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PATRONS' INTENTION TO USE QR CODE MENUS IN KLANG VALLEY RESTAURANTS: UTILISING THE UNIFIED THEORY OF ACCEPTANCE AND USE OF TECHNOLOGY 2 (UTAUT2)

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Abstract:

QR code menus are no longer a temporary safety measure but a popular digital transformation tool in the global food and beverage industry as a result of COVID-19. Although QR code menus are increasingly implemented in restaurants, understanding the factors influencing patrons' intention to use this technology remains essential. To address this issue, the present study employs the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2), focusing on six UTAUT2 constructs: which is performance expectancy (PE), effort expectancy (EE), social influence (SI), facilitating condition (FC), hedonic motivation (HM) and habit (H), to examine the factors influencing patrons' intention to use QR code menus. The present study employed a quantitative research methodology. The sampling technique used in this study was convenience sampling, and the online survey was distributed to 257 respondents who had previously used QR code menus at restaurants in the Klang Valley. The collected data were analysed using the Statistical Package for the Social Sciences (SPSS) to understand the relationship between the UTAUT2 factors and behavioural intention towards QR code usage. The results of this study show that performance expectancy, hedonic motivation, and habit have a significant positive effect on intentions. But effort expectancy, social influence, and facilitating conditions have no significant effect on intentions. This study offers valuable insights for restaurant operators in optimizing digital menu strategies and contributes to future hospitality technology research by encouraging further extension of the UTAUT2

framework through additional determinants, broader sampling approaches, and emerging digital solutions.

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Patrons' Intention, QR Code Menus, Restaurant, UTAUT2



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Introduction

QR codes became a go-to for viewing restaurant menus in a contactless manner during the COVID-19 outbreak (Hewage et al., 2024). These scannable barcodes are digital transformation tools (Goggin & Wilken, 2024), which are now also used to store the online version of a menu, as has been the case since the pandemic. Because of their ubiquitousness and the extent to which they have increased, it is essential to explore patrons' impressions of QR code displays and what this means for restaurant owners (Hewage et al., 2024).

QR codes offer many advantages to restaurant owners and their customers. Of note is the use of QR codes to display restaurant menus, which are much cleaner than traditional menus, which are susceptible to contamination (Gursoy et al., 2021; Li et al., 2021; Ozturkcan & Kitapci, 2023). The traditional menus also consume a lot of paper and cause significant printing losses, which lead to deforestation and environmental degradation (Ozturkcan & Kitapci, 2023). In addition, traditional print menus are costly, and digital menu formats are more cost-effective and can be updated frequently (Hewage et al., 2024). Lastly, QR code menus also improve restaurant efficiency, leading to reduced waiting, fewer contacts with humans, and the profits of being able to rapidly adapt menu items, prices, and even information (Koay & Ang, 2024; Ozturkcan & Kitapci, 2023).

However, QR codes have their drawbacks. Users who are using QR codes that connect to their devices may be more conscious about their privacy and information security (Koay & Ang, 2024). Additionally, the use of mobile phones can affect social interaction during mealtime, and mobile phone reception may also be an issue for venues (Hewage et al., 2024), since QR codes require an internet connection to function. Research has shown that some users have a negative reception to digitisation efforts, leading to patron disinterest (Pymnts, 2022).

The perceived inconvenience is related to these potential drawbacks when viewing a restaurant's menu (Hewage et al., 2024). Service inconvenience is how customers feel when their time or energy is wasted during the purchase or use of a service, which may happen because of inefficiencies or unnecessary complexities (Amat-Lefort & Barnes, 2024). The time and effort needed by digital technology are important factors affecting patron perceptions of inconvenience (Collier & Sherrell, 2010; Melian-González et al., 2021). The need to access and manipulate a phone when scanning the QR code may cause significant delays and

complexities and is not as convenient as a traditional printed menu (Iskender et al., 2023). Furthermore, QR code menus tend to include the entire menu, which may require swiping, zooming, or scrolling, thereby detracting from the restaurant experience (Hewage et al., 2024). The inconveniences can generate negative feelings, dissatisfaction, and a reduction in brand loyalty (Melian-González et al., 2021).

While there was an explosion of empirical research on the adoption of QR code menus during the pandemic, the adoption is seen to be quite variable and inconsistent in the localised post-pandemic stabilisation period. Although these are not completely ignored in the hospitality industry's publications, a big empirical gap is found about their effectiveness when the initial health-related command takes a back seat, particularly in fast-growing areas with many restaurants, such as Klang Valley, Malaysia. Recent studies challenge researchers to further understand how technology in food services is being embraced to improve the patron experience (Iskender et al., 2023). Hence, this study aims to explore patrons' intention to use QR menus in restaurants in the Klang Valley, based on the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2). The choice of the UTAUT2 framework is specifically justified for this study, as it incorporates a combination of constructs rooted in consumer studies, such as hedonic motivation and habit, which are relevant in evaluating everyday voluntary technology use decisions, which goes beyond the original UTAUT framework's primary scope of organisations. This study is unique because it is tested and applied in the context of Malaysian restaurants after the pandemic, testing how far operational convenience and being comfortable with digital habits will replace the preference for traditional physical service interfaces.

Literature Review

QR Code Menus in the Restaurant Industry

In the global hospitality industry (Goggin & Wilken, 2024; Hewage et al., 2024), QR codes have evolved from a touchless safety feature during COVID-19 to a lasting digital transformation tool. In the context of contemporary restaurant operations, there are significant benefits to using these interfaces, as they can reduce both paper use and printing costs and allow a restaurant's menus to be updated instantly (Hewage et al., 2024; Ozturkcan & Kitapci, 2023). However, this ubiquitous use has created exceptional consumer friction. Users often encounter service disruptions and intrusions when navigating complex digital layouts on their personal mobile devices (Koay & Ang, 2024; Melián-González et al., 2021). This is because the poor optimisation of the screens can disrupt the social aspects that involve eating and drinking, and cause consumer irritation. Making awareness of these technology-driven barriers is important because their failure directly leads to long-term brand patronage and patron satisfaction (Amat-Lefort & Barnes, 2024; Hewage et al., 2024).

Patrons' Intention to Use QR Code Menus by using Unified Theory of Acceptance and Use of Technology 2 (UTAUT2)

A comprehensive framework that explains the motivations for consumers' adoption of technology is the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2), which includes the now ubiquitous QR code menus (Hewawasam et al., 2023; Suo et al., 2021). It adopts key constructs such as performance expectancy, effort expectancy, hedonic motivation, price value, habit, and trust that converge to form user intention (Sehat et al., 2024). The model

UTAUT2 has been previously studied and successfully applied and has achieved a high validity in various fields to explain the acceptance of technology (Hewawasam et al., 2023; Suo et al., 2021).

It has been found that performance expectancy, effort expectancy, hedonic motivation, habit, and trust have a positive effect on behavioural intention in the context of Malaysian research (Sehat et al., 2024). Additionally, some scholars have extended research on QR code payments by introducing additional dimensions, such as personal innovativeness, to deepen understanding of QR code payment adoption (Suo et al., 2021). Overall, the findings offer a robust base for further studies to be conducted in order to improve the use of QR code technology (Sehat et al., 2024).

It is important to note that, in the original UTAUT2 model, there is a construct of price value that evaluates the mental cost of a technology based on the benefits proposition relative to the monetary proposition. For this study, price value was deliberately excluded from the model because QR code menus are a complementary service provided by the establishment at no charge to patrons (Iskender et al., 2022).

Performance Expectancy (PE) to Use QR Code Menus

Performance expectancy is the extent to which a person expects that using the system will improve their task performance (Venkatesh et al., 2003; Kilani et al., 2023). This applies to the QR menu, where patrons believe that informational features, such as browsing the menu and viewing product information, help them place their order efficiently (Koay & Ang, 2024). The study also shows that positive performance expectations stimulate the intention to adopt any Digital Service Platform (Martins et al., 2014; Bhatt, 2021). QR code menus for patrons are expected to enhance the dining experience, and consumers are more likely to use them (Neves et al., 2024; Koay & Ang, 2024).

H1: There is a significant relationship between performance expectancy and the patrons' intention to use QR code menus in Klang Valley restaurants.

Effort Expectancy (EE) to Use QR Code Menus

The ease with which a technology can be used, referred to as effort expectancy (Venkatesh et al., 2003), is key when involving QR code menus (Koay & Ang, 2024). If users find the system intuitive, their performance expectations improve (Martins et al., 2014), and perceived simplicity reduces the technology's complexity and enhances people's intentions to adopt it (Neves et al., 2024). Whereas, the opposite is technical inefficiencies, which result in bad user experiences and discourage use, where efficient and feasible ordering interfaces are essential (Koay & Ang, 2024). Users pay more attention to the system that requires minimum effort to learn and use (Esawe, 2022), effort expectancy is one major determinant that leads to satisfaction and continued use (Purohit et al., 2022). Thus, a user-friendly QR menu design can greatly improve patrons' likelihood of adoption (Koay & Ang, 2024).

H2: There is a significant relationship between effort expectancy and the patrons' intention to use QR code menus in Klang Valley restaurants.

Social Influence (SI) to Use QR Code Menus

Social influence, which pertains to the degree to which others important to the individual are encouraging him/her to adopt a new system, is also a basic condition related to technology adoption (Venkatesh et al., 2003; Neves et al., 2024). Empirical research indicates that social influence plays a marked part in determining behavioural intentions (Koay et al., 2020), with people following recommendations by peers and professionals as a crucial determinant for the utilization of telemedicine services and QR code-based health services, for example (Wynn et al., 2023; Koay & Ang, 2024). It also applies to sustainable and emerging technologies alone as positive social validation assists in decreasing the uncertainty surrounding early adoption (Nikou, 2019; Kapoor & Dwivedi, 2020; Neves et al., 2024). Further, in the hospitality and E-Commerce industries, positive peer feedback and ratings have been shown to directly affect adoption propensities (Tu et al., 2021; Zacharis & Nikolopoulou, 2022; Iskender et al., 2022). These influences are likely to be important in regard to customer interactions with the digital service interfaces, especially in social contexts like restaurants.

H3: There is a significant relationship between social influence and the patrons' intention to use QR code menus in restaurants in Klang Valley.

Facilitating Conditions (FC) to Use QR Code Menus

Facilitating conditions are the individual's sense that there is organisational and technological infrastructure available to support the use of the system (Venkatesh, 2021; Neves et al., 2024). This construct is considered a pivotal enabler of technology acceptance due to users being more likely to accept technology if they feel there are good facilitating conditions and resources in place (Koay & Ang, 2024; Tandon et al., 2022). Studies on different technologies, such as mobile payment adoption (Teo et al., 2015), online education (Liaw et al., 2006), and shopping self-checkout (Liang et al., 2021), show that offering sufficient technical infrastructure and support (e.g., the availability of smartphones and the Internet) also strongly boosts intentions to use a technology. With varying levels of complexity across technologies (Neves et al., 2024), it is crucial to provide a facilitating environment that will also greatly support the use of QR code menus in restaurants (Koay & Ang, 2024).

H4: There is a significant relationship between facilitating conditions and the patrons' intention to use QR code menus in restaurants in Klang Valley

Hedonic Motivation (HM) to Use QR Code Menus

This type of motivation is what is referred to as hedonic motivation because the technology use is for the pleasure or enjoyment (Venkatesh et al., 2012). It highlights the relationship between a positive user experience and encouraging adoption and improving usability for future interactions (Koay & Ang, 2024; Neves et al., 2024). It has consistently been effective in increasing technology use across various industries, such as mobile banking (Alalwan et al., 2015) and wearable fitness devices (Rauschnabel et al., 2015). However, users are usually offered engaging user feedback through intelligent and sustainable technologies, which makes hedonic motivation a critical factor in QR code menu scanning (Neves et al., 2024).

H5: There is a significant relationship between hedonic motivations and the patrons' intention to use QR code menus in restaurants in Klang Valley

Habit (H) to Use QR Code Menus

Habit refers to the extent to which users perform behaviours automatically, the degree to which a consumer's use of technology is based on his/her past learning and using the technology in a routine manner (Dwivedi et al., 2017; Venkatesh et al., 2003). It has frequently been identified as a major predictor of usage intention as the repeat and regular completion of a behaviour in an environment that is stable and favourable will result in the gradual formation of an automatic response that requires little cognitive effort (Neves et al., 2024). Simplicity and consistency of the technology interactions will help users build up these habits, even when they have to leave behind entrenched traditional practices (Koay et al., 2021; Koay & Ang, 2024). These habits strengthen as users experience satisfaction and, in turn, affect their intention to continue using the technology (Amoroso & Lim, 2017). Moreover, simpler behaviours with lower complexity that do not need more in-depth planning, are more likely to become automatic behaviours over time (Hagger et al., 2023), reinforcing the positive effect of intention on behaviours, aligned with UTAUT-based models (Venkatesh et al., 2003; Neves et al., 2024).

H6: There is a significant relationship between habit and the patrons' intention to use QR code menus in restaurants in Klang Valley

Methodology

Research Design

A quantitative correlational research design was adopted in the study to test the hypotheses pertaining to performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, habit, and patrons' restaurant QR code menu usage intention.

Population and Sampling

This study is to explore patrons' intentions to use QR Code Menus in restaurants within Klang Valley through the lens of the UTAUT 2 model. The potential users of the QR code menu across different restaurant types, who were targeted as the target population, were patrons who used the QR code menu in local Malay, Chinese, Indian, trendy café, fast food, and fusion restaurants in Klang Valley, Malaysia. The population size was unknown, and so non-probability convenience sampling was used in this study. A population-based sample size calculation was not performed because it was not possible to accurately determine the number of patrons who had used the QR code menus at restaurants in the Klang Valley. Hence, the minimum sample size was determined by the needs of multiple regression analysis. There are at least 15 subjects per predictor in multiple regression analysis, as suggested by Hair et al. (2019). The minimum sample needed is 90 respondents (i.e., 6×15) as this was 6 independent variables (predictors) and one dependent (criterion) variable. The total number of valid responses was 257, which exceeds the sample size typically considered sufficient for multiple regression analysis.

Instrumentation and Data Collection Procedures

Each measurement scale was derived from a previous study conducted by Neves et al. (2024) and includes the following: performance expectancy (four items), effort expectancy (four items), social influence (three items), facilitating conditions (four items), hedonic motivation

(three items), habit (four items), and patrons' intention (three items). Measures of all items were collected through a five-point Likert scale of strongly disagree (1) to strongly agree (5).

The data collection was based on a self-administered online questionnaire on Google Forms that was systematically disseminated through the primary social media, namely WhatsApp, Instagram, X, and TikTok. As part of data quality efforts, the invitation to participate in the survey was communicated in a sensitive way to overcome the risk of self-selection bias. To prevent multiple entries for the same form, the "Limit to one response" setting in Google Forms was used. Moreover, respondents were screened at the start of the questionnaire by asking whether they had previously used a QR code menu at any restaurant in the Klang Valley. Individual qualified respondents who selected "Yes" were permitted to complete the questionnaire; a qualified respondent who selected "No" was automatically disqualified and instructed to stop the questionnaire.

Data Analysis

The study's problem formulation and hypothesis testing were conducted using SPSS version 26. Multiple regression analyses were conducted to investigate relationships between variables, and standard deviations, means, frequencies, percentages, and descriptive statistics were used to display the stages of data analysis.

Results and Findings

Demographic Profile

Below are presented the empirical results obtained from the statistical analysis. A total of 257 questionnaires were returned and analysed using SPSS version 26 to lay out the demographic profile of the survey respondents and to see the structural relationship between the variables.

Table 1: Demographic Profile

Variable	Categories	Frequencies (N)	Percentage (%)
Gender	Male	65	25.3
	Female	192	74.7
Age (years)	18-25	126	49
	26-35	62	24.1
	36-45	40	15.6
	46-55	19	7.4
	56 and above	10	3.9
Marital Status	Single	165	64.2
	Married	92	35.8
Level of Education	SPM	15	5.8
	Diploma	64	24.9
	Degree	141	54.9
	Master	27	10.5
	PHD	10	3.9

Employment Status	Unemployed	81	31.5
	Part time	30	11.7
	Full time	146	56.8
Monthly Income	No Income	77	30
	RM1,000 - RM1,999	34	13.2
	RM2,000 - RM2,999	48	18.7
	RM3,000 - RM3,999	18	7
	RM4,000 - RM4,999	21	8.2
	More than RM5,000	59	23

Source: Author's Data Analysis

Among the demographic characteristics, there was high female participation in the survey (74.7%). When considering the age spectrum, almost half of the respondents (49%) are in the age band 18-25. When it comes to marital status, the majority of the respondents (64.2%) are single. The survey shows there's a strong relationship between education, employment, and income. More than half (54.9%) have a degree qualification. The income data reveal that 30% of the respondents report no income, and 56.8% of the respondents work full-time.

Reliability Analysis

Reliability analysis is a set of procedures that are used to assess a system's effectiveness.

Table 2: Reliability Result of The Study Variable

Variable	Number of items	Cronbach's Alpha
Performance Expectancy	4	0.971
Effort Expectancy	4	0.936
Social Influence	3	0.944
Facilitating Conditions	4	0.860
Hedonic Motivation	3	0.958
Habit	4	0.925
Patrons' Intention	3	0.976

Source: Author's Data Analysis

Table 2 shows that all constructs had Cronbach's Alpha values between 0.860 and 0.976, exceeding the recommended threshold of 0.70. This means that the variables in this study are reliable (Hair & Sarstedt, 2019) because they demonstrate satisfactory internal consistency.

*Descriptive Statistics on Variables***Table 3: Mean And Standard Deviation for Performance Expectancy (PE)**

Item	N	Mean (M)	Standard Deviation (SD)
PE1: Using the sustainable technologies (QR code) menu improves my performance in menu ordering	257	3.9572	1.03556
PE2: Using the sustainable technologies (QR code) menu increases my productivity when ordering.	257	3.9261	1.04132
PE3: Using sustainable technologies (QR code) menu enhances my effectiveness in menu ordering.	257	3.9611	1.04135
PE4: Overall, sustainable technologies (QR code) menus are useful in menu ordering.	257	3.9767	1.03051

Source: Author's Data Analysis

Table 3 presents that the highest number of respondents strongly agree that PE4 - Overall, the sustainable technologies (QR code) menu is useful for menu ordering ($M = 3.9767$, $SD = 1.03051$).

Table 4: Mean And Standard Deviation for Effort Expectancy (EE)

Item	N	Mean (M)	Standard Deviation (SD)
EE1: Learning how to use the QR code menu is easy for me.	257	4.3735	0.86634
EE2: My interaction with the QR code menu is clear and understandable.	257	4.2296	0.95495
EE3: I find QR code menus easy to use.	257	4.1284	1.02843
EE4: It is easy for me to become proficient with the QR code menu.	257	4.2179	0.95565

Source: Author's Data Analysis

Table 4 reveals that the highest number of respondents strongly agree that EE1 - Learning how to use the QR code menu is easy for me ($M = 4.3735$, $SD = 0.86634$).

Table 5: Mean And Standard Deviation for Social Influence (SI)

Item	N	Mean (M)	Standard Deviation (SD)
SI1: People who are important to me think that I should use a QR code menu.	257	3.7588	1.09159
SI2: People who influence my behaviour think that I should use a QR code menu.	257	3.7665	1.08612
SI3: People whose opinions I value prefer	257	3.8132	1.07717

that I use a QR code menu.

Source: Author's Data Analysis

Based on Table 5, the highest score is the respondents who strongly agree that they prefer using the QR code menu ($M = 3.8132$, $SD = 1.07717$) in SI3 - People whose opinions I value prefer that I use a QR code menu.

Table 6: Mean And Standard Deviation for Facilitating Conditions (FC)

Item	N	Mean (M)	Standard Deviation (SD)
FC1: I have the resources necessary to use the QR code menu.	257	4.3891	0.84106
FC2: I have the knowledge necessary to use the QR code menu.	257	4.3969	0.78441
FC3: QR code menus are compatible with other technologies I use.	257	4.3113	0.85945
FC4: I can get help from others when I have difficulties using a QR code menu.	257	4.2101	0.89847

Source: Author's Data Analysis

As shown in Table 6, the largest number of respondents strongly agree with FC2: "I have the knowledge necessary to use the QR code menu" ($M = 4.3969$, $SD = 0.78441$).

Table 7: Mean And Standard Deviation for Hedonic Motivation (HM)

Item	N	Mean (M)	Standard Deviation (SD)
HM1: Using the QR code menu is fun.	257	3.9183	1.12723
HM2: Using the QR code menu is enjoyable.	257	3.7938	1.17605
HM3: Using the QR code menu is very entertaining.	257	3.6848	1.18827

Source: Author's Data Analysis

According to Table 7, there is a higher number of respondents who strongly agree that the HM1 - Using the QR code menu is fun ($M = 3.9183$, $SD = 1.12723$).

Table 8: Mean And Standard Deviation for Habit (H)

Item	N	Mean (M)	Standard Deviation (SD)
H1: The use of QR code menus has become a habit for me.	257	3.6809	1.13852
H2: I am addicted to using the QR code menu.	257	3.0156	1.36922
H3: I must use the QR code menu.	257	3.1051	1.38936
H4: Using the QR code menu has become	257	3.7198	1.16228

natural to me.

Source: Author's Data Analysis

Table 8 demonstrates that the treatment resulted in the largest number of respondents strongly agreeing with H4 - Using the QR code menu has become natural to me ($M = 3.7198$, $SD = 1.16228$).

Table 9: Mean And Standard Deviation for Patrons' Intention (PI)

Item	N	Mean (M)	Standard Deviation (SD)
PI1: I intend to use the QR code menu if there is a choice between the physical and QR code menu at the restaurant I visit.	257	3.4864	1.29332
PI2: I predict I will use the QR code menu if there is a choice between the physical and QR code menu at the restaurant I visit.	257	3.5136	1.29633
PI3: I plan to use the QR code menu if there is a choice between the physical and QR code menu at the restaurant I visit.	257	3.4981	1.29941

Source: Author's Data Analysis

From the results in Table 9, it is found that the most common response is in the alternative PI2 - "I predict I will use the QR code menu" -, $M = 3.5136$, $SD = 1.29633$.

Multiple Regression Analysis

Table 10: Results of Multiple Regression

Model	R	R Square	Adjusted R-Square	Standard Error of the Estimate
1	0.842a	0.708	0.701	0.69170

a. Predictors: (Constant), Total Habit, Facilitating Condition, Effort Expectancy, Social Influence, Performance Expectancy, Hedonic Motivation

b. Dependent Variable: Total Patrons' Intention

Source: Author's Data Analysis

Habit, facilitating conditions, effort expectancy, social influence, performance expectancy, and hedonic motivation together contribute to the explanation of 70.8% variance (model summary, R^2) in patrons' intention to use the QR code menu. Meanwhile, 29.2% is affected by other factors not reflected in the study.

Table 11: Results of Coefficients

Item	Unstandardized Beta B	Coefficients Standard Error	Standardized Coefficients Beta β	t	Sig.
Performance Expectancy (PE)	0.251	0.086	0.198	2.921	0.0043
Effort Expectancy (EE)	-0.003	0.087	-0.002	-0.035	0.972
Social Influence (SI)	-0.069	0.073	-0.056	-0.942	0.347
Facilitating Conditions (FC)	0.049	0.085	0.028	0.579	0.563
Hedonic Motivation (HM)	0.174	0.077	0.154	2.268	0.024
Habit (H)	0.652	0.065	0.591	9.975	0.000

a. Dependent Variable: 0.701

Adjusted R-squared: 0.701 > p=0.05

Source: Author's Data Analysis

The regression analysis shows that Habit ($B=0.652$, $p=0.000$), Performance Expectancy ($B=0.251$, $p=0.004$), and Hedonic Motivation ($B=0.174$, $p=0.024$) each have a significant impact on Patrons' Intention, with Habit being the most significant, with a contribution of $\beta=0.591$. The other predictors (Effort Expectancy, Social Influence, Facilitating Condition) have no significant effect on Patron Intention ($p>0.05$).

Discussion

In this study, the multiple regression analysis method was used to test the hypotheses H1 to H6. The predictive power of each construct was examined separately by multiple regression while controlling for shared variance.

As can be seen from the empirical findings, performance expectancy, hedonic motivation and habit have a statistically significant impact on behavioural intention, thus supporting H1, H5 and H6. On the other hand, effort expectancy (H2), social influence (H3), and facilitating conditions (H4) were not significant and were not accepted in the regression model. $p > 0.05$

The study's findings indicate that the degree of performance expectancy has a considerable impact on intentions (H1 accepted). QR code menus are more likely to be accepted by patrons when they believe that they will be easy to use, which makes their eating experience easier and less physically demanding, hence improving the convenience and the eating experience (Koay & Ang, 2024; Neves et al., 2024). Also, hedonic motivation was found to mediate intentions (H5 accepted). The excitement and delight of using QR code menus are real; when consumers enjoy them, it encourages them to use them more (Koay & Ang, 2024). Finally, habits were shown to have a significant influence on intentions (H6 accepted).

Of all the variables in the model, habit proved to be the best predictor of intention ($B = 0.652$, $\beta = 0.591$, $p < .005$). An easy-to-use technology does not need a lot of cognitive work, and over time, users will form habitual behaviours (Koay et al., 2022; Hagger et al., 2023). This result suggests that users' behaviour to use QR code menus is largely based on automatic response. In today's world, after the COVID-19 pandemic, scanning QR code menus is already a common practice when eating out.

However, there was no significant impact on intention of effort expectancy (H2 rejected). Many customers are already used to using QR codes intuitively, so effort expectancy plays less of a role in driving them to use it (Martins et al., 2014; Koay & Ang, 2024).

When the effort expectancy had no meaningful impact on patrons' behavioural intentions, H2 was rejected as it contradicted previous findings. Thus, the perceived ease of use of an interactive restaurant menu is no longer a key indicator of technology adoption. One probable reason is that QR code menus and smartphone-based services have become more common since the onset of the COVID-19 pandemic, making consumers more accustomed to digital interactions. Ease of use may have become a fundamental need rather than a motivator for adoption, as consumers are already used to scanning QR codes and browsing digital menus. This result is contrary to earlier research, which had suggested consumers opt for technology that is simple, intuitive, and easy to use. Hence, effort expectancy has been proven to promote the adoption of technology by making digital systems seem less complex and making users more inclined to utilise them (Martins et al., 2014; Esawe, 2022). Similarly, previous research has shown that a good and straightforward user interface may enhance enjoyment and encourage the intention to continue using it (Purohit et al., 2022; Neves et al., 2024; Koay & Ang, 2024). For interactive restaurant menus, however, the basic act of scanning a QR code to access menu information may already be perceived as simple, which may reduce the influence of effort expectancy on patrons' intentions.

The social influence also has no significant impact (H3 rejected). Peer opinions and social pressure to use a QR code menu are not among the limiting factors in scanning a QR code menu. This outcome challenged the result of prior research carried out by Tu et al. (2021), Zacharis and Nikolopoulou (2022), and Iskender et al. (2022), which discovered that peer referrals and positive online reviews had a significant impact on adopting technologies in the hotel industry and the e-commerce sector. A likely explanation lies in the different contexts of technology use. Unlike in previous studies on technology, customer consultation with others is not needed before choosing a technology. With an interactive restaurant menu, the consultation is an individual, functional action taken after the restaurant has been chosen. As QR code menus become more commonplace, it will be up to individuals to choose to use the tools or rely on their personal preferences and tastes.

The facilitating factors were expected to play a role in the adoption of technology, as users are more likely to adopt if they have enough technical resources and support (Venkatesh, 2021; Neves et al., 2024). Supportive infrastructure (e.g., smartphones, internet connection, and technical assistance) is known to have positive effects on the use intention in other technological settings (Koay & Ang, 2024; Tandon et al., 2022). The results of the present study, however, showed that the enablers' effect was not significant on patrons' desire to use the QR code menu in a restaurant in Klang Valley, thus rejecting H4. This could be due to the simplicity and familiarity of QR code menu technology. Unlike complex codes that require outside assistance to use, QR code menus are simple scanning and accessing mechanisms that

require only resources that are in consumers' technological domain (smartphones, mobile internet, and web browsers) (Venkatesh, 2021). One of the main issues we can identify with QR code uptake is users' ability to see the necessity of the code and to accept it as an expected way of doing things, particularly in the post-COVID-19 climate. This suggests that in a well-established digital landscape like restaurant dining in Klang Valley, the impact of facilitating conditions might be less significant or influential in predicting intention to use QR code menus, as reported by Neves et al. (2024), which holds that facilitating conditions at maturity depend on technology complexity and user familiarity.

This study adds to the existing UTAUT2 literature by emphasising that enabling factors might be less pertinent regarding QR code menus as this is a simple and familiar technology. In a mature digital ecosystem, it might not play a key role in the users' decision to use. Thus, the predictive relevance of the UTAUT2 constructs needs to be studied in particular technical and contextual contexts, particularly for systems that do not require high effort or infrastructure support.

Conclusion and Recommendations

The contribution of this study lies in the empirical evidence of consumer technology adoption behaviour in the post-pandemic context in the restaurant industry, which extends the UTAUT2 framework. This study extends the UTAUT2 by presenting its results and showing that the factors determining QR code menu usage have evolved in an established digitised environment. Most of the prior research has focused on digital service usage in general. The results show that internal motivational factors, including habit and hedonic motivation, better contribute to explaining consumers' behavioural intentions than external facilitation factors like effort expectancy, social influence, and facilitating conditions.

In practical, restaurant owners must go beyond implementing QR codes for their menus and create a broader digital dining experience for visitors. Personalisation, seamless digital experiences, integrating loyalty programmes, and creating interactive and visually appealing menus could be some of the strategies that might be employed to encourage continued usage. While the ease of access to technology is still relevant, for restaurants aiming to maximise the benefits as much from the use of digital menus in hospitality in the post-pandemic era, it is also about engaging the customer and creating value for the business.

Future research may tailor and expand the UTAUT2 model by adding factors such as user satisfaction, perceived risk, trust, and self-efficacy to obtain a holistic view of the adoption of digital restaurant technology. Furthermore, it can consider a wider geographical range, a probability sampling, and a comparison of users and non-users for generalisability. Moreover, the study suggests that further analysis of moderating demographics and new restaurant technologies, such as mobile ordering apps and self-service kiosks, should be conducted to enhance the applicability of UTAUT2 in the field of hospitality technology.

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