From Counters to Kiosks: The New Normal For Generation X In Quick Service Restaurants After Covid-19

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Abstract
The COVID-19 pandemic has accelerated the shift toward digital solutions in various sectors, including the Quick Service Restaurant (QSR) industry. This study investigates the evolving preferences of Generation X consumers in Malaysia regarding the use of self-service kiosks (SSKs) in QSRs during the COVID-19 endemic. Specifically, the research examines how factors such as menu visual appeal, menu informativeness, design aesthetics, and perceived control influence the decision-making processes of these consumers, leading them to prefer kiosk-based ordering over traditional counter services. Utilizing a quantitative research methodology, data were collected from 150 Generation X respondents who have interacted with SSKs at QSRs during the endemic period. The data analysis, conducted using the Statistical Package for the Social Sciences (SPSS) Version 22, reveals significant correlations between the independent variables and the increased adoption of SSKs. The findings highlight the pivotal role of SSKs in enhancing customer experience and operational efficiency, suggesting that these digital interfaces are becoming the new norm in QSR settings, particularly in the context of the ongoing health crisis. The study offers valuable insights for QSR operators aiming to enhance competitiveness and customer satisfaction in the post-pandemic era.
Keywords: Self-Service Kiosk Technology Adoption, COVID-19.

Introduction
The COVID-19 pandemic has profoundly impacted consumer behavior across various sectors, including the food service industry. As the pandemic persists, Quick Service Restaurants (QSRs) have increasingly adopted digital solutions such as self-service kiosks (SSKs) to meet evolving consumer needs for safety and efficiency. According to Smith (2020), SSKs offer a contactless alternative to traditional counter services, providing a means to maintain social distancing

while enhancing service speed and convenience. This transition is particularly relevant for Generation X consumers, who, despite not being digital natives, have shown a growing inclination towards integrating digital solutions into their daily routines, including dining experiences (Brown and Green, 2021).

The adoption of SSKs in QSRs is influenced by multiple factors, including increased hygiene awareness, the necessity of social distancing, and the desire for faster service. Recent studies have demonstrated that SSKs can significantly enhance customer satisfaction by reducing wait times and offering a more personalized ordering experience (Lee et al., 2020). However, the extent to which Generation X in Malaysia has embraced this technology during the COVID- 19 endemic remains underexplored. This research aims to bridge this gap by investigating the factors influencing Generation X's preference for SSKs over traditional counter services in Malaysian QSRs.

Understanding the determinants of SSK adoption is crucial for QSR operators aiming to maintain competitiveness in the evolving market landscape. Earlier research has identified several key factors influencing technology acceptance, such as perceived ease of use, perceived usefulness, and social influence (Davis, 1989). Building on these foundational theories, this study focuses on four specific factors—menu visual appeal, menu informativeness, design aesthetics, and perceived control—that may indirectly affect Generation X's decision to utilize SSKs. These factors are particularly relevant given the unique characteristics of Generation X consumers, who prioritize convenience, efficiency, and autonomy in their technological interactions (Kotler, 2021).

The elements of menu visual appeal and informativeness are critical in shaping consumer decision-making processes. An aesthetically pleasing and visually engaging menu can attract attention and encourage exploration, while detailed and informative content ensures that consumers are well-equipped to make informed choices (Jackson and Wood, 2019). Additionally, design aesthetics—including layout, color schemes, and font choices—contribute significantly to the overall user experience, influencing perceptions of usability and satisfaction (Lewis, 2022). Moreover, perceived control, defined as the user's ability to navigate the system and customize their orders independently, enhances the attractiveness of SSKs, particularly in a context where minimizing human contact is essential (Chen, 2020).

This study employs a quantitative approach to examine the indirect effects of these factors on SSK usage intentions among Generation X consumers in Malaysia. Structured questionnaires were distributed to 150 respondents who have utilized SSKs at QSRs during the COVID-19 endemic. The data analysis, conducted using the Statistical Package for the Social Sciences (SPSS) Version 22, seeks to uncover significant relationships between the identified factors and the propensity for SSK adoption. The results are expected to provide valuable insights for QSR operators aiming to enhance customer experience and sustain their market position in a post-pandemic environment.

In conclusion, as the QSR industry navigates the challenges presented by the COVID-19 pandemic, understanding the drivers behind Generation X's adoption of self-service technologies is imperative. This research contributes to the existing literature by elucidating

how specific aspects of the SSK experience influence customer behavior, thereby offering practical implications for both industry practitioners and scholars.

Literature Review

The use of self-service kiosks (SSKs) has gained substantial attention in the food service industry, particularly in the context of the COVID-19 pandemic. The following literature review explores the various dimensions of SSK utilization, its impact on customer behavior, and the factors influencing its adoption, specifically in Quick Service Restaurants (QSRs). This review is divided into several subtopics, including COVID-19 pandemic resilience, factors influencing SSK adoption, customer satisfaction, and the psychological impact of self-service technology.

COVID-19 Pandemic Resilience in the Restaurant Industry

The COVID-19 pandemic has necessitated significant operational changes within the restaurant industry to ensure business continuity and customer safety. Kim, Yang, and Lee (2023) explored how self-service kiosks have enhanced pandemic resilience in restaurants by reducing human interaction and facilitating contactless transactions. Their study highlights that many customers, wary of crowded environments, prefer to use SSKs as a safer alternative, which has enabled restaurants to maintain service levels despite reduced on-site staff and stringent health protocols. The findings suggest that SSKs have become a critical tool for mitigating the financial impact of the pandemic on the restaurant industry by maintaining customer flow and ensuring compliance with social distancing measures.

Factors Influencing the Adoption of Self-Service Kiosks

Several studies have examined the factors influencing the adoption of SSKs in various service settings during the COVID-19 pandemic. Fernando, Surjandy, and Meyliana (2020) investigated the factors affecting the intention to use self-service technologies (SSTs), such as kiosks, during the pandemic. They identified perceived usefulness, ease of use, and the perceived safety of the technology as key determinants of customer adoption. The study emphasized that customers are more likely to use SSKs when they perceive them to be convenient, easy to navigate, and effective in reducing the risk of virus transmission. Additionally, Baba, Hanafiah, and Mohd Shahril (2023) focused on the Malaysian QSR context and found that customer trust and perceived safety risks significantly affect the acceptance of SSK technology. Their research contributes to understanding how cultural and contextual factors shape technology adoption in different regions.

Impact of Self-Service Kiosks on Customer Satisfaction

The implementation of SSKs in hospitality settings has also been linked to changes in customer satisfaction. Wu et al (2024), conducted a comparative analysis of customer satisfaction levels before and after the introduction of SSKs in hotels, revealing that customer satisfaction tends to improve post-implementation due to the enhanced speed and accuracy of service. Similarly, Kim and Park (2024) examined restaurant users' attitudes towards self-service kiosks during the COVID-19 pandemic, applying the theory of anxiety to understand customers' psychological responses.

Their findings suggest that while some customers initially experience anxiety related to using unfamiliar technology, satisfaction increases as they become accustomed to the autonomy and control provided by SSKs.

Psychological and Behavioral Impacts of Self-Service Technologies
The psychological impact of self-service technology adoption has been a focal point in recent studies. Kim and Park (2024), explored how anxiety about COVID-19 influences attitudes towards SSKs, revealing that heightened anxiety levels can either encourage kiosk use, due to perceived safety, or deter it, due to technology-related apprehension. This dual impact underscores the importance of addressing both technological familiarity and health safety in promoting SSK use. Additionally, Moon, Lho, and Han (2021) examined customer loyalty and satisfaction with SSKs in the airline industry, providing insights into how these factors may also apply to the QSR context. They found that enhancing the perceived quality of self-service interactions can significantly boost customer loyalty and satisfaction in post-pandemic settings.

Broader Applications of Self-Service Technologies During and After COVID-19
Beyond the restaurant and hospitality sectors, self-service technologies have been widely adopted across various industries as a response to the COVID-19 pandemic. Gürsoy and Ateş (2022) examined the impact of self-service check-in technologies at airport terminals, noting a significant shift in passenger preferences towards these contactless options. This research provides a broader perspective on how the principles of SSK adoption in restaurants might be applicable to other service sectors, further highlighting the versatility and importance of self-service technologies in the post-pandemic world.

Theoretical Insights and Future Directions
The literature indicates that self-service kiosks are not just a temporary solution but are becoming an integral part of service delivery models in various sectors. Khalufi and Shah (2021), analyzed the transformative role of self-service technology in business and marketing during the pandemic, arguing that such technologies will continue to evolve and expand, necessitating further research into their long-term impacts. Um, Koo, and Chung (2020) also explored the use of latent growth modeling (LGM) and structural equation modeling (SEM) to understand SSK usage intentions, providing a methodological framework for future research on technology adoption during crises.

In summary, the literature underscores the multifaceted benefits and challenges associated with the adoption of self-service kiosks in QSRs and other sectors during the COVID-19 pandemic. These studies collectively suggest that while SSKs offer significant advantages in terms of safety, efficiency, and customer satisfaction, there are also important psychological and contextual factors that must be considered to optimize their deployment and usage.

Research Framework
The research framework for this study is designed to explore the relationships between various independent variables and the dependent variable—customer intention to use self-service kiosks (SSKs) in Quick Service Restaurants (QSRs) during the COVID-19 endemic. This framework provides a conceptual model that guides the investigation, illustrating how menu visual appeal, menu informativeness, design, and perceived control influence customers' intentions to engage with SSKs.
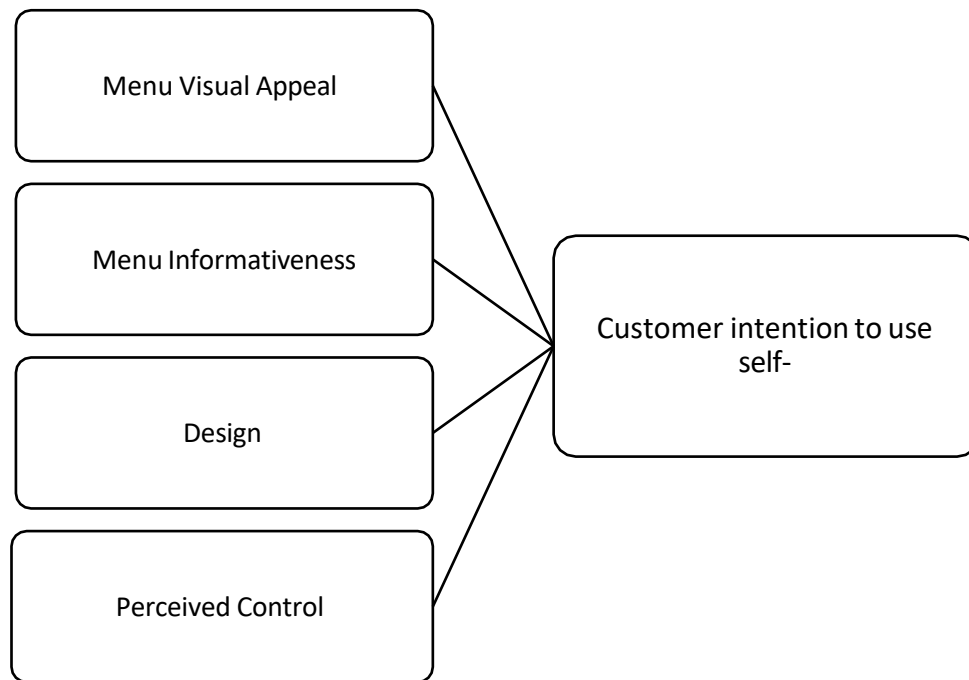
Figure 3.1: Conceptual Framework of the research

Menu Visual Appeal: The visual presentation of a menu is a crucial factor influencing a customer's first impression and subsequent decision to use SSKs. An aesthetically pleasing menu with well-organized categories, attractive imagery, and clear font can capture the customer's attention, making the ordering process more enjoyable and straightforward. This visual appeal is believed to play a significant role in encouraging customers to opt for self-service kiosks over traditional counter services, particularly in a setting where visual stimuli are a primary mode of interaction.

Menu Informativeness: Menu informativeness refers to the extent to which the kiosk's menu provides detailed and relevant information about the food items. This includes descriptions of ingredients, nutritional information, pricing, and customization options. A well-informed menu can help customers make more educated choices, thereby enhancing their dining experience. The hypothesis is that when customers perceive the menu to be informative, they are more likely to use SSKs, as it provides them with sufficient knowledge to make decisions independently.

Design: The overall design of the self-service kiosk interface, including layout, user interface (UI) elements, color schemes, and navigation structure, is another critical factor. A user-friendly and intuitive design can significantly reduce the cognitive load on customers, making the process of placing an order via the kiosk smooth and efficient. Effective design is expected to reduce the learning curve associated with using new technology, thus increasing the likelihood of customers choosing to use SSKs.

Perceived Control: Perceived control refers to the customer's belief in their ability to effectively navigate the SSK and complete their intended tasks without assistance. This sense of control is a pivotal factor in determining a user's comfort level with self- service

technologies. Customers who feel that they have control over the ordering process, including the ability to customize orders and correct mistakes, are more likely to favor using SSKs. High perceived control is associated with increased customer confidence in the technology, thereby boosting their intention to use it.

Hypothesis

There are 4 hypothesis which can help to measure the relations between features and customer intention to use for self-service kiosk during COVID-19 endemic in Malaysia will illustrated as below:

Hypothesis 1: Menu Visual Appeal

$H1_1$: Menu visual appeal positively influence gen X use intentions. $H1_0$: Menu visual appeal negatively influence gen X use intentions.

Hypothesis 2: Menu Informativeness

$H2_1$: Menu informativeness positively influence gen X use intentions. $H2_0$: Menu informativeness negatively influence gen X use intentions.

Hypothesis 3: Design

$H3_1$: Design is positively associated with gen X use intentions. $H3_0$: Design is negatively associated with gen X use intentions.

Hypothesis 4: Perceived Control

$H4_1$: Perceptions of control will have a positively relationship with gen X use intentions. $H4_0$: Perceptions of control will have a negatively relationship with gen X use intentions.

Methodology

This study employed a quantitative research methodology to collect primary data, utilizing a standardized questionnaire to gather insights from a diverse pool of respondents. The quantitative approach allowed for statistical analysis to establish correlations between predefined variables and new insights derived from the survey, in alignment with established practices in empirical research (Soiferman, 2010). The questionnaire was designed using the Google Forms platform and distributed via URL links, capitalizing on the platform's efficiency and reach. The use of online platforms facilitated a contactless distribution process through various channels such as social media, email, and other digital applications, thereby ensuring broad accessibility for participants across multiple internet-enabled devices.

The choice of Google Forms also streamlined the data collection process, enabling direct input into Excel spreadsheets for subsequent analysis, thus optimizing time efficiency and minimizing potential data entry errors. The questionnaire was structured into three sections: Section A, Section B, and Section C. Section A was dedicated to collecting general demographic information from the respondents. Section B comprised questions related to the independent variables—Menu Visual Appeal (MVS), Menu Informativeness (MIF), Design (D), and Perceived Control (PC)—aiming to explore their influence on customer intentions to utilize self-service kiosks at Quick Service Restaurants, specifically McDonald's.

Section C focused on the dependent variable, examining the relationship between the identified menu features and customer intentions to use self-service kiosks during the COVID-19 endemic in Malaysia, as perceived by the respondents. The survey instrument was carefully developed to address all research questions and objectives, incorporating insights from prior studies conducted in related fields. This methodological approach ensures that the data collected is robust and comprehensive, providing a solid foundation for subsequent analysis and interpretation.

Results

In general, the data presented in table 3 indicates noteworthy and favourable correlations between customer satisfaction and various factors: menu visual appeal ($r=0.616$, $p<0.001$), menu informativeness ($r=0.572$, $p<0.001$), design ($r=0.714$, $p<0.001$), perceived control ($r=0.576$, $p<0.001$) and purchase intention ($r=0.731$, $p<0.001$).

Table 5.1
Pearson correlation for variable of study.

	MVS	MIF	PCV	PC	PCI
Menu Visual Appeal	1				
Menu Informativeness	0. 362**	1			
Design	0. 497**	0. 621**	1		
Perceived Control	0. 492**	0. 654**	0. 848**	1	
Purchase Intention	0.616**	0. 572**	0. 714**	0. 731**	1

**. Correlation is significant at the 0.01 level (2-tailed).

IQ=Information Quality, SQ=System Quality, SeQ=Service Quality, S=Support, NB=Net Benefit and CS=Customer Satisfaction

The model summary for customer satisfaction toward self-service system is presented in Table 4. The R Square coefficient determination indicates that five independent variables collectively account for 74.3% ($R^2 = 0.743$) of the total variance in customers' satisfaction to use self-service system. This regression model, detailed in the table, examines the relationships between information quality, system quality, service quality, support and net benefit with respect to customer's perception toward self-service quality. Additionally, a second table explores the connection between factors that influencing customer satisfaction and the level of satisfaction.

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

Table 5.2
Regression for Customer Satisfaction determine.

	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	T	Sig.
(Constant)	-.485	0.444	-	-1.092	0.277
information quality	0.0297	0.110	0.187	2.690	0.008
system quality	0.216	0.093	0.177	2.327	0.021
service quality	0.274	0.096	0.250	2.860	0.005
support	0.123	0.080	0.122	1.539	0.126
net benefit	0.196	0.081	0.193	2.421	0.017

Discussions

The findings of this study reveal significant correlations between the independent variables—menu visual appeal, menu informativeness, and perceived control—and the dependent variable, customer intention to use self-service kiosks at Quick Service Restaurants (QSRs) during the COVID-19 endemic.

The correlation value for menu visual appeal was found to be 0.616, indicating a strong relationship with the dependent variable, which is the consumer's intention to use self-service kiosks. This result is consistent with prior research conducted by Wyer et al (2008), who posited that menu visual appeal acts as a critical stimulus in capturing customers' curiosity and influencing their purchasing intentions. Further supporting this, Hou et al (2017), explored the combined effects of food names and photographs on customer attitudes and behavioral intentions, demonstrating varied information processing patterns among individuals identified as verbalizers versus visualizers when evaluating a restaurant menu.

Regarding menu informativeness, the correlation value was found to be 0.572, also suggesting a strong relationship with the dependent variable, specifically the intention of Generation X consumers to utilize self-service kiosks at QSRs during the COVID-19 endemic. This finding aligns with several earlier studies, including those by Han et al (2020), which highlighted that nutritional and menu information available at fast-food restaurant kiosks may not be as prevalent in other dining formats, such as casual-dining or full-service restaurants.

Notably, within the data analysis concerning menu informativeness, the item "The menu provides diners with a comprehensive picture of the food being offered" recorded the lowest mean score among all items, at 4.32. This suggests a nuanced perspective: while menu informativeness generally has a significant effect, it might not universally enhance Generation X's intention to use self-service kiosks, particularly if the information is perceived as insufficient or overwhelming. This outcome is further corroborated by Minge et al. (2014), who found that older adults often face challenges when interacting with information and communication technologies, leading to feelings of frustration and helplessness upon unsuccessful attempts.

The analysis also identified a strong correlation value of 0.731 for perceived control, indicating a robust relationship with the dependent variable, which in this context is the intention of Generation X consumers to use self-service kiosks at QSRs during the COVID-19 endemic. This is in agreement with previous research by Binti (2019), which demonstrated that self- service kiosks empower customers by allowing them to personalize their orders, providing greater control over the selection process, and facilitating convenient payment methods without the need to endure lengthy queues. Notably, within the data analysis on perceived control, the item "The self-service aspect of getting my (product) lets me be decisive" had the highest mean score of 4.51, underscoring the importance of perceived autonomy and control in influencing customer intentions to engage with self-service technologies.

Conclusion
This research study has explored the relationships between various menu features and customer intentions to use self-service kiosks (SSKs) at Quick Service Restaurants (QSRs) during the COVID-19 endemic, drawing on constructs from conceptual models developed by Brewer and Sebby, Collier and Barnes, and Junsawang. The findings demonstrate that the independent variables—Menu Visual Appeal (MVS), Menu Informativeness (MIF), Design (DGN), and Perceived Control (PC)—exhibit significant correlations with the dependent variable, which is the consumer intention to use SSKs during the endemic period. The research employed a variety of data analysis techniques, including descriptive analysis, Pearson correlation analysis, reliability analysis, multiple regression analysis, and hypothesis testing, to effectively address the research questions and achieve the study's objectives.

The discussion presented in this study indicates that the constructs of Menu Visual Appeal (MVS), Design (DGN), and Perceived Control (PC) are positively correlated with a significant relationship to the intention of Generation X to use SSKs during the COVID-19 endemic. Conversely, Menu Informativeness (MIF) was found to have a negative relationship with the intention to use SSKs among this demographic. The analysis further underscores the particularly strong relationship between Perceived Control and Generation X's intention to use SSKs during the endemic.

The majority of respondents concurred that the menu provides a clear and satisfactory description of the available food options. Notably, Menu Visual Appeal emerged as the most influential factor impacting Generation X's intention to use SSKs during the COVID-19 endemic. This finding suggests that educating target consumers about menu items using clear and distinct descriptions can significantly enhance the likelihood of purchase. In conclusion, it is recommended that QSRs continuously update their self-service kiosk systems to include user-friendly features and visually appealing menu designs to better accommodate the preferences of Generation X, thereby enhancing their intentions to use SSKs during the ongoing endemic.

Theoretical and Contextual Contributions
This study provides significant contributions to both theoretical frameworks and practical applications within the domain of self-service technologies (SSTs) in the Quick Service Restaurant (QSR) industry. From a theoretical perspective, this research extends the existing literature on technology acceptance and consumer behavior, specifically within the context of Generation X consumers during a public health crisis. Building upon foundational models such

as the Technology Acceptance Model (TAM) proposed by Davis (1989), this study enhances our understanding by introducing key variables—menu visual appeal, menu informativeness, design aesthetics, and perceived control—as critical factors influencing self-service kiosk adoption. While previous studies have examined the role of ease of use and perceived usefulness, this research deepens the inquiry by exploring the psychological impact of control and customization, which are increasingly relevant in a post-pandemic, health-conscious consumer landscape.

In doing so, this study broadens the applicability of technology adoption models by integrating unique consumer-centric dimensions that reflect the changing dynamics of customer expectations in a digitalized environment.

Furthermore, the study adds to the growing body of knowledge on human-computer interaction (HCI) within service-oriented sectors, particularly in hospitality and foodservice industries. By investigating how Generation X—traditionally not viewed as digital natives—adapts to SSTs, this research challenges and refines existing assumptions about generational technology adoption patterns. The findings indicate that while Generation X consumers may not engage with technology as intuitively as younger cohorts, factors such as design simplicity, visual engagement, and the ability to control the interaction significantly enhance their willingness to adopt self-service systems. This expands our theoretical understanding of how tailored design elements can mitigate technology apprehension among older consumers, offering new pathways for future research.

From a contextual standpoint, this research offers invaluable insights into the Malaysian QSR landscape during and after the COVID-19 pandemic. The study's focus on Generation X within Malaysia—a demographic that is underrepresented in both global and local studies—provides a nuanced understanding of how cultural, generational, and situational factors intersect to shape consumer behavior in a specific context. Malaysia's QSR industry, a vital sector in the country's service economy, faces significant challenges in adapting to the new norms imposed by the pandemic. This research demonstrates that the adoption of self-service kiosks not only addresses health and safety concerns by minimizing human contact but also enhances operational efficiency and customer satisfaction. For QSR operators, the findings highlight the importance of investing in user-friendly, visually appealing kiosks that cater to the preferences of Generation X, a demographic that values autonomy, clarity, and control in their dining experience.

Moreover, the study underscores the broader implications for the QSR industry's resilience in times of crisis. The research illustrates how digital solutions, such as SSKs, have become not just an operational necessity but a competitive advantage in ensuring business continuity during health emergencies. By examining the specific drivers of SST adoption in a Malaysian context, this study provides a framework for local QSR operators to navigate similar disruptions in the future, positioning SSKs as an essential component of the post-pandemic service model. These findings also offer a template for other emerging markets with similar demographic and economic characteristics, broadening the global applicability of the research.

In summary, this study makes both theoretical and contextual contributions by extending technology acceptance models to include specific design and control factors relevant to

Generation X consumers, while offering practical, data-driven recommendations for QSR operators in Malaysia and other similar contexts. The research not only enriches our academic understanding of consumer behavior during crises but also provides actionable insights for industry practitioners seeking to innovate and thrive in a rapidly evolving service environment.

Implications
The findings of this research study provide significant insights into the dimensions of the conceptual model developed by Brewer and Sebby in 2021. The constructs analyzed in this study—Menu Visual Appeal, Menu Informativeness, Design, and Perceived Control—have demonstrated substantial utility in predicting customer decision-making processes in the context of self-service kiosks. The comprehensive examination of this framework has also enhanced understanding of how customers process information and form intentions to use self- service kiosks, particularly under atypical circumstances such as the COVID-19 endemic. Consequently, future research could consider incorporating additional variables into the current model to further explore the intricacies of consumer decision-making processes, or adapt the model to different contexts within hospitality management.

The study's results revealed that three independent variables—Menu Visual Appeal, Design, and Perceived Control—exhibited a significant positive relationship with the dependent variable, while one variable, Menu Informativeness, did not show a significant relationship concerning Generation X's intention to use self-service kiosks. As a result, all proposed alternative hypotheses were supported in this study. These findings align with the research conducted by Brewer and Sebby (2021), who applied the Stimulus-Organism-Response (S-O-R) model to evaluate consumer intentions during the COVID-19 endemic. This study contributes to the existing body of knowledge by expanding the understanding of self-service kiosk menus at QSRs in Malaysia—a subject area still in its nascent stages with limited research.

From a managerial perspective, this study offers several practical implications for the restaurant industry, particularly in terms of product definition, effective content marketing strategies, and targeting new market segments. Quick Service Restaurants (QSRs) should consider incorporating visually appealing photographs for each menu item to enhance sales, as the study indicates that menu visual appeal positively influences consumer intention to use SSKs. However, it is important for restaurateurs to be mindful of the potential risks associated with visual representations. A visually appealing image might elevate consumer expectations, which could prove challenging for the QSR to meet. Therefore, careful consideration is necessary before including images on menus. The photographs should accurately reflect the actual dishes served, ensuring consistency between the visual presentation and the actual food provided. Previous research has highlighted that elements such as food arrangement and plating can impact a consumer's ability to recognize and trust the flavors of a dish (Spence et al., 2016). Moreover, the dining experience itself can significantly influence consumer enjoyment and subsequent consumption behaviors.

Visual elements also play a critical role in shaping consumer perceptions regarding ingredient quality, meal preparation, restaurant standards, and customer service, especially when there is uncertainty about menu items. According to Li and Xie (2020), professionally taken, high-quality menu images are essential for maximizing the effectiveness of visual content.

Compared to text descriptions, visuals are more likely to influence sensory perceptions and stimulate appetite. Research by Kisielius and Sternthal (1984) has shown that combining visuals with descriptive language enhances consumer behavioral intentions.

Therefore, to develop a menu that meets or exceeds customer expectations and enhances perceived value, restaurant management should ensure thorough and accurate visual and verbal communication.

The convenience of online food ordering through a restaurant's website or an online meal ordering platform has resulted in positive consumer behavioral intentions due to the ease of information processing. This alternative transaction process accommodates unusual circumstances and provides valuable feedback for both potential customers and management. The inclusion of appealing images and detailed menu descriptions has been shown to significantly enhance customer intentions to use services from businesses that implement such features (Kochilas, 1991).

Even after the endemic has subsided and dine-in services have resumed normal operations, management must continue to refine and improve menu descriptions and visuals, drawing on feedback from both dine-in and online customers to remain competitive and cater to their target market. Furthermore, restaurants should consider carryout and delivery customers as a vital revenue source.

Finally, QSRs must focus not only on the performance and functionality of their self-service kiosks but also on their dine-in services to maintain a competitive edge. Management should recognize that a well-designed menu can significantly influence consumer perceptions of food during the pre-purchase, purchase, and post-purchase stages, thereby affecting customer satisfaction, loyalty, and financial performance. To maintain competitiveness and achieve long-term sustainability, it is recommended that QSRs and their managers stay abreast of industry trends and continuously adapt to evolving consumer preferences.

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