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CUSTOMER PERCEPTION AND SATISFACTION ON FOOD SERVICE TECHNOLOGY SERVICE QUALITY IN RESTAURANT OPERATIONS

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Abstract:

The primary objective of this research is to investigate the customer perception and satisfaction regarding the service quality of food service technology (FST) in restaurant operations. This study focuses on the customers' perception on the various types of food service technology used in restaurant operations and how these perceptions will influence customer satisfaction. The variables examined are feature, functionality, security and performance. A total of 345 data samples were collected using the convenient sampling approach through online survey forms distributed via WhatsApp, Instagram and Xiao Hong Shu. The data were analysed by using SPSS to generate relevant information, with statistical techniques including Pearson's Correlation, Linear Regression and others. The findings indicate that all the variables have a significant relationship with customer perception of food service technology. Performance demonstrated the highest significant value, followed by feature. Consequently, this study provides a framework and can be used as an outline for food and beverage and service-related industries to appropriately implement relevant strategies to enhance customers satisfaction on food service technology service quality. The limitations and future studies are discussed as follows: Since the data samples were obtained primarily from the Klang Valley, the results may be limited to this specific location. Therefore, geographical variances may produce different outcomes, limiting the applicability of these findings to the entire nation of Malaysia. Future research should investigate both the positive and negative impacts of FST on customer perception to further comprehend its use in restaurant businesses. Additionally, investigating the relationship

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between customer satisfaction with FST and intentions to revisit could provide insights into how FST implementations influence customer loyalty.

Keywords:

Food Service Technology, Customer Perception, Customer Satisfaction, Service Quality

Introduction

The food service industry is one of the main sectors that significantly contributes to Malaysia's growing economy. An increasingly essential resource for company survival is a competitive advantage gained through providing high-quality services, as many industry sectors mature. The restaurant business is certainly subject to growing customer demands of quality or greater competition. The restaurant business in Malaysia is going through a significant upheaval and is facing more competition (Yap & Kew, 2007).

According to Mordor Intelligence, there were over 31 thousand restaurant outlets in Malaysia in 2023, the number of outlets has increased approximately 4.18% from the year before (Table 1.0). The food service restaurant global revenue in Malaysia is constantly rising and has a CAGR of 0.59% (Table 1.1). Hence, in the constantly shifting market, foodservice operators must emphasise market knowledge to maintain a competitive edge in the fiercely competitive foodservice industry, given the constantly shifting nature of the market (Abdullah et al, 2011).

Table 1.0: Number of Outlet Units by Foodservice Channels in Malaysia from 2017 – 2023

Year	Number of outlets ,000s	% of change	CAGR
2018	33.2		
2019	35.2	5.68	
2020	30.7	-14.65	-1.08%
2021	28.3	-7.81	
2022	29.8	5.03	
2023	31.1	4.18	

Source: Mordor Intelligence

Table 1.1: Global Revenue Performance of Food Service Restaurant in Malaysia from 2017 – 2023

Year	Global Revenue Performance	% of change	CAGR
2017	325.08		
2018	326.16	0.33	
2019	327.30	0.35	
2020	312.54	-4.72	
2021	319.69	2.23	0.59%
2022	320.89	0.37	
2023	338.80	5.29	

Source: Mordor Intelligence

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The restaurant industry is a cyclical industry due to its nature and changes in expectation on the service quality and consumer preferences. The sector is dealing with huge shifts in the market as there are many variables that affect customer's perception and experience. (Ivkov et al., 2016). These shifts are influenced by the global economic crisis as well as the needs current consumers and the changing demographics. Abhari et al. (2022) has reported that the issue among business in the tourism industry, including food and beverage sector was caused by the economic repercussions of the pandemic, which resulted in an exceedingly difficult time for Malaysian industries.

In the past few decades, technology has enabled significant expansion in every industry involving human interaction. The pandemic has resulted in a significant environmental change which encourages business to implement digital technology actively and widely (Priyono et al., 2020). Additionally, the number of employees who work remotely thus the urgency with which businesses must implement digital transformations; without them, they will not be able to run efficiently. Thamaraiselvan et al. (2019) mentions that digital applications have become one of the fastest-growing advances in food delivery as given that customers may now select from a range of cuisine at the same time from a selection of food businesses listed in the e-commerce platform.

Research Objectives

The purpose of this research is to examine the factors influencing customer perception and satisfaction on food service technology service quality in restaurant operation. The factors include feature, functionality, security, performance, how these factors may influence the perception of the customers in the food service technology and how perception of food service technology may have influence towards the customers satisfaction.

Literature Review

Food Service Technology (FST) and Service Quality

The rise of food service technology has had a significant impact on the way people eat, order and communicate with restaurants (Young,2015). Technologies touch on different aspects such as online ordering, QR order, Point of Sale (POS) System, self-service kiosks and others.

The most contribution to measure service quality is SERVQUAL Model which launched by Parasuraman et al. (1988). SERVQUAL Model includes five dimensions: Tangibles (physical facilities, equipment, and appearance of personnel), Reliability (ability to provide the given service consistently and accurately), Responsiveness (willingness to assist customers and provide), Assurance (ability to inspire trust and confidence) and lastly Empathy (the organizations provide caring and attention to its customers) (Parasuraman et al.,1988). The model has known a wide applicability in the field of measuring customer satisfaction, especially the model is constructed using the "perceptions" minus "expectations" method (Souca, 2011).

A study from Appiah (2021) measures the service quality of KFC-Ghana by using the SERVQUAL Model dimensions and the result shows that all the dimensions had an impact on the service quality. However, the study of Razak et al. (2020) show that the implement of SERVQUAL in Malaysia restaurant, responsiveness and tangibility do not affect customer satisfaction while assurance, empathy, price and reliability are significant.

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Attributes of FST

Food Service Technology (FST) Feature

Berger et. al., (2015) explained that feature is typically used to refer to a system's functional and non-functional attributes. Features serve as the main components of software usage in software product line engineering and are utilised to differentiate between the various items within a product line. Furthermore, Widarsyah (2022) defined that features of FST includes functions that allow the performance of tasks. For example, enhanced security of payment methods, instant payment, cross-promotion of menu items, self-ordering system, effortless digital registration for loyalty reward programmes, persistent customer feedback and decreased labour intensity.

This allowed customer to ensure that their orders are placed and directly sent to the kitchen without error. Not to mention FST also provides complete details about each menu item, as well as digital security that ensure safe mobile payments. As a result, features of FST have an influence on customer perception of FST and how customers evaluate their service experience.
H_1: FST Feature has a significant relationship on customer perception of restaurant food service technology.

Food Service Technology (FST) Functionality

Han et. al., (2019) explained that functionality refers to a product's performance. Key characteristics of functionality includes the actions required or facilitated by the user when the user is engaging with the system. Moreover, according to Pai et al., (2022) functionality can be defined as the technology's effectiveness in providing services promptly, the convenience of use, and accuracy of service deliverables. In their study, the results indicate that functionality has a positive influence on customer satisfaction.

It is an important element that affects the quality of the service that the customer receives. To enhance the quality of service provided to customers in the food service industry, service providers should implement a user-friendly and reliable food ordering system. Functionality contributes to the efficiency of FST and enables customers to experience superior overall service.
H_2: FST Functionality has a significant relationship on customer perception of restaurant food service technology.

Food Service Technology (FST) Security

Pai et al. (2022) explained security as ensuring that people feel safe without threat, risk, or suspicion when interacting with FST. It refers to customers' trust in using FST handling their personal information responsibly and their belief that there is no risk of fraud in using the technology. Lin and Hsieh (2011) also mentioned that security describe the perceived safety from intrusion, fraud, and the loss of personal information. Moreover, in their study, they explained that security is a crucial factor in evaluating technology-based services that might be a barrier to the adoption of FST for the food service industry.

Food service industry must be able to uphold customer data confidentiality, prevent financial fraud, secure online transactions, and maintain low risk profile while keeping the high competency in the field of E-commerce and its reputation when they are utilizing technologies to ensure that customers return for the services in the future since security directly influence the customers' attitudes (Arilaha et al., 2021). According to the result of the study by Lin and

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Hsieh (2011), security is one of the factors that contribute to customer perception. This statement can be supported with the result from Arilaha et al. (2021), the result of hypothesis testing showed that security has a positive effect on customer perception.

H_3: FST Security has a significant relationship on customer perception of restaurant food service technology.

Food Service Technology (FST) Performance

According to Venkatesh et al. (2003), performance expectancy is referred as the degree to which a person anticipates enhancing their performance using technology system. Performance in food service technology is a significant indicator of a user's willingness to accept new technologies (Chaiyasoonthorn et al., 2019). In this study, performance expectancy is presented as how service technology makes the food ordering, payment and food delivery process more effective. Liu et al. (2023) showed that performance expectancy has a positive effect on customer satisfaction with Mobile Food Ordering App (MFOA) and their continuance intention to use MFOA.

On the other hand, Zhou et al. (2010) concluded that performance expectancy was a strong predictor of customer's perception and customer's inclination to adopt mobile payment. Thus, using performance concept as one of the factors in determining food service technology service quality to determine customer perception and satisfaction indicates greater intention. As a result, performance expectancy is thought to be an important variable of UTAUT that has significant relationship on customer perception and satisfaction.

H_4: FST Performance has a significant relationship on customer perception of restaurant food service technology.

Customer Perception

According to Mahmood and Khan (2014), perception involves the way individuals choose, arrange, and understand information gathered from their surroundings. Customer perception plays a crucial role in the food service industry since customers often rely on their perception of a brand based on their experiences or reviews from their family and friends before making a purchase or using a product (Sachin & Kavatekar, 2022). Perceived quality and perceived value are two important customer perceptions that enhance customer satisfaction. Perceived quality represents a cognitive aspect of customer decision-making. And perceived value refers the overall customers' assessment of what they received (benefits) compared to what they give (costs) (Cha & Borchgrevink, 2019).

The recent trend of growing E-commence and E-business shifted customer perception into a positive affirmation towards using technologies in the food service industry (Kale et al. 2020). In the study of Arilaha et al. (2021), customer perceptions are important factors for determining the quality of E-services (technologies). The effectiveness and efficiency of technology services compared to traditional offline methods, along with the factors such as service speed and user-friendly design as perceived by customers will significantly influence the success of using technology in the food service industry. The finding of Seopela & Zulu (2022) states that the higher customer perception, the greater pleasure experienced by customers. Therefore, customer perception positively enhances customer satisfaction.

H_5: Customer FST perception has a significant relationship on customer satisfaction on the restaurant food service technology.

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Conceptual Framework and Hypothesis

This study includes four factors: feature, functionality, security and performance. We adapt the variables from the papers of Kasavana and Cahill (2003), Jeon et al. (2020), Shahid Iqbal et al. (2018), Pai et al. (2022), Uzir et al. (2021), Zhao and Bacao (2020), Negahban and Chung (2014), Ratten (2014) and lastly is Xu et al. (2020).

A conceptual framework was constructed to measure the perception and customer satisfaction on food service technology (FST) service quality in restaurant operations. The framework is represented in Figure 2.1.

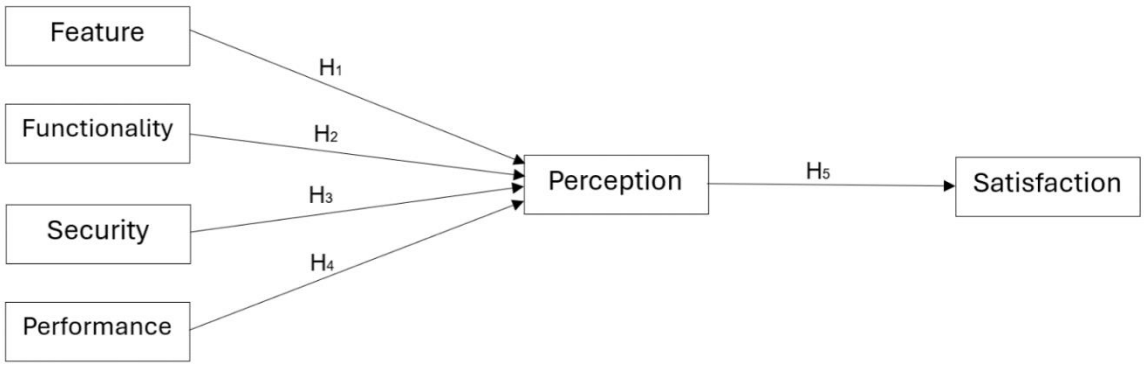

Figure 2.1: Conceptual Framework

Methodology

Data Sampling

The convenience sampling method was used to collect the data for this research. 323 is the sample size for this research calculated by using the sample size calculator (refer to Appendix 1) aim to take 95% of confidence level with 5% margin error that covering 70% of population proportion in the Klang Valley area. The population of Klang Valley in 2023 was 8,622,000 (Macrotrends, 2024).

The sample data were collected from random respondents which includes students, people who are unemployed, employed, self-employed, and others. Therefore, utilizing the convenience sampling method enabled us to obtain the data evenly from targeted demographics as we chose the potential respondents by ourselves. Moreover, the convenience sampling method was the appropriate way for our study due to the limited time and cost needed to conduct the sampling.

Data Collection

We collected the data by distributing the electronic questionnaire which created on Google Forms to the potential respondents. We have distributed our questionnaire from 28th May 2024 to 22nd June 2024 by face-to-face within the Klang valley and via online platforms including WhatsApp, Instagram, and Xiao Hong Shu application.

Instrumentation

In creating the survey form, we adapted all variables from our key papers to make our research easy and reliable. Furthermore, we thoroughly discussed the variables chosen from the key papers with our supervisor to ensure the variables were appropriate for our study. The

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questionnaire was created on Google Forms, a total of 38 questions divided into 4 sections which are from section A to section D. The questionnaire is presented in Table 3.0.

Table 3.0: Questionnaire Design

Variables	Source Adaption
(IV)	
IV 1: FST Feature	
The FST feature design is attractive (size, color, and more).	Kasavana & Cahill (2003)
The FST feature option is easy to navigate (touch-screen, switch, and more).	
The FST feature provides a clear instruction in multi-language.	
The FST feature includes simple and easy-to-understand icons.	
The FST feature is acceptable and able to support the restaurant's operation (order system, delivery, payment system, and more).	
The FST used in the restaurant allowed overall operations automated processes.	
IV 2: FST Functionality	
The FST will provide multiple functions to make the food service experience more efficient.	Jeon et al. (2020) Shahid Iqbal et al. (2018) Pai et al. (2022) Uzir et al. (2021) Zhao & Bacao (2020)
The FST prevents service errors.	
The FST ease the service process (ordering, billing, and more) without any hassle.	
The FST guarantees error-free.	
The FST allows self-service process.	
IV 3: FST Security	
The transection performed by the FST is secure.	Jeon et al. (2020) Shahid Iqbal et al. (2018) Pai et al. (2022) Uzir et al. (2021) Zhao & Bacao (2020)
The FST provider applies security measures to protect user payment.	
The FST provider can verify user's identity to ensure payment security.	
A clear privacy policy is stated in the FST.	
The information provided by the FST is reliable.	
IV 4: FST Performance	
The FST enables effective service operation for food ordering.	Jeon et al. (2020) Shahid Iqbal et al. (2018) Pai et al. (2022) Uzir et al. (2021) Zhao & Bacao (2020)
The FST enables effective service operation for the food delivery process.	
The FST enables effective service operation for the payment process.	
The FST operation speed is better than manual operation.	
The FST allows navigation of the service flow from the ordering process to the pick-up/food service process.	
(AV)	
AV1: FST Customer Perception	
The FST is user-friendly.	

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The FST enables users to complete tasks.	Negahban & Chung (2014)
The FST is easy to use.	Ratten (2014)
The FST can be trusted.	Xu et al. (2020)
The FST is close to my ideal service technology.	
(DV)	
DV1: FST Customer Satisfaction	
I am satisfied with the FST offered by the firm.	
Most of the FST experiences I've had exceeded my expectations.	Jeon et al. (2020)
I will recommend others to use the FST.	Shahid Iqbal et al. (2018)
I support the continuous use of the FST in restaurant operation.	Pai et al. (2022)
The FST is reliable and accurate.	Uzir et al. (2021)
	Zhao & Bacao (2020)

Data Analysis

Respondents' Profile

The demographic profile of respondents is shown in Table 4.1. The demographic featured in our present study include gender, age, current employment status and education level. The result presented in Table 4.1, respondent gender was distributed with 37.8% male and 62.2% female. Next, it can be observed that the majority of the respondents in the survey are between the ages of 18 to 24, which amounts to 45.1% of the total respondents. The ages between 25 to 34 takes up 18.3% (n= 60), followed by the age of 45 to 54 which takes up 16.2% (n= 53), the age range of 35 to 44 takes up 13.7% (n= 45) and respondents who are above 55 years old takes up 6.7% (n= 22).

Table 4.1: Respondents' Profile Analysis

Profile		Frequency(n)	Percentage (%)
Gender	Male	124	37.8
	Female	204	62.2
Age	18-24	148	45.1
	25-34	60	18.3
	35-44	45	13.7
	45-54	53	16.2
	55 and above	22	6.7
Current Status	Employed	156	47.6
	Self-employed	26	7.9
	Unemployed	15	4.6
	Student	129	39.3
	Retired	2	0.6

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Education Level	Certificate Qualification	28	8.5
	Certified Professional Qualification	20	6.1
	Postgraduate	47	14.3
	Pre-University Program	11	3.4
	Undergraduate	186	56.7
	Upper-secondary	36	11

Frequency of FST Usage Analysis

The result presented in Table 4.2 indicates that a significant number of respondents had experience in using QR order, results in 94.5%. The frequency analysis of respondents' usage of the FST revealed 53% reported using FST in almost all restaurants that implement it. The results of analysis of how often the respondents experience with FST relevant to food service shows that both dine-in restaurants and online food ordering shows varying levels of usage frequency.

Table 4.2: FST Usage Analysis

General Questions		Frequency (n)	Percentage (%)
Which one the following FST functions that you have experienced in the restaurant	Restaurant website reservation	165	50.3
	QR order	310	94.5
	Tablet ordering system	280	85.4
	Bell service	268	81.7
	Screen order progress	242	73.8
	Application order for self-pick up	205	62.5
	E-wallet payment/QR Payment	292	89
	Self-service kiosk machine	277	84.5
	Service robot	222	67.7
How frequent do you use the FST	I use in almost all restaurant that are using FST.	174	53
	I only use in some restaurants that are using FST.	105	32
	I only use FST for online food delivery order.	13	4
	I only use FST when I am familiar with the operation method.	18	5.5
	I only use FST if there is no other choice.	18	5.5
How long have you been experienced in using these technologies relevant to food service (dine-in at restaurants/ online food ordering)	Very often	139	42.4
	Often	136	41.5
	Once in a while	40	12.2
	Seldom	11	3.4
	New user	2	0.6

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Correlation Analysis

The Correlation Between FST and Customer Perception

Refer to Table 4.3, FST factors use in this study shows a significant relationship between perception of restaurant customer. The variables value mainly shows greater than 0.05.

In addition, Table 4.4 shows that performance has most significant relationship with perception (0.737), whereas security has the least significant relationship with perception, at 0.699.

Table 4.3: Correlation Of The Study Variables

Variables	1	2	3	4	5
Feature	1.000				
Functionality	0.693**	1.000			
Security	0.600**	0.686**	1.000		
Performance	0.680**	0.687**	0.600**	1.000	
Perception	0.719**	0.706**	0.699**	0.737**	1.000

Notes:
Determinant = .008
Extraction Method: Principal Component Analysis.
a. Reproduced communalities
b. Residuals are computed between observed and reproduced correlations. There are 5 (69.4%) nonredundant residuals with absolute values greater than 0.05.

Table 4.4: Pearson Correlation between Factors and Perception

	Pearson Correlation	P value (sig.)
Feature -> Perception	0.719	< 0.001
Functionality -> Perception	0.706	< 0.001
Security -> Perception	0.699	< 0.001
Performance-> Perception	0.737	< 0.001

The Correlation Between Customer Perception And Satisfaction On FST

From the results presented in Table 4.5, perception and satisfaction has a strong significant relationship with correlation value of 0.826.

Table 4.5: Pearson's Correlation between Perception of FST and Customer Satisfaction

	Pearson Correlation	P value (sig.)
Perception-> Satisfaction	0.826	<0.001

Hypothesis Analysis

The result presented in Table 4.6 shows that the VIF of the perception of FST factors are low, FST Features (VIF=2.327), FST Functionality (VIF=2.719), FST Security (VIF=2.062) and FST Performance (VIF= 2.293). Besides, the VIF of Perception towards restaurant customers satisfaction level also considered low, which is 1.

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In terms of the relationship between factors and perception, performance has a most significant relationship with the perception of FST 33.6 % ($p<0.05$). In addition, FST Functionality contributes as 12.85% ($p<0.05$), FST Security interprets as 22.9% ($p<0.05$), and FST Feature interprets as 28% ($p<0.05$). Moreover, Perception of FST shows a significant relationship towards restaurant customer satisfaction level 82.7% ($p<0.05$).

Therefore, when compared to FST Feature, FST Functionality, and FST Security, FST Performance is the most important factor that affect the customers perception of FST. Generally, all the factors of FST towards perception and perception of FST on satisfaction are supported (refer to Table 4.7)

Table 4.6: Multiple Linear Regression Analysis on Perception of FST Factors and Satisfaction Level of Restaurant Customers

Variables	Unstandardized Coefficient Beta	t	Sig.	VIF
Feature	0.280	5.415	<0.001	2.327
Functionality	0.128	2.560	0.011	2.719
Security	0.229	6.086	<0.001	2.062
Performance	0.336	6.773	<0.001	2.293
Perception	0.827	26.49	<0.001	1

Perception of Food Service Technology Factors: R^2 = 0.694; ANOVA results: F= 183.102; p<0.001
Satisfaction Level of Restaurant Customers: R^2 =0.683; ANOVA results: F=701.726; p< 0.001

Table 4.7: Hypothesis Result

Hypothesis	Decision
H_1: Feature has a significant relationship on customer perception of food service technology.	Supported
H_2: Functionality has a significant relationship on customer perception of food service technology.	Supported
H_3: Security has a significant relationship on customer perception of food service technology.	Supported
H_4: Performance has a significant relationship on customer perception of food service technology.	Supported
H_5: Restaurant customer quality perception has a significant relationship on customer satisfaction.	Supported

Discussion & Conclusion

Implication Of The Findings

The information on variables that affect customers perception of service technology is helpful for businesses to implement marketing strategies aimed to boost sales in restaurants. Restaurant might be able to reduce staff usage to maintain expenses by installing service technology such as kiosk, table ordering system, QR ordering system, bell service, online payment and many others. Therefore, food service businesses will have a competitive advantage thanks to marketing initiatives aimed at utilising cutting-edge technology.

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In addition, our research present empirical data about a customer-facing service technology that is attracting much attention from the restaurant industry, which is still in the early phase of adopting technology innovation. The current study has identified that performance is the most important factor in determining customers perception towards technology application in restaurants. To ensure the food ordering and payment process to be more efficient and accurate than the conventional procedure, the food service providers must guarantee the effectiveness of these food service technology as well as the speed of process. These applications should be functional to allow customers to insert their orders and make payment with ease.

According to the results, FST feature is also an essential component to understand customer perception. It is necessary that customers can understand user instruction easily and allow customers to utilise the application without inconvenience. For ease of usage, user instructions for menu and payment should come with clear descriptive in multiple languages.

A significant correlation was also found between functionality and customer perception of food service technology. Restaurant managers should make sure these applications are maintained and tested regularly so to make sure these devices are functioning properly to reduce errors in the service process. Lastly, the restaurant sector must constantly gather feedback from customers to assess the level of service and the effectiveness of the FST as a way to enhance user experience in the future.

Limitation and Recommendations

The results of this study may only be applicable to Klang Valley since the data samples were collected in this area. Therefore, variations in different geographical locations may yield different outcomes and may not be applicable for the entire Malaysia. In addition, this study has a limitation of generalizability. 148 respondents which represent 45.1% of the total respondents were in the age range of 18 to 24 years old that may not represent the wider population of Malaysia. This is due to the use of convenience sampling method to collect the data that we approached to potential respondents directly for our convenience, especially in Sunway area by face-to-face and via online platforms.

Furthermore, this research tested the correlation between FST factors and customer perception as well as between customer perception and customer satisfaction showing whether the relationship between the two variables is significant and how strong the relationship is. Therefore, the result of this study is limited to identifying the significance level since there is no indication of whether the relationship between the two variables is positive or negative.

To conduct comprehensive study and achieve thorough results, it is recommended to collect the data from larger and diverse samples. This approach should aim to collect the data evenly from a wider age range of FST users and cover different generational groups to strengthen the reliability of the conclusions.

Moreover, future research could examine the positive/negative impact of FST factors on customer perception that enhances comprehension regarding the use of FST in restaurant businesses. Besides, it is suggested to explore the relationship between customer satisfaction on FST and customers' revisit intention to further understand how helpful installing FST in the restaurant businesses is for obtaining the customers' loyalty.

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Conclusion

In summary, this study is intended to investigate the relationship between food service technology factors and customer perception in restaurants. As technology is rapidly evolving, improvements in the food service technology are expected to become an important aspect for service providers in the future. Following to this pattern, service companies across the industry have made major financial investment to the instalment of FST.

In this research, a total of 328 respondents were obtained to generate a reliable result. This quantitative research, we utilised Google Forms with close-ended questions and distributed the surveys through Instagram, WhatsApp and Xiao Hong Shu. Furthermore, SPSS was also used to analyse the data collected. The results show that all the variables have a strong relation with customer perception of food service technology (P value ≤ 0.05).

Performance and customer perception has the most significant relationship with a correlation value of 0.737 on the other hand, security and customer perception has the least significant relationship with a correlation value of 0.699. Moreover, there is high correlation value of 0.826 between customer perception and satisfaction.

Therefore, it was found that all hypotheses in this study are supported. This also indicates that these four factors of FST (Feature, Functionality, Security and Performance) will have an influence towards restaurant customer perception.

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References

Abdullah, F., Abdurahman, A. Z. A., & Hamali, J. (2011). Managing customer preference for the food service industry. *International Journal of Innovation, Management and Technology*, *2*(6), 525.

Abhari, S., Jalali, A., Jaafar, M., & Tajaddini, R. (2022). The impact of Covid-19 pandemic on small businesses in tourism and hospitality industry in Malaysia. *Journal of Research in Marketing and Entrepreneurship*, *24*(1), 75-91.

Arilaha, M. A., Fahri, J., & Buamonabot, I. (2021). Customer perception of e-service quality: an empirical study in Indonesia. *The Journal of Asian Finance, Economics and Business*, *8*(6), 287-295.

Appiah, V. S. (2021). Assessing the service quality in the restaurant industry using the SERVQUAL model (A Case of KFC-GHANA, KUMASI). *Journal of Economics and Sustainable Development*, *12*(16), 109.

Berger, T., Lettner, D., Rubin, J., Grünbacher, P., Silva, A., Becker, M., Chechik, M., & Czarnecki, K. (2015, July). What is a feature? a qualitative study of features in industrial software product lines. *Proceedings of the 19th international conference on software product line* (pp. 16-25).

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EISSN: 0128-178X
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DOI 10/35631/JTHEM.1039003
Cha, J., & Borchgrevink, C. P. (2019). Customers' perceptions in value and food safety on customer satisfaction and loyalty in restaurant environments: moderating roles of gender and restaurant types. *Journal of Quality Assurance in Hospitality & Tourism, 20*(2), 143-161.

Chaiyasoonthorn, W., Khalid, B., & Chaveesuk, S. (2019, August). Success of smart cities development with community's acceptance of new technologies: Thailand perspective. In *Proceedings of the 9th International Conference on Information Communication and Management* (pp. 106-111).

Han, J., Forbes, H., & Schaefer, D. (2019). An exploration of the relations between functionality, aesthetics and creativity in design. *Proceedings of the Design Society: International Conference on Engineering Design*, *1*(1), 259–268.

Ivkov, M., Blešić, I., Simat, K., Demirović, D., & Božić, S. (2016). Innovations in the restaurant industry–an exploratory study. *Economics of Agriculture*, *63*(4), 1169-1186.

Jeon, H. M., Sung, H. J., & Kim, H. Y. (2020). Customers' acceptance intention of self-service technology of restaurant industry: expanding UTAUT with perceived risk and innovativeness. *Service Business*, *14*(4), 533–551. https://doi.org/10.1007/s11628-020-00425-6

Kale, G., Chourishi, S. J., & Dabade, T. (2020). The customer perception on online food ordering and its significance. *Alochana Chakra Journal*, *9*(6), 8424–8441.

Kasavana, M. L., & Cahill, J. J. (2003). *Managing technology in the hospitality industry* (4th ed.). American Hotel & Lodging Educational Institute.

Lin, J. S. C., & Hsieh, P. L. (2011). Assessing the self-service technology encounters: development and validation of SSTQUAL scale. *Journal of retailing*, *87*(2), 194-206.

Liu, C. T., Guo, Y. M., & Huang, S. R. (2023). The factors affecting customers' satisfaction and continuance intention in platform-to-consumer environments: A case of mobile food ordering platforms. *e-Service Journal*, *15*(1), 1-28.

Macrotrends. (2024). *Kuala Lumpur, Malaysia metro area population 1950-2024*. https://www.macrotrends.net/global-metrics/cities/206411/kuala-lumpur/population

Mahmood, R., & Khan, S. M. (2014). Impact of service marketing mixes on customer perception: A study on Eastern Bank Limited, Bangladesh. *European Journal of Business and Management*, *6*(34), 164-167.

Mordor Intelligence. (2023). Malaysia foodservice market size. https://www.mordorintelligence.com/industry-reports/malaysia-foodservice-market/market-size

Negahban, A., & Chung, C. H. (2014). Discovering determinants of users perception of mobile device functionality fit. *Computers in Human Behavior*, *35*, 75-84.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). Servqual: A multiple-item scale for measuring consumer perc. *Journal of retailing*, *64*(1), 12.

Pai, C. K., Wu, Z. T., Lee, S., Lee, J., & Kang, S. (2022). Service quality of social media-based self-service technology in the food service context. *Sustainability (Switzerland)*, *14*(20), 1–15. https://doi.org/10.3390/su142013483

Priyono, A., Moin, A., & Putri, V. N. A. O. (2020). Identifying digital transformation paths in the business model of SMEs during the COVID-19 pandemic. *Journal of Open Innovation: Technology, Market, and Complexity*, *6*(4), 104.

Ratten, V. (2014). A US-China comparative study of cloud computing adoption behavior: The role of consumer innovativeness, performance expectations and social influence. *Journal of Entrepreneurship in Emerging Economies*, *6*(1), 53-71.

Journal of Tourism, Hospitality and Environment Management
JTHEM
EISSN: 0128-178X
Volume 10 Issue 39 (March 2025) PP. 24-38
DOI 10/35631/JTHEM.1039003

Razak, N. A., Aminuddin, Z. M., & Ghazali, A. R. (2020). Service quality and customer satisfaction in restaurant industry using Partial Least Square. *European Proceedings of Social and Behavioural Sciences, 88,* 218-225. https://doi.org/10.15405/epsbs.2020.10.20

Sachin, K. S., & Kavatekar, S. (2022). Customer perception with respect to online food delivery. *Journal of Pharmaceutical Negative Results*, 903-915.

Seopela, L., & Zulu, V. (2022). Consumer perceptions on satisfaction and word of mouth in smallholder horticultural stores in an emerging economy. *Management Science Letters, 12*(1), 21-34.

Shahid Iqbal, M., Ul Hassan, M., & Habibah, U. (2018). Impact of self-service technology (SST) service quality on customer loyalty and behavioral intention: The mediating role of customer satisfaction. *Cogent Business and Management*, *5*(1). https://doi.org/10.1080/23311975.2018.1423770

Souca, M. L. (2011). SERVQUAL–Thirty years of research on service quality with implications for customer satisfaction. *Marketing from Information to Decision*, (4), 420-429.

Thamaraiselvan, N., Jayadevan, G. R., & Chandrasekar, K. S. (2019). Digital food delivery apps revolutionizing food products marketing in India. *International Journal of Recent Technology and Engineering*, *8*(2), 662-665.

Uzir, M. U. H., Al Halbusi, H., Thurasamy, R., Thiam Hock, R. L., Aljaberi, M. A., Hasan, N., & Hamid, M. (2021). The effects of service quality, perceived value and trust in home delivery service personnel on customer satisfaction: Evidence from a developing country. *Journal of Retailing and Consumer Services*, *63*. https://doi.org/10.1016/j.jretconser.2021.102721

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, *27*(3), 425-478.

Widarsyah, R. (2022). *Examination of self-service-technology's integration in casual dining restaurants*. Proquest. https://www.proquest.com/dissertations-theses/examination-self-service-technology-s-integration/docview/2838333618/se-2

Xu, Y., Jeong, E., Baiomy, A. E., & Shao, X. (2020). Investigating onsite restaurant interactive self-service technology (ORISST) use: Customer expectations and intentions. *International Journal of Contemporary Hospitality Management*, *32*(10), 3335-3360.

Yap, S. F., & Kew, M. L. (2007). Service quality and customer satisfaction: antecedents of customer's re-patronage intentions. *Sunway academic journal*, *4*, 59-73.

Young, M. (2015, April 17). *31 examples of food service technology*. Trend Hunter. https://www.trendhunter.com/slideshow/food-service-technology

Zhao, Y., & Bacao, F. (2020). What factors determining customer continuingly using food delivery apps during 2019 novel coronavirus pandemic period? *International journal of hospitality management*, *91*, 102683.

Zhou, T., Lu, Y., & Wang, B. (2010). Integrating TTF and UTAUT to explain mobile banking user adoption. *Computers in human behavior*, *26*(4), 760-767.