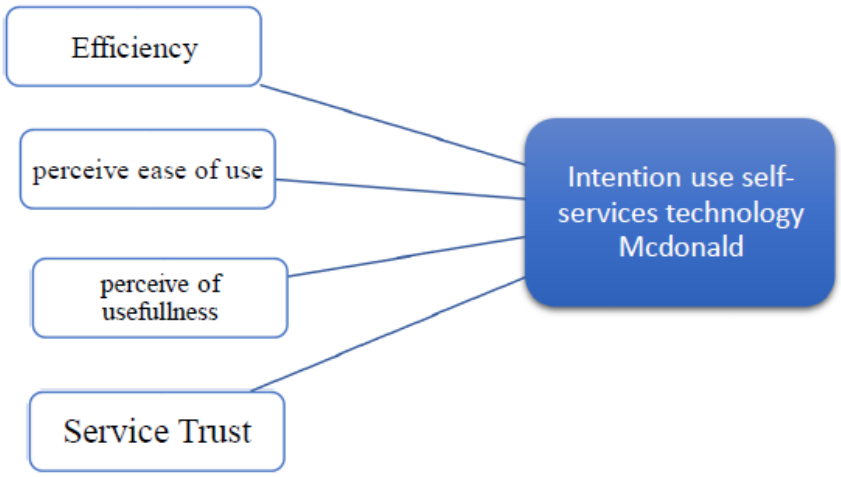

Figure 3.1 Conceptual Framework of the Research

Methodology

This study employed a quantitative research approach, utilizing questionnaire survey. This study was conducted on 150 respondents of QSR in Malaysia who use self-service systems. There are 3 sections in the questionnaire form which are Section A, Section B, and Section C. Section A will emphasis on the general information of respondents. In Section B, the questions will relate to the independent variables such as Efficiency, perceive ease of use, Perceive of usefulness, and also Service Trust which are important to the use of self-service technology. While Section C will focus on the dependent variable which is Intention of using the self-service technology in quick service restaurant from the point of respondents' view. This survey form is created with the aim of address and achieve all the research questions and research objectives, was thus set based on the past study by other researchers. The study employed measurement scales that have been previously validated in existing literature. The survey instrument for efficiency is based on constructs validated in studies by Dabholkar & Bagozzi, 2002). While the instruments for perceived of use was adopted by (Carran, 2003). Besides, perceived of usefulness were adopted from (Cho, 2011; Liu, Huang, and Chiou, 2012; Esman et al., 2010). Additionally, the items for service trust were adopted from Wall (2020). A five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), was utilized. The collected data underwent processing using SPSS version 26, involving descriptive statistics, reliability and validity analysis, Pearson correlation, and multiple regression tests to address the objectives of this study.

Reliability Analysis and Validity Test

Reliability analysis is measured by Cronbach's Alpha. Table 2 shows that the value of Cronbach's Alpha for all variables ranges from 0.720 and 0.823 which is significantly higher than 0.70. In fact, each variable is considered acceptable due to each value which is greater than 0.70 will be defined as reliable (Taber, 2017).

Table 2
Reliability analysis of each variable

Variable	Number of Items	Cronbach's Alpha
Efficiency	4	0.720
Service Trust	4	0.823
Perceive ease of use	4	0.804
Perceive of usefulness	4	0.774
Intention to use	4	0.783

Result

In general, the data presented in table 3 indicates noteworthy and favourable correlations between Intention to use and various factors: efficiency ($r = 0.535$, $p < 0.001$), perceive ease of use ($r = 0.637$, $p < 0.001$.), perceive of usefulness ($r = 0.762$, $p < 0.001$.), and service trust ($r = 0.799$, $p < 0.001$).

Table 3
Pearson correlation for variable of study.

	EF	ST	PEU	PE	IU
Efficiency	1	0.246**	0.368**	0.235**	0.535**
Service Trust	0.264**	1	0.253**	0.309**	0.799**
Perceive of usefulness	0.368	0.253**	1	0.440**	0.637**
Perceive ease of use	0.368**	0.253**	0.440	1	0.762**
Intention to use	0.535**	0.799**	0.637**	0.762**	1

**. Correlation is significant at the 0.01 level (2-tailed).
EF= efficiency, PEU= Perceive ease of use, PU = Perceive of usefulness, ST- Service Trust, IU= Intention of using the SST in QSR

The model summary for the Intention to use SST in QSR is presented in Table 4. The R Square coefficient determination indicates that five independent variables collectively account for 52.1% ($R2 = 0.521$) of the total variance in intention to use the SST. This regression model, detailed in the table, examines the relationships between efficiency, service trust, perceive of usefulness and perceive ease of use.

The standardized coefficients reveal that information quality ($p = <0.05$, $\beta = 0.0297$), system quality ($p = <0.05$, $\beta = 0.216$), service quality ($p = <0.05$, $\beta = 0.274$), support ($p = <0.05$, $\beta = 0.123$), and net benefit ($p = <0.05$, $\beta = 0.196$) are all significantly related to the satisfaction self-service at quick service restaurant.

	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	T	Sig.
(Constant)	0.146	2.027		0.152	0.001
Efficiency	0.105	0.095	0.135	1.625	0.046
Service Trust	0.232	0.078	0.165	0.794	0.029
Perceive ease of use	0.178	0.093	0.143	0.479	0.033
Perceive of usefulness	0.369	0.080	0.292	3.351	0.001

Discussion

In conclusion, this study used the technologies Acceptance Model (TAM) principles to investigate the intents behind the usage of self-service technologies at fast service restaurants in the post-pandemic era. According to the findings, there is a substantial link between the intention to use SST in QSR following the pandemic and independent variables including efficiency (EF), service trust (ST), perceived ease of use (PEU), and perceived usefulness (PU). These variables also show significant correlation values. To answer the research questions and accomplish the goals, a variety of analytical techniques were used, such as multiple regression analysis, descriptive analysis, reliability analysis, Pearson correlation analysis, and hypothesis testing.

The conversation emphasizes how the customer's intention to utilize the SST during the COVID-19 outbreak is positively and significantly correlated with Efficiency (EF), Service Trust (ST), Perceive Ease of utilize (PEU), and Perceived Utility (PU). Efficiency stands out as being very important in determining the intention to utilize during the pandemic. Most respondents agreed that self-service technologies provide better system support. But during the COVID-19 pandemic, service trust turns out to be the most important element influencing customers' inclination to use SST. As a result, the study proposes that increasing the likelihood of purchase by teaching target consumers about self-service technology usage. In the end, it emphasizes how crucial it is for quick service restaurants to continuously upgrade features that are incorporated into their systems in order to guarantee improved client pleasure, especially in emergency situations like crisis or epidemic outbreaks.

Conclusions

In summary, this research study has used the elements from Fred Davis' conceptual model to discuss the findings connected to the factor influencing the desire to utilize self-service technology at McDonald's. The study's conclusions indicated that the independent variables, or constructs, such as perceived usefulness (PU), perceived ease of use (PEU), efficiency (EF), service trust (ST), and perceived usefulness (PU), supported both correlation values and had a significant relationship with the dependent variable, or intention to use. Through the use of data analysis techniques such multiple regression analysis, reliability analysis, descriptive analysis, Pearson correlation analysis, and hypothesis testing, the methodologies employed in this study are intended to address research issues and accomplish research goals. This chapter's discussion demonstrates that intentions to utilize self-service technology at McDonald's during the endemic COVID-19 phase are positively and significantly correlated with the variables of Efficiency (EF), Service Trust (ST), Perceived Ease of utilize (PEU), and

Perceived Usefulness (PU). This debate also revealed a fairly substantial association between consumer intentions to use during the endemic phase and the perceived ease of use component. However, the most significant element influencing customers' purchasing intentions during the COVID-19 epidemic is perceived usefulness. It was thus shown that teaching target customers about the value of self-service technology's ease of use and speed enhanced the likelihood of purchase. To put it briefly, in order to boost the willingness of customers to use self-service technology both now and in the future, quick service restaurants should regularly update their self-service technology systems.

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