




## Market adaptation areas of food delivery services based on the customers' eating habits

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Food delivery service is an emerging business with exponential growth during the pandemic. This research evaluated the marketing-related adaptation areas based on the customers' eating habits to gain consistent positive business outcomes. This research has limited scope and customer segment but gave indications of the kinds of food routinely eaten by the senior college students in Manila, Philippines. The positive association between food delivery service quality, customers' eating habits, and patronage of food delivery services was indicated in this study. The applications also played a vital part in the success of food delivery services. The study also gives an overview of the food delivery services firms on the possible innovations in preserving the health of their consumers while upgrading their service and meeting current customer needs. There is a call to change the relatively poor eating habits of the respondents more than the business needs of food delivery service providers.

Keywords: Eating habits, food delivery service, market adaptation, patronage

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### Introduction

Eating is one of the things that Filipinos usually love to do. Gathering peers around a food table goes beyond fulfilling one's appetite but also acquires a socializing dimension that makes eating an experience that transcends food (Gavilan et al. 2021). However, since the COVID-19 pandemic transpired in the whole world, including the Philippines, it has threatened the health and safety of all people, making us isolated inside our homes for the past two years. Food delivery service is excellent for those who need more time to visit a restaurant. Anyone with a smartphone quickly orders food from anywhere and has it delivered to their residence. Payments are made at the time of delivery or by credit card (Noviana & Darma 2020). Eating habits are "conscious, collective, and repetitive behaviors that lead people to select, consume, and use specific foods or diets in response to social and cultural influences" (Medina et al. 2020). Aside from the danger that COVID-19 brought to our health, this global pandemic also threatens most businesses, especially in the food industry since physical operations have become more limited to avoid the transmission of the virus. Consumers experienced collective panic, dread, worry, and uncertainty because of lockdown measures induced by health problems and the resulting economic harm (Ahmed et

al. 2020). Despite this dilemma, the emergence of food delivery services is critical, and they are the food industry's primary savior (Gamilla 2021). In a global setting, statistics showed that the online food delivery market revenue swells to 27 percent year-over-year, reaching \$36.4b in 2020 (AJOT, 2021). The Philippines' food delivery business has expanded to a total of \$1.2b in gross merchandise value (GMV) by the end of 2020, with the overall food delivery sector in Southeast Asia (SEA) growing at an exponential rate of 183 percent (Legaspi 2021).

The birth of food delivery services, apps, and technologies creates many possibilities that are beyond imaginable. In the Philippines, about 72 percent of the population was smartphone users in 2020, and there were 74m internet users in the country in January 2021 (Kemp 2021). The frequent users are in the young-adult age segment, who is most likely to have smartphones (Stephens et al. 2020). Food delivery apps are now highly accessible since they can be easily downloaded from different application stores. They can easily choose and order food online with just a few clicks. It has been noticeable that technology progresses at a rapid pace that, caused business models in the food delivery industry to be drastically altered (Voytovych et al. 2020). Statistics show that users of online food delivery services quickly rose by 25 percent year-over-year, reaching 1.5b in 2020. It also projected that in the next three years, users might reach almost two billion globally (AJOT 2021).

Moreover, the findings of the study of Puriwat and Tripopsakul (2021) have revealed that it is possible that, in the event of an unusual event such as a worldwide pandemic, an increase in the number of features integrated into current technology will be noticed in the food delivery industry, resulting in more productive outcomes and a better understanding of technological adoption. Ali et al. (2020) pointed out that optimism and innovativeness positively influenced the intention to use Online Food Delivery Ordering (OFDO) services, while insecurity and discomfort negatively influenced its use. Situational influences in the middle of the COVID-19 pandemic also play a role in the intention to use OFDOs. In a study by Pandey et al. (2021), respondents from India and the Philippines preferred to adopt FDA (Food Delivery Applications) through convenience, discounts, app service quality, fulfillment, and multiple payment methods.

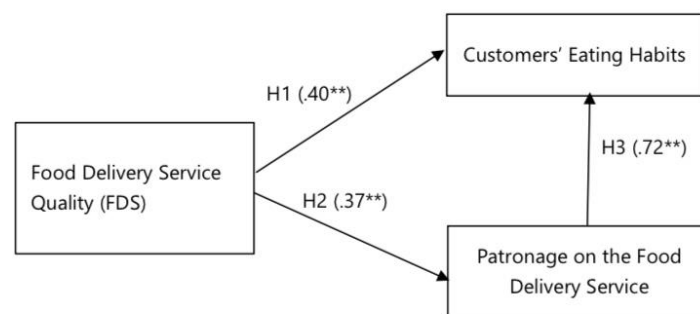
Food and beverage marketing changed to other outlets, such as social networking platforms, in response to the digital age. In their study, Partridge et al. (2020) discovered that over 88 percent of the most popular menu items on leading online food delivery services are energy-dense, nutrient-poor foods. According to a comprehensive evaluation of 71 studies by Smith et al. (2019), children and adolescents have improved attitudes, preferences, and intake of foods that are advertised to them. Stephens et al. (2020) stated that the benefit of these applications might present a greater risk to health outcomes among overweight or obese individuals who consume more calories than their normal weight equivalent. In a study by Tus et al. (2021), many Filipino tertiary students from private and state universities showed an unhealthy lifestyle involving their physical activity, smoking status, stress, and eating habits.

Despite its adverse outcomes, there are still developments and advantages when switching to digital ordering as food delivery services innovate from time to time (Stephens et al. 2020). Some emerging features can help consumers keep track or count calories if they are having difficulty losing weight and if a person needs to maintain a strict diet. But the most highlighted advantage of these applications is their convenience (Maimaiti et al. 2018), especially if a person needs more time to cook food. The innovation in Online Food Delivery (OFD) influenced consumers' purchasing decisions, increasing its experiential value through a ready-to-enjoy concept (Gavilan et al. 2021). It also shows the reuse intention of the delivery application caused by the customers' perceived service process and experienced innovation (Ahn 2021).

This research intends to answer the research problem: How do food delivery applications affect eating habits? Specifically, the purpose of the study is to determine the association between (1) food delivery service quality and customers' eating habits, (2) food delivery service quality and patronage, and (3) customers' eating habits and patronage of the food delivery services.

### Conceptual Framework and Hypotheses Development

A study by Acampado and Valenzuela (2018) revealed that about one out of every three college students show below-average to poor dietary habits. This means that they rarely ate the right kinds of food. Therefore, this study will examine if the senior students who use food delivery services will also show poor eating habits since it became part of their lifestyle as the consumers switched to e-commerce technology from physical purchases (Gamilla 2021) during the COVID-19 pandemic. This study is anchored on Isobel Contento's Influences on Food Choice Model. According to Contento (2008), this model emphasized that people's food choices are influenced by many factors: (a) biologically determined behavioral dispositions, (b) experience with food, (c) personal Factors, and (d) environmental factors. This model was further discussed in Nutrition Education, defined as any combination of educational strategies with environmental supports designed to voluntarily adopt food choices and other food and nutrition-related behaviors conducive to health and well-being. Construct validity was performed to verify the research instrument. It contains all the necessary items, excluding those unimportant to a certain construct area (Hair et al. 2019). Afterward, the internal consistency reliability of the instrument was measured using Cronbach's alpha coefficient and item-total correlation. The coefficients were higher than .70. Thus, the research instrument was considered reliable and acceptable.



**Figure 1. The Conceptual Framework**

Source: the author, \*\*\* =  $p < .05$

### Food Delivery Service (FDS) Quality on Eating Habits

The food delivery service quality reveals the market adaptation areas for sustainable business. Adithya et al. (2017) proposed a system that enables ease for customers. It overcomes the disadvantages of the traditional queueing system. In a global setting, statistics showed that the online food delivery market revenue swells to 27 percent year-over-year, reaching \$136b in 2020 (AJOT 2021). Statistics show that users of online food delivery services quickly rose by 25 percent year-over-year, reaching 1.5b in 2020. It also projected that in the next three years, users might reach almost two billion globally (AJOT, 2021). Moreover, the findings of the study of Puriwat and Tripopsakul (2021) revealed that it is possible that, in the event of an unusual event such as a worldwide pandemic, an increase in the number of features integrated into current technology will be noticed in the food delivery industry, resulting in more productive outcomes and a better understanding of technological adoption. The Philippines' food delivery business has expanded to a total of \$1.2b in gross merchandise value (GMV) by the end of 2020, with the overall food delivery sector in Southeast Asia (SEA) growing at an exponential rate of 183 percent (Legaspi 2021). From going to restaurants to order your meal, these online platforms serve your food at your doorstep. Food delivery apps are noticeable that this technology progresses rapidly, causing business models in the food delivery industry to be drastically altered (Voytovych et al. 2020). But the most

highlighted advantage of these applications is their convenience (Maimaiti et al. 2018), especially if a person has no time to cook food. The innovation in Online Food Delivery (OFD) influenced consumers' purchasing decisions, increasing its experiential value through a ready-to-enjoy concept (Gavilan et al. 2021). Our first hypothesis:

*H1. Food delivery service quality is associated with the customers' eating habits.*

### **Food Delivery Service Quality on Patronage of FDS**

Their service quality evaluation primarily determines the customer's intention to patronize a specific service provider. As a result, service providers should focus more on effective and efficient service quality to influence customers' patronage intentions (Rahman et al. 2020). Consumers' preferences for simple consumption patterns have increased. These simple consumption patterns have led to the development of food storage and processing technology, making it possible to provide better quality food to consumers. It also shows the reuse intention of the delivery application is influenced by the customers' perceived service process and experienced innovation (Ahn 2021). Our second hypothesis:

*H2. Food delivery service quality is associated with the customers' patronage.*

### **Eating Habits on Frequency of Patronage of FDS**

Tus et al. (2021) found that many Filipino tertiary students from private and state universities showed an unhealthy lifestyle involving their physical activity, smoking status, stress, and eating habits. Food delivery applications and services are noticeable during our isolation inside our homes brought about by the COVID-19 pandemic. Eating habits are related to obesity among college students (Pineda et al. 2020). According to Puriwat and Tripopsakul (2021), productive outcomes and a better understanding of technology adoption will be noticed in the food delivery industry during an unfamiliar phenomenon such as a worldwide pandemic. Healthy eating habits protect people from temptations (Lin et al. 2016). Maimaiti et al. (2018) argued that how a person eats determines what the person becomes. Medina et al. (2020) asserted that the students' eating habits were affected by their nutrition knowledge. Our third hypothesis:

*H3. Customers' eating habits are associated with the frequency of patronage of food delivery services.*

## **Methodology**

This research method concentrated on discussing the procedures adhered to by the researcher to answer systematically the specific problems posed for investigation. The researchers utilized a 5-part survey questionnaire for the respondents to collect the data in this study. Part 1: Basic information consists of the basic information of the respondents, namely their name, age, gender, year level, section, course, and the food delivery application they commonly use. Part 2: Key factors of food delivery services are based on the study of Lim & Noroña (2021) and divided into five subcategories that represent the independent variables: convenience, responsiveness, assurance, safety, and reliability (Pasco & Lao 2021). A 4-point Likert Scale (very satisfied=4, satisfied=3, dissatisfied=2, very dissatisfied=1) was utilized. Part 3: Frequency of patronage has questions attributed to the study of Alao et al. (2020), where the frequency of the consumer's patronage was assessed. Part 4: Purpose of patronage is part of the questionnaire that determines the purpose of usage of food delivery applications. It utilized a checklist patterned by Alao et al. (2020). Part 5- Eating habits discover the eating routines of the respondents. The questions were aligned with the study of Acampado and Valenzuela (2018). This also followed a 4-point Likert scale with

scoring of almost always=4, frequently or often=3, sometimes or occasionally=2, rarely or never=1. The total scores also classified the eating habits into poor (30-49), average (50-69), and excellent (70-80).

### **Research Design**

This study used a quantitative descriptive-correlational method of research. A descriptive correlational study is a study in which the researcher is primarily interested in describing relationships among variables. The results are just indications because of the non-parametric nature of the Spearman rank correlation test (Natovová & Chýlová 2014). Quantitative data (summated scale scores from the critical factors of food delivery services, frequency of patronage, food choices in food delivery services, and eating habits) will undergo non-parametric tests for this non-normally distributed data. The Spearman rho is used for the rank correlation analysis.

### **Research Participants and Respondents**

The study participants are limited to the 405 senior college students currently enrolled in San Beda University this school year 2021-2022. The chosen students for the study are not specific to any age or gender. However, they are randomly selected per department. This will examine the status of the eating habits of San Beda University- CAS fourth-year students with the influence of food delivery services. The study was conducted in the second semester of AY 2021-2022. The data was gathered online using survey questionnaires through Google Forms. The researcher chose this platform due to the pandemic's limitations to our country. Google Forms links will be publicly disseminated through social media platforms such as Facebook, Messenger, Twitter, and Instagram. The confidentiality of all the students who wish to participate in the study will be prioritized. A stratified sampling technique was used in this study. The respondent's availability and capability to answer the questionnaires were considered. Data were gathered online following data privacy notice in compliance with the Data Privacy Act of 2012 and the data privacy guidelines of the institution.

### **Response Rate**

Among the 99 respondents who completed the survey, the Senior students were 51.5% male and 48.5% female. Overall Kaiser-Meyer-Olkin Test, computed using JAMOV, yielded KMO=.82 and was interpreted as meritorious sample size adequacy. The gender of the respondents is closely equal to each other. Results have shown that their mean age is  $21.90 \pm .17$  confidence interval at 95%. Most of the students are 22 years old. The youngest respondents are 20 years old, while the oldest is 26 years old. Among the 99 respondents, 97 eligible respondents were qualified based on year level in college.

## **Analyses**

### **Descriptive Statistics**

As shown in Table 1, the research instruments were reliable with Cronbach's alpha values within .70 to .95. The questionnaires used to determine the overall experience of food delivery applications, the status of the student's eating habits, and their patronage of FDS have a Cronbach's alpha value of .91, .84, and .89 respectively that revealed its reliability to support the results of the study. Results have shown that the senior students are delighted with their experience using food delivery services and applications, with a mean of 3.51. This includes its convenience, responsiveness, assurance, safety, and reliability. With a mean of 2.72, the results also revealed that students often eat a wide variety of foods with or without the influence of FDS and use them at least three times a week. Lim and Norona (2021) stated that there are characteristics of food delivery services and applications that influence their users: convenience, responsiveness, assurance, safety, and reliability. Students also see these applications as well presented by giving the correct information that the consumers need. This includes courier updates and different

payment methods. However, some aspects still receive low ratings that the students experience. These are inappropriate compensation for wrong orders, no fresh foods, pricey items, delivery charges, and the limited discount or vouchers most users want.

**Table 1. Descriptive Statistics**

<i>Concepts</i>	<i>Mean</i>	<i>Interpretation</i>	<i>Cronbach Alpha</i>
<i>Food Delivery Service (FDS) Quality</i>	3.51	Very Satisfied	.91
<i>Eating Habits</i>	2.72	Often	.84
<i>Patronage of FDS</i>	2.72	At least 3 x a week	.89

Because the students projected reasonable satisfaction with the food delivery service, it is noticeable that they also use it at least three times a week. The students use it frequently because food delivery applications are very accessible because you can download and use them anytime and anywhere.

## Results

These are presented following the sequence of the research problems. The respondents were highly satisfied with their food delivery service provider, with a mean overall satisfaction rating of 3.63  $\pm$  .1 confidence interval of 95 percent. Seventy-five percent of the respondents used food delivery applications for personal meal consumption. In comparison, 15 percent of them use FDAs to provide food for special occasions such as birthdays, celebrations, and the like.

**Table 2. Association of the Conceptual Variables**

<i>Cause</i>	<i>Effect</i>	<i>Spearman's rho</i>	<i>t-value</i>	<i>p-value</i>	<i>Interpretation/Indications</i>
<i>FDS Quality</i>	<i>Eating Habits</i>	.40	4.37	.00	Moderate association
<i>FDS Quality</i>	<i>Patronage of FDS</i>	.37	3.90	.00	Moderate association
<i>Patronage of FDS</i>	<i>Eating Habits</i>	.72	10.35	.00	Strong Association

*H1*—Food delivery service quality is associated with the customers' eating habits. As seen in Table 2, the delivery service quality indicates a significant moderate association (Spearman's  $\rho$  = .40) with the student's eating habits. According to Stephens et al. (2020), frequent smartphone users are in the young-adult age group, to which the study's respondents belong. Food and beverage marketing and services changed in response to the digital age. This results in improved attitudes, preferences, and intake of foods that are advertised to them (Smith et al. 2019). Since the results have shown that most students use food delivery applications readily available on their phones, it was evident that students engaged with different kinds of food available in these applications affected their eating habits. Consumers could choose what they wanted and request delivery at their convenience. In this situation, public health nutrition policies are likely to be inapplicable and irrelevant (Bates et al. 2020).

*H2*—Food delivery service quality is associated with the customers' patronage. As shown in Table 2, the food delivery services indicate a significant moderate association (Spearman's  $\rho$  = .37) with the student's patronage of food delivery services. The results support the claims of Rahman et al. (2020) and Pasco & Lao (2021) that a customer's intention to patronize a specific service provider is primarily determined by their evaluation of service quality. Moreover, it also explained that the continuous usage of the delivery

application is caused by the customers' perceived service process and experienced innovation (Ahn 2021). According to the previous results, students were delighted using food delivery apps and services. This strengthens Pandey et al.'s (2021) claim that people from India and the Philippines preferred to adopt the food delivery services through its convenience, discounts, app service quality, fulfillment, and multiple payment methods. These experiences influence the frequency of their patronage of food delivery applications.

*H3—Customers' eating habits are associated with the frequency of patronage of food delivery services.* As also seen in Table 2, the student's eating habits indicate a significantly strong association (Spearman's  $\rho = .72$ ) with the student's patronage of food delivery applications. Since convenience is one of the top factors that influence the patronage of the students, it is noticeable that their continued usage of the food delivery service influenced their eating habits as well. Among the respondents, three percent have excellent, 46 percent have average, and 50 percent have poor eating habits. The respondents showed that they are carried away by the rapid pace of technological advancements, especially in the food delivery industry (Voytovych et al. 2020), which caused them to change in attitudes, preferences, and intake of foods (Smith et al., 2019). Most college students admitted to eating fresh fruits, and many consume processed foods such as chips, cookies, and cereal for convenience. It was found that taste, time sufficiency, convenience, and budget-influenced students' eating habits. Our results support the study of Tus et al. (2021) that many Filipino tertiary students from private and state universities showed an unhealthy lifestyle involving their eating habits. In contrast to Medina et al. (2020), the respondents have an adequate knowledge of healthy nutritional requirements, yet their food choices are not necessarily healthy and solely based on convenience. According to the respondents, they claimed that they like the most about the food delivery applications' convenience and efficiency because they can easily order food anytime and anywhere. Some of them also answered that online payment methods also positively influence their usage due to the health and safety restrictions brought about by the COVID-19 pandemic.

Food delivery applications negatively affect their eating habits because people tend to eat more than they usually do as it is straightforward to grab the meals they want to eat. Some of them rely on unhealthy foods from different fast food chains that put their nutrition status at risk. Since FDS can quickly boost your appetite and satisfy your cravings, some respondents revealed that using FDS caused an addiction for them and made them lazier. This research cannot generalize the impact of the kinds of food and FDS on the health and well-being of respondents (Maimati et al. 2018). However, some students still claim that FDS still positively supports their lifestyle because some do not know how to cook food. FDS boost their mood upon fulfilling their cravings. If these food delivery applications showed poor quality service, most students said it would lead to disappointment. Dissatisfaction may arise, and some will create trust issues that make them avoid ordering and cooking food in their houses again. This clearly shows that users of FDS are more dependent on the service that they provide to the consumers.

### **Implications for Managers, Future Research Direction, Limitations**

The study's findings would serve as a basis for the food delivery service providers and fitness practitioners. Because the results showed that people have poor eating habits, it is suggested that healthy lifestyle education that includes engaging people in physical activities and food consumption should be promoted. The study also guides the students, faculty, and other sports and wellness enthusiasts outside the school to be mindful of their decisions in choosing the right food for them. In the digital era where people can acquire things right in front of their hands in just a snap, this convenience wants them to experience the same feeling all over again. The existence of food delivery applications is a perfect example of it. Foods are delivered at their doorsteps without acquiring too much effort. However, there are risks that these foods may have. This is why this study can help every consumer better understand the possible effects of these food delivery services and applications on our well-being. Furthermore, the study also

gives an overview of the food delivery services companies and the food corporations about the possible innovations in preserving the health of their consumers while upgrading their service at the same time.

The results of the data gathered influenced the study to verify that there is a substantial correlation between the quality of food delivery services and the eating routines of college students. Since the study is rooted in the experiences during the COVID-19 pandemic, only some scholarly materials still tackle this topic. Therefore, other researchers who focus on students' eating behaviors can utilize the study's results. There is a call to change the relatively poor eating habits of the respondents more than the business needs of food delivery service providers. This study also paves the way for future research about food delivery applications and the behavior of their users. This opens opportunities for companies that want to blend into the technological advancements in our world. Because food delivery services are still a booming industry in the Philippines, studies like this can be a steppingstone to looking for innovations that will entice more customers to energize again the food industry that was once lost during the time of the COVID-19 pandemic.

This research is limited to studying the influences of food delivery services on eating habits and food patronage among college students. The non-probability selection of respondents required a non-parametric test that draws a lower level of statistical conclusions than the statistical generalization of a parametric test.

### **Conclusion**

Food delivery service providers need to look closer at the customers' eating habits, the kinds of food a customer prefers, and their level of service quality for different segments to succeed in these emerging markets. Since COVID-19, food delivery services have become prevalent not just in the Philippines but worldwide. Based on this research, respondents have high satisfaction with food delivery services and are complacent in using them because of their convenience and efficiency. Using food delivery services and apps, students can eat anything they want and wherever they are. It eases the food preparation process and removes the risk of acquiring COVID-19 when having a dine-in experience inside fast food chains or restaurants. The quality of food delivery services indicates a direct influence on eating habits. This means that if they have experienced these qualities, it likely affects their decisions in choosing the food they need. Instead of cooking food for 15-30 minutes, which requires a lot of energy, it is more suitable for people to acquire it with just a simple click with their smartphones and have it right away inside their homes. The experiences within food delivery services are strongly associated with their usage frequency. Because these experiences meet their standards, it builds trust between them and the service provider. This justifies the studies' claims that customers' intention to patronize a specific service provider is primarily determined by their service quality evaluation. It is like going to the same barbershop, with the same barber, because they have given you a good haircut.

FDS affects eating habits as service quality increases the patronage of its users. The result of the study indicates that the frequency of patronage establishes the rhythm of the eating habits of people. Like any emotion, eating habits are caused by repetitive responses by our brains. If the brain is trained to experience the positive qualities of food delivery services all over again, it is highly expected to use them more often. If the usage is frequent, the customers are also exposed to the wide variety of foods that the food delivery services and applications offer. Furthermore, the results also show the respondents' poor eating habits. It is true that respondents may have a fair knowledge of nutrition but need to practice healthy food choices. Despite this, there are still students that set their lifestyle using food delivery applications because they boost their mood while fulfilling their cravings at the same time. The students patronize the food delivery application because it is accessible and readily available on their phones which they can use anytime and anywhere. The food delivery industry is the start of the future, where we can easily acquire the food we want. But along with this innovation, people's lifestyles are also affected. Convenience is one of the reasons why people patronize food delivery applications; unfortunately, this



convenience changed how we think and act. Convenience is a significant factor in the growing acceptance of FDS.

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