

DIGITAL MENU TRANSFORMATION: USABILITY TESTING APPROACH FOR THE FOOD AND BEVERAGE INDUSTRY'S

TANTY OKTAVIA¹, STEPHEN KRISDY², MICHAEL NATHANIEL², JUSTIN JOE ADIWIDJAJA², JUAN MARCHELL KURNIAWAN², STEVEN ONG²

¹Information System Management Department, Binus Graduate Program – Master of Information System Management. Bina Nusantara University, Jakarta, Indonesia 11480

²Information Systems Department, School of Information Systems, Bina Nusantara University Jakarta, Indonesia 11480

E-mail: toktavia@binus.edu¹, stephen.krisdy@binus.ac.id², michael.nathaniel001@binus.ac.id³, Justin.adiwidjaja@binus.ac.id⁴, juan.kurniawan001@binus.ac.id⁵, steven.ong@binus.ac.id⁶

ABSTRACT

Over the past few years, menu has shifted from the traditional physical menu into more advanced digitized form. Digital menu is a type of menu that utilizes the customer phone to show a restaurant's menu. The trend of using digital menu has attracted more and more restaurants to use digital menu instead of the traditional one. Since the transition is recent, a study is conducted to determine the influence of digital menus on customers. An online questionnaire was created in order to collect the data that is necessary to conduct the research. The data is collected from people within the region of Jakarta each with unique ages, and occupation. SmartPLS will be the software of choice to analyze the valuable result with a built-in method from SmartPLS, The Partial Least Squares - Structural Equation Modeling (PLS-SEM). From 129 respondents, this research took 100 samples and conducted an analysis on SmartPLS. The study showed that with the constant growing of technology on digital menu development, many people still prefer the usage of physical menu over digital menu with a variety of reasons. This leaves a big opportunity for restaurant owners to continuously improve their digital menu implementation in order to satisfy customers when using a digital menu.

keywords: *Digital Menu, Physical Menu Smartpls, PLS-SEM*

1. INTRODUCTION

Along with technological developments, the food industry continues to develop following technological changes. One form of technology application in the food industry is the use of a QR Code or Barcode Scanner to display the menu available in a restaurant. Quoted from Kompas, Welbilt Asia Pacific Consultant Chef Zulkarnaini Dahlan said that technological advances cannot be avoided by culinary business people [1].

Based on the database of QRTIGER which is a company that focuses on the manufacture and sale of QR codes, published a data of the top 10 countries with the highest scan activity for the first quarter of 2022:

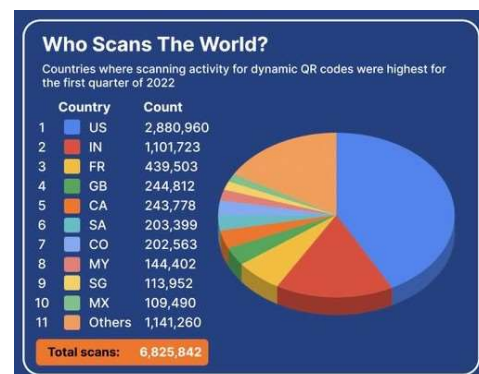


Figure 1. 10 Country With The Highest QR Scanning Activity In Q1 2022 [2]

Based on this data, the United States dominates in the use of QR codes with a total of 2.8 million scans in the first quarter of 2022.

Various reports regarding the use of QR Code have been carried out and published.

According to a 2022 research by the National Restaurant Association, 58% of individuals polled said they were more likely to use their smartphone to browse a QR code menu. Another report provided annually by TouchBistro, says that 7 out of 10 restaurants prefer to use mobile payments and QR codes.

Other reports also published similar results regarding the use of QR codes in restaurants or cafes. For instance, according to a Square survey published in the Future of Restaurants, 88% of eateries are contemplating using digital menus. According to a similar study by Hospitality Tech, 92% of restaurants now utilize QR codes instead of printed menus (books) [2].

The development of digital menus has also increased drastically due to the COVID-19 pandemic, developments are encouraged as an effort to reduce physical contact, the spread of COVID-19 and improve health protocol standards. Cited from one of the journals, "By scanning a menu barcode, we don't need to make direct contact with the waiter at the dining place when we want to order food, so the interaction space that occurs is very small and provides real benefits." in fighting the dangers of the Covid-19 virus, especially in the MSME economic sector." [3].

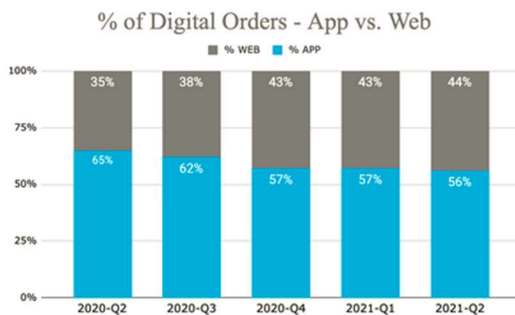


Figure 2. App Vs Web Digital Order Ratio [4]

Figure 2 above explains that for 1 year, orders through the application have dominated over the web. This certainly affects the interest in ordering customers who are used to ordering food through their electronic devices and this certainly changes customer habits when they want to order food, as well as providing innovation in the form of digital menus to in-store restaurants.

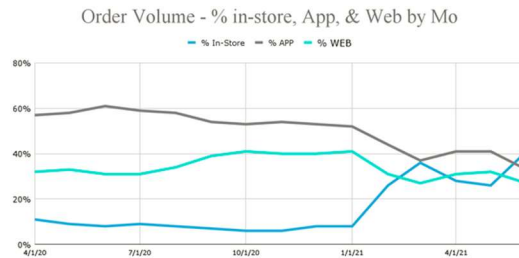


Figure 3. Monthly Order Volume On In-Store, App, & Web Order [4]

From figure 3, we can see that from April 2020 the application's order volume has almost reached 60% and has touched 60% a few days or months later, while for in-store volume, they are the lowest, namely below 20% and for The web value is around 20% to 40%. On January 1, 2022, the in-store value started to slowly creep up and caused the app value to decrease, but it didn't last long because at one point there was a kind of collision between the in-store value and the app value and it ended with an increase in app value again. A few months later the app value started to decline again and the in-store value could rival the app value. Of course the increase in in-store value is not without reason. In-store restaurants have improved themselves according to the behavior of people who are used to the digital world, so that in-store restaurants can compete again with apps and the web.

From some of the phenomena and data above, we are interested in conducting research with the main topic (implementation of digital menus). Our research discussion aims to find out the customer's response/response to this change, namely the transfer of menu use from traditional menus to digital menus. Apart from that, we also see from the side of the staff working in the restaurant, whether the implementation of the digital menu in the restaurant has a positive or negative impact on the staff and the restaurant itself [4].

2. LITERATURE REVIEW

2.1 Interactivity

Includes variables of interactivity, speed, range, mapping, and perceived interactivity. Interactivity in the context of media and technology refers to the ability for users to actively engage and participate in the content, rather than simply consuming it passively. Interactivity in digital menus refers to the ability of customers to interact with a

menu displayed on a digital device, such as a touchscreen kiosk or tablet. Research has shown that interactivity in digital menus can have a positive impact on customer engagement and satisfaction. Overall, literature suggests that interactivity in digital menus can have a positive impact on customer engagement, satisfaction, and sales. It allows customers to explore and discover new menu items, which leads to more time spent reviewing menu options and higher likelihood of ordering items they had not previously considered [5].

The results show that consumers in the UK, Denmark, France, and Greece place the most emphasis on food quality, particularly in terms of food hygiene, sustainability, safety, and freshness. Future digital menu solutions should be developed based on the study's findings, and these include: contains an app design that places a focus on food quality and is tailored for the nation and population in question to encourage educated meal choosing in public eating situations [6].

2.2 Customer Experience

Includes experience, enjoyment, menu enjoyment, cognitive effort, and customer evaluation. From another research has reconfirmed The moderating benefits of direct product experience in eliciting customer responses, such as CVs and menu enjoyment, leading to attitudes about the menu and adoption intention, have been reaffirmed by study. Other behavioral reactions of practical significance also showed the similar pattern of impact. It's a widely held view that the introduction of digital and self-service technology, such as interactive web-based menus or tablet menus, should improve consumer experiences by making them quicker, easier, smoother, and ultimately more pleasant. Unfortunately, the results were not in line with popular opinion. Only when utilized for less-experienced meals may digital menus be beneficial in gaining consumers' good reviews and improving their browsing efficiency. The results demonstrated that, when compared to conventional paper menus, digital menus can be more adverse and has more effect on consumers for experience foods [7].

2.3 Intention

Includes adaptive intention, behavioral intention, and interactivity. Customers can easily process the information necessary for positive

behavioral intentions through the restaurant's website or an online food ordering platform, and they can also use this channel to transact in a different way that accommodates unusual circumstances while still providing management with critical feedback and alternative transaction options. Purchase intentions for firms using such information have been found to dramatically improve with the inclusion of pleasing pictures and descriptions of menu items.

In addition, there may be variations in how consumers interpret information. When looking at a restaurant menu, researchers discovered that visualizers and verbalizers had different information processing techniques. They also found that food names and images together had an impact on customers' perceptions and behavioral intentions. The study found that consumers who are verbalizers—those who usually just take in verbal information without forming any mental images—prefer to get both food pictures and names for ambiguous items simultaneously. Visualizers, or people who create mental pictures in their minds when processing verbal information, had fewer positive findings and were less inclined to buy food items with confusing names that were shown with pictures [5].

2.4 Technology

Includes the variables of advanced technology, attractiveness, and efficiency. The digital menu can be used as an enhancer to both customer and the restaurant's experience. Digital menu recommender is one of many feature that can solve the efficiency problem that usually many restaurant find [8].

Accordingly, the E-RESTAURANT system was created, developed, and tested in order to save time and enhance restaurant service. The survey findings attested to the suggested system's success in delivering improved customer-centric service. Zigbee is the principal [9].

communication network that carries out the system's entire operation. To address the needs of the practical application, this should soon be undertaken with more tests. the research ultimate objectives are to shorten wait times and increase service quality, which will boost global competitiveness overall.

Additionally, it is thought that these kinds of systems will reap greater benefits [9].

Another research was also conducted into the focuses on the typical issues patrons encounter when choosing what to eat at a restaurant. Due to the variety of issues it handles that other similar programs haven't, BestDish distinguishes out from other similar applications on the market. Additionally, a variety of criteria are taken into account while computing food item recommendations using this application's recommendation feature.

The incorporation of the ingredient traceability functionality using blockchain technology is a potential addition to the ongoing study. Modifying the system design to accommodate group dining scenarios can also be another beneficial improvement [10].

2.5 Psychology

Includes mental process, perception, affective, Attitudes & Mental, Experience of food, and planning. A psychological process called associative learning creates connections between mental representations of physical inputs. After association learning, it is thought that when a menu item is presented in both a visual and an auditory manner, customers will be able to understand it more clearly because a multimodal format can more effectively evoke previous satisfying sensory experiences of a similar food than a single format. Customers are more likely to respond favorably when there is a significant correlation between the menu display and previous sensory experiences [11].

3. RESEARCH METHODOLOGY

The research model that we will use for this research is a **descriptive model**. We want to relate theory to field facts where our field facts are in the form of waiter or customer satisfaction with the use of digital menus. Through the descriptive model, outcomes may be revealed as the description, condition, or item by describing it in as much detail as is feasible depending on the facts. In addition, we also use a quantitative research method, whereby using this method we will target a large number of

respondents, so we need data in the form of numbers which in the end we will conclude according to the numbers or percentages we get. Then for the research instrument that we use is the Questionnaire. We choose the questionnaire because we target a lot of people, so the questionnaire is the right and efficient choice.

This section discusses research models, mapping variables, characteristics of respondents, time and object of research, research sample, and data collection method.

3.1 Research Model

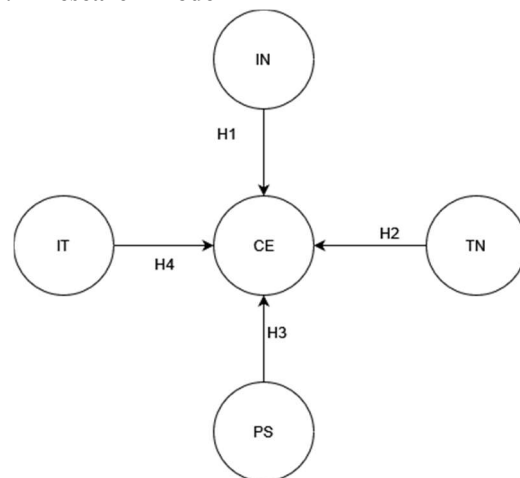


Figure 4. Research Model [7]

Hypothesis:

H1 : Interactivity (IN) enhances the Customer Experience (CE).

H2: Technology (TN) enhances the Customer Experience (CE).

H3: Psychology (PS) enhances the Customer Experience (CE).

H4: Intention (IT) enhances the Customer Experience (CE).

3.2 Mapping Variable

Based on our research model, there are 4 variables that needs to be tested, those variables are Interactivity (IN), technology (TN), Psychology (PS) and Intention (IT). Each of the variables have their respected variables to make it more detail.

Table 1. Mapping Variable

Variable	Indicator	Definition	Literature	Code	Statement
Interactivity (IN)	Interactivity	The level of customer interactivity to the system	Van Noort, Voorveld, and van Reijmersdal (2012)	IN1	High degrees of engagement enhanced the amount of thoughts about the advertised product, which resulted in positive views toward the promoted brand and boosted adoption and referral intentions.
	Speed	How fast content or stimuli can be manipulated	Y. Chen, F. J. Perez-Cueto, A. Giboreau and I. Mavridis (2021)	IN2	Theoretically, compared to traditional menus, tablet menus in this study should offer higher interaction. Prior research suggested that three factors contributed to improved interactivity perceptions: (1) speed, which refers to how quickly content or stimuli can be changed; (2) range, which refers to how broadly stimuli can be changed; and (3) mapping, which refers to how similar the control used in the media is to the control used in reality.
	Range	How broadly stimuli can be manipulated	Y. Chen, F. J. Perez-Cueto, A. Giboreau and I. Mavridis (2021)	IN3	Theoretically, compared to traditional menus, tablet menus in this study should offer higher interaction. Prior research suggested that three factors contributed to improved interactivity perceptions: (1) speed, which refers to how quickly content or stimuli can be changed; (2) range, which refers to how broadly stimuli can be changed; and (3) mapping, which refers to how similar the control used in the media is to the control used in reality.

Variable	Indicator	Definition	Literature	Code	Statement
	Mapping	How similar the control used in the media is to the one in real-world	Y. Chen, F. J. Perez-Cueto, A. Giboreau and I. Mavridis (2021)	IN4	Theoretically, compared to traditional menus, tablet menus in this study should offer higher interaction. Prior research suggested that three factors contributed to improved interactivity perceptions: (1) speed, which refers to how quickly content or stimuli can be changed; (2) range, which refers to how broadly stimuli can be changed; and (3) mapping, which refers to how similar the control used in the media is to the control used in reality.
	Perceived interactivity	customers' subjective evaluations of their experiences when they interact with the menu medium (e.g., Web-based interactive menus, tablet-based digital menus, or traditional paper menus)	Yim, M. Y.-C., & Yoo, C. Y. (2020).	IN5	The results showed that consumers' views regarding the menu were influenced by perceived engagement with the digital menus (i.e., web- and tablet-based digital menus) via both CVs and menu pleasure.
Customer Experience (CE)	Experiences	User experience when using the system	Mooy and Robben (2002)	CE1	Consumers are said to learn most effectively through their experiences. Traditional categorization of product experiences into direct and indirect categories has been based on how much engagement a consumer has with a product.

Variable	Indicator	Definition	Literature	Code	Statement
	Enjoyment	Customer comfort or enjoyment level when using the system	Shah(2014)	CE2	Additionally, we discovered that digital menus for less-exotic items made consumers happier, which increased their likelihood of adopting them and the number of dishes they ordered in a shorter period of time.
	Menu Enjoyment	Customer comfort level when viewing the menu (food description, ingredients, picture, etc)	Yim, M. Y.-C., & Yoo, C. Y. (2020).	CE3	The degree to which customers find perusing food information via a particular menu medium to be entertaining or pleasurable in and of itself, without regard to any anticipated outcomes, is known as menu pleasure.
	Cognitive effort	Effort that customer would give to do some tasks	Yim, M. Y.-C., & Yoo, C. Y. (2020).	CE4	Instead, clients with enough dining experience are less likely to be swayed by the computerized menu and even favor the old-fashioned method of page-flipping, presumably to save cognitive effort.
	Customer Evaluation	Final thought from a customer to something	Elder and Krishna (2012); Yim et al. (2017)	CE4	Additionally, self-referencing hints like hands holding chopsticks or silverware to the food photos might be included to the menus to improve CVs, leading to more favorable customer assessments.
Intention (IN)	Adaptive Intention	An indicator of how likely a customer is to use a menu medium in the future.	Yim, M. Y.-C., & Yoo, C. Y. (2020).	IT1	In Study 2, we also thought about behavioral responses like adoption intention. A customer's willingness to utilize a menu media in the future is referred as as adoption intention.
	Behaviour Intention	An indicator of an individual's intention to act	Yim, M. Y.-C., & Yoo, C. Y. (2020).	IT2	According to TRA, a person's behavior depends on how motivated they are to engage in a particular behavior. The

Variable	Indicator	Definition	Literature	Code	Statement
		in a particular way			greatest predictors of behavioral intention, however, include both normative and attitudinal factors (for example, adoption intention toward a menu media).
	Interactivity	The level of customer interactivity to the system	Van Noort, Voorveld, and van Reijmersdal (2012)	IT3	High levels of interaction boosted positive sentiments toward the promoted brand, improved adoption and referral intentions, and raised the number of thoughts about the advertised product.
Technology (TN)	Advanced Technology	The next level of technology and usage	Yim, M. Y.-C., & Yoo, C. Y. (2020).	TN1	The general consensus is that implementing new, cutting-edge technologies should improve customer service interactions by making them more productive and hence rewarding.
	Attractiveness	Level of customer interest in a system	Yim, M. Y.-C., & Yoo, C. Y. (2020).	TN2	Customers may explore and choose food items at the table using a touchscreen that displays better visual and textual information on tablet menus, a new type of digital menu. They ought to improve customer engagement with menus, produce more expansive consumption fantasies, and offer more pleasurable experiences than conventional paper menus do.
	Efficiency	Customer efficiency level in using a system	Yim, M. Y.-C., & Yoo, C. Y. (2020).	TN3	Particularly, tablet menus have to make it easier for clients to peruse a wide range of food items rapidly using tabs on the screen and faster reaction times than standard menus do.

Variable	Indicator	Definition	Literature	Code	Statement
Psychology (PS)	Mental Process	The act of performing some composite cognitive activity; the process of affecting mental contents	A. Lee and M. G. Kim (2020)	PS1	To put it more precisely, consumers' anticipatory mental processes allow them to see themselves purchasing a product or service, to simulate what it would be like to utilize a product or service in the near future, and to decide if doing so will be advantageous for their consumption goals.
	Perception	Customer perception about the system	Walters, Sparks, and Herington (2007)	PS2	Customers' sense of improved involvement contributes to an increase in both the quantity and quality of CVs.
	Affective	In short, everything about a customer's personality, attitude, character, behavior, interests, emotions, and values.	Y.-C., & Yoo, C. Y. (2020).	PS3	Both theories contend that interactive information display as customers browse menus enhances emotional states in addition to facilitating cognitive processing (i.e., CVs).
	Attitudes & Mental	consumers' capability to increase their overall attitudes & mental toward the menu medium.	Y.-C., & Yoo, C. Y. (2020).	PS4	We hypothesize that the weak correlation between CVs and attitudes about the menu was caused by a cap on customers' ability to improve their overall attitudes toward the medium of the menu. It would be challenging to improve traditional menus' capacity to change consumers' perceptions of the food goods they display.
	Experience of Food	Food that customer rarely ordered or never ordered	Y.-C., & Yoo, C. Y. (2020).	PS5	By encouraging customers to visualize themselves in relation to foods via digital menus rather than traditional menus, less-experienced items may be pushed more successfully.

Variable	Indicator	Definition	Literature	Code	Statement
	Planning	A what-to-eat food that customer thought	Y.-C., & Yoo, C. Y. (2020).	PS6	Additionally, this study offered applications. Our process model demonstrated that increased menu medium interaction tended to provide favorable customer assessments, such as more accurate mental predictions about what to eat and pleasurable media experience.

Table 2. Characteristic of Respondents

Demographic		Frequency	%
Gender	Male	89	68.99%
	Female	40	31.01%
Age	15-17	3	2.3%
	18-20	91	70.54%
	21-25	7	5.43%
	26-30	4	3.1%
	31-35	2	1,55%
	36-40	7	5.43%
	41-49	15	11.62%
	50+	4	3.1%
Occupation	Undergraduate Student	40	31.01%
	Graduate Student	54	45.74%
	Teacher	0	0%
	Lecturer	0	0%
	Staff	29	22.48%
	Other	6	4.65%

The conclusion from the analysis carried out on the characteristics of the respondents based on table 2 above that we have done and obtained shows the results that the gender of the respondents who filled out our questionnaire was male with a frequency of 89 with a percentage of 68.99%, then for the age category, most respondents who filling came from teenagers, namely ages 18-20 with a total of 91 respondents with a percentage of 70.54%, and finally in the job category the most types were obtained, namely from students with 54 respondents, students with 40 respondents, and employees with 29 respondents. These things are very good because to get maximum results, we need lots of answers from respondents who come from various ages and occupations so that the results are concrete and in accordance with what we expect.

3.3 Time and Object of Research

This research was conducted from October 2022 to January 2023. The target population for this research are people who have and often use digital menus when ordering menus at restaurants. In terms of the characteristics of the respondents, there is no age limit and gender of the respondents.

3.4 Research Sample

This research uses a probability technique, simple random sampling, By using this sampling strategy, every member of the population has the exact same probability of getting chosen. Given that just one random sample is used and that minimal in-depth demographic knowledge is needed, this

method is the easiest of all probabilistic sampling techniques. Because this sample was randomly chosen, studies conducted on it should have a high level of internal and external validity and little danger of research bias, including bias resulting from sampling and selection.

The respondent will be focus based the experience people from Jakarta, based on a recorded data, the total population of Jakarta per June 2022 is 11.250.000 [12], The quantity of samples for this study was determined using the slovin formula. Where Slovin's formula is [13]:

$$n = \frac{N}{1 + N(e)^2}$$

Figure 5. Slovin's Formula [13]

n = sample size / number of respondents

N = population size

E = error margin (10%)

Based on the slovin formula above, we can calculate for our sample formula like below:

N = 11.250.000

E = 10%

$n = 11.250.000 / 1 + 11.250.000 (10\%)^2$

n = 100 respondents

3.5 Data Collection Method

In this section we used an online-based questionnaire from the Google form which is used as the main tool for the data collection process for the research we are currently reviewing. The questionnaire is specified only for Jakartans, where we want to find out what the experiences of Jakartans are when using online-based menus and the difference with physical menus. We take the comparison data from the variables in terms of interactivity, user experience, goals, technology, and psychology.

The questionnaire was to the public using social media such as Line, Instagram, WhatsApp, and Discord. Because the questionnaire is online based, respondents can fill out the form from

anywhere. The questionnaire was opened for 45 days, and in that time period 129 data had been collected. We selected 100 of the data using the simple random sampling method, which means that all respondents could have the same opportunity to be selected as trial material [14].

The questionnaire is divided into six main sections. The first part includes a brief description of our group and a brief description of our research, and some demographic questions for respondents. The second part contains questions regarding the digital menu introduction question. If the respondent does not know or has never used the digital menu implemented by a restaurant, then they cannot continue the survey. However, if respondents have used and seen a digital menu implemented by a restaurant, they will continue the survey and their data will be analyzed. Sections three to five contain a series of statements with the topics "respondent opinion on digital menu", "respondent frequency questions", and "respondent menu preferences" where respondents need to determine their level of answers for each statement using a Likert Scale from 1-4. These statements are derived from the variables included in the research model. Then, the last part of the questionnaire contains open questions, in which respondents are asked about their opinions, recommendations and criticisms regarding digital menus [15].

4. RESULT AND DISCUSSION

The data that has been collected will be made as research material, and will be tested in three stages. The first stage is a readability test, where respondents are asked the level of understanding of each question. We took 5 respondents at random and we asked whether the respondent understood each of the questions that we attached to the form. and of the 5 respondents who were tested, 5 respondents stated that all the questions we submitted on the form had been conveyed clearly. Then we test the validity of the reliability using the SmartPLS application with the sem-PLS method which is already available in the SmartPLS application.

In SmartPLS we include variables namely interactivity (IN), customer experience (CE), intention (IT), technology (TN), and psychology (PS). and the following is a research framework resulting from SmartPLS calculations:

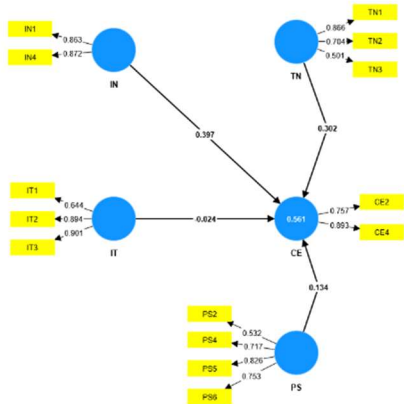


Figure 6. SmartPLS PLS-SEM Algorithms Calculations

4.1 Readability Test

A test was conducted to see if respondents understood what the questionnaire questions are asking. A number of 5 random respondents was chosen and asked whether the respondent understood each of the questions that we attached to the form. and of the 5 respondents who were tested, 5 respondents stated that all the questions we submitted on the form had been conveyed clearly. There is also below a table showing the results of the readability test that has been carried out.

Table 3. Readability Test

No	Topics	R1	R2	R3	R4	R5
1	Digital menu introduction questions	✓	✓	✓	✓	✓
2	Respondent opinion on digital menu	✓	✓	✓	✓	✓

No	Topics	R1	R2	R3	R4	R5
	question					
3	Respondent frequency questions	✓	✓	✓	✓	✓
4	Respondent menu preferences questions	✓	✓	✓	✓	✓
5	Respondent reasons for their preferred menu questions	✓	✓	✓	✓	✓
6	Respondent recommendations/opinions/critics	✓	✓	✓	✓	✓

4.2 Outer Model (Measurement Model)

The Outer Model (Measurement Model) test attempts to define the connection between latent variables and their indicators. The Outer Model will evaluate both validity and reliability. To evaluate the validity of each variable, convergent and discriminant validity will be employed. We will use Cronbach Alpha and Composite dependability to measure reliability.

Table 4. Convergent Validity Based on Outer Loading

Indicator	Outer loadings
CE2 <- CE	0.757
CE4 <- CE	0.893
IN1 <- IN	0.863
IN4 <- IN	0.872
IT1 <- IT	0.644
IT2 <- IT	0.894
IT3 <- IT	0.901
PS2 <- PS	0.532
PS4 <- PS	0.717
PS5 <- PS	0.826
PS6 <- PS	0.753
TN1 <- TN	0.866
TN2 <- TN	0.704
TN3 <- TN	0.501

To determine which indicator is valid in Table 4, the outer loading value for each indicator must be greater than 0.7 and any indicator with an Outer Loading value below 0.5 are removed due to the weak relation with other variables.

Table 5. Discriminant Validity Based on Fornell-Larcker Criterion

	CE	IN	IT	PS	TN
CE	0.828				
IN	0.713	0.868			
IT	0.4	0.429	0.821		
PS	0.621	0.729	0.378	0.715	
TN	0.678	0.758	0.675	0.684	0.707

The correlation values in the preceding table (Table 5) are greater than the correlation values in the other variables, meeting the Fornell-Larcker Criterion, indicating that the associations between the variables are significant and dependable.

Table 6. Cronbach's Alpha, Composite Reliability, Average Variance Extracted, R-Square

	Cronbach's alpha	Composite reliability (rho_a)	Average variance extracted (AVE)	R-square
CE	0.553	0.603	0.685	0.561
IN	0.672	0.672	0.753	
IT	0.755	0.834	0.675	
PS	0.672	0.696	0.512	
TN	0.472	0.545	0.499	

Table 6 shows that the values of Cronbach's Alpha and Composite Reliability (rho_a) for each variable are above 0.42. According to Cronbach's Alpha Level of Reliability, these results show that all variables can be reliable enough for research purposes [16].

The R2 values for Customer Experience (CE) in the current study demonstrate the research models' capacity for accurate prediction. With an R2 of 0.561 or 56.1%, factors like IN, IT, PS, and TN may account for 56.1% of the variation in CE. R2 values of at least 0.2 or greater are regarded as satisfactory, however higher values are preferable.

4.3 Inner Model (Structural Model)

The relationship between the latent variables is included in the structural inner model and must be established from theoretical considerations [17].

Table 7. Path Coefficients, T Statistics, P Values

Path	Path Coefficients	T statistics (O/STD EV)	P values	Information
IN -> CE	0.397	2.726	0.006	Significant
IT -> CE	-0.024	0.296	0.767	Not Significant
PS -> CE	0.134	1.176	0.24	Not Significant
TN -> CE	0.302	2.072	0.038	Significant

Based on the SmartPLS analysis, there are 2 (two) accepted hypotheses. This was determined by their P-values and Margin of Error from the sample calculation. Using the 10% (0.1) Margin of

Error, it was determined that path IN to CE and TN to CE relation are significant because their path values are below 0.1 (Margin of Error). While IT to CE and PS to CE relation are not significant due to their P values are above 0.1 or 10% Margin of Error.

5. CONCLUSION

This study focuses on analysing The Influence Of Digital Menu In Restaurant Towards Customers. Based on the result of the research, the variables chosen from various journals or research papers have proven to have a positive result with the influence of the digital menu towards customers. All variables are used to determine whether a customer has a positive or negative experience when using a digital menu.

Based on the result of the questionnaire, it appears that there is almost a 50/50 split between respondents preferences on the usage of digital menu or physical menu. The data shows that out of 129 respondents, only 55.3% of the respondent prefers the usage of digital menu while the rest 44.7% would prefer the usage of physical menu. Various reasons are mentioned to why the respondent would choose their preferred menu, but the majority of respondent who choses digital menu as their preferred option are saying digital menu are much more flexible than physical menu. While on the opposite, the majority of respondent who choses physical menu as their preferred option are saying physical menu are much easier to use than digital menu.

Thus, the result of this research is the customer is having a positive impact while the menu is slowly transitioning into a digital one despite the split outcome. This also leaves a task for restaurant owners on how to improve restaurant menus to meet the satisfactory requirement for each customer.

However there is a flaw to this research that makes this topic require further study, that is the digital menu itself. The respondents are not given one specific digital or physical menu rather based on their experience, this can impact the research significantly, but this research should make a hard outline on how customer react to the transition.

REFERENCES

- [1] K. Tiofani, "Perkembangan Restoran di Era Digital, Hadirkan Konsep Bisnis Baru," Kompas, 27 July 2022. [Online]. Available: <https://www.kompas.com/food/read/2022/07/27/150400775/perkembangan-restoran-di-era-digital-hadirkan-konsep-bisnis-baru?page=all>. [Accessed 12 November 2022].
- [2] QR Tiger, "QR code usage statistics 2022: 443% scan increase and 438% generation boost," QRcode Tiger, 5 January 2023. [Online]. Available: <https://www.qrcode-tiger.com/qr-code-statistics-2022-q1>. [Accessed 10 January 2023].
- [3] S. L. B. A. Pambudi, A. Rahagiyanto and G. E. J. Suyoso, "Jurnal Teknologi Informasi dan Rekayasa Komputer," *Implementasi QR Code untuk Efisiensi Waktu Pemesanan Menu Makanan dan Minuman di Restoran maupun Kafe*, vol. I, no. 1, p. 4, 2020.
- [4] S. Dias, "5 Digital Ordering Trends, Based on a Study of 4.5 Million Restaurant Orders," Restaurant Technology News, 9 September 2021. [Online]. Available: <https://restauranttechnologynews.com/2021/09/5-digital-ordering-trends-based-on-a-study-of-4-5-million-restaurant-orders/>. [Accessed 20 November 2022].
- [5] P. Brewer and A. G. Sebby, "International Journal of Hospitality Management," *The effect of online restaurant menus on consumers' purchase intentions during the COVID-19 pandemic*, vol. 94, no. 1, p. 6, 2021.
- [6] Y. Chen, F. J. Perez-Cueto, A. Giboreau and I. Mavridis, "Food Quality and Preference," *Consumer preferences for the use of an innovative digital menu solution in public food service settings in four European countries*, vol. 94, no. 1, p. 2, 2021.
- [7] M. Y.-C. Yim and C. Y. Yoo, "Journal of Interactive Marketing," *Are Digital Menus Really Better than Traditional Menus? The Mediating Role of Consumption Visions and Menu Enjoyment*, vol. L, no. 1, p. 75, 2022.

- [8] T.-H. Tan, Y.-F. Chen and C.-S. Chang, "IEEE Transactions on Systems Man and Cybernetics Part C (Applications and Review)," *Developing an Intelligent e-Restaurant With a Menu Recommender for Customer-Centric Service*, vol. 42, no. 1, p. 14, 2012.
- [9] K. Ande and N. Sonti, "International Journal of Inventions in Electronics & Electrical Engineering," *Design and Development of an E-Restaurant Using RTOS Programming to Enhance the Quality of Service*, vol. I, no. 1, p. 7, 2015.
- [10] D. Gunawardena and K. Sarathchandra, "2020 International Conference on Image Processing and Robotics (ICIP)," *BestDish: A Digital Menu and Food Item Recommendation System for Restaurants in the Hotel Sector*, p. 6, 2020.
- [11] A. Lee and M. G. Kim, "International Journal of Hospitality Management," *Effective electronic menu presentation: From the cognitive style and mental imagery perspectives*, vol. 87, no. 1, p. 9, 2020.
- [12] V. B. Kusnadar, "Jakarta Pusat Jadi Wilayah Terpadat di Ibu Kota per Juni 2022," *Databoks* 9 October 2022. [Online]. Available <https://databoks.katadata.co.id/datapublish/2022/10/09/jakarta-pusat-jadi-wilayah-terpadat-di-ibu-kota-per-juni-2022>. [Accessed 4 December 2022].
- [13] Hotjar, "How to determine a sample size and other questions answered," *Hotjar*, 8 January 2023. [Online]. Available <https://www.hotjar.com/poll-survey-sample-size-calculator/>. [Accessed 10 January 2023].
- [14] S. McCombes, "Sampling Methods | Types, Techniques & Examples," *Scribbr*, 1 December 2022. [Online]. Available <https://www.scribbr.com/methodology/sampling-methods/>. [Accessed 11 January 2023].
- [15] D. S. McLeod, "Likert Scale Definition, Examples and Analysis," *SimplyPsychology*, 3 August 2019. [Online]. Available <https://www.simplypsychology.org/likert-scale.html>. [Accessed 10 January 2023].
- [16] A. Ahdika, "International Electronic Journal of Mathematics Education," *Improvement of Quality, Interest, Critical, and Analytical Thinking Ability of Students through the Application of Research Based Learning (RBL) in Introduction to Stochastic Processes Subject*, vol. XII, no. 2, p. 13, 2017.
- [17] M. Kante, R. Oboko and C. K. Chepken, "Kabarak Journal of Research & Innovation," *Partial Least Square Structural Equation Modelling ' use in Information Systems : an updated guideline of practices in exploratory settings*, vol. VI, no. 1, p. 7, 2018.