An Empirical study on online Food delivery applications in Bangladesh: A heuristic evaluation

BY

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Computer Science and Engineering

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APPROVAL

This Project/internship titled "An Empirical study on online Food delivery applications in Bangladesh: A heuristic evaluation", submitted by Md. Abul khair, ID No: 183-15-12002 to the Department of Computer Science and Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 13-09-2022.

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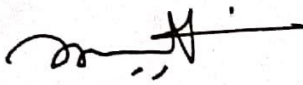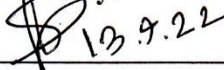
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We hereby declare that, this project has been done by us under the supervision of **Md. Firoz Hasan, Lecturer, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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ABSTRACT

As the mobile phone user base has grown, so has the number of people making use of delivery apps and the societal influence they have. Therefore, this study aimed to provide relevant organizations and researchers with a suggestion for enhancing the service quality of delivery apps by identifying the elements associated with using the apps that most affect customers' levels of satisfaction and their propensity to use the applications again. The purpose of this paper was to conduct an empirical analysis of the food apps that influence customers' decisions when placing an online food order. The purpose of this research was to learn more about customer habits in the rapidly growing sector of Bangladesh's online meal delivery industry. With a focus on qualitative and exploratory methods, this paper used a survey pool of 276 people as its data source. We conducted t-tests and factor analysis on all of the data we gathered to draw conclusions about the most essential aspects of online food delivery intermediaries from the perspective of the consumers who use them. The first aspect regarded to be directly affecting the success of online meal delivery is the time, service quality, pricing, and condition of the food delivered. The second factor is made up of indirect causes, such as the number of restaurants, the menu, the delivery tracking service, and the delivery person's attitude.

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INTRODUCTION

1.1 Introduction

In the process of online food ordering and delivery, a consumer places an order for food over the internet and receives it at their doorstep or another designated location. People who are too busy to go out to a restaurant are the target audience for food delivery apps and other forms of online food ordering. "Time is money," as the old adage goes [1]. The primary benefit of an online meal ordering or delivery system is the remarkable simplification of the ordering procedure for customers and restaurant owners a like. Previously, people had to rely on a paper-based system to place their meal orders. Customers in this approach physically go to the eatery, where the waiter takes their orders verbally and jots them down on paper [2]. Rapid expansion of the internet and mobile technology has had a major impact on the development of online shopping and e-commerce [3][4]. This innovative business model for ordering meals online has exploded in popularity thanks to the widespread availability of low-cost smartphones, the steady development of nationwide broadband Internet access, the rising purchasing power of consumers, and the increasing scarcity of free time .Bangladesh's goal of joining the digital age has resulted in a dramatic increase in the country's mobile phone and internet user base in recent years, as well as the availability of inexpensive smart devices. In just five years, the number of people in the country who have access to the internet has doubled (BTRC, 2020). Among the world's fastest-growing economies, Bangladesh stands out for its impressive annual GDP growth and rising per capita income. As a result, there has been a meteoric rise in the number of e-commerce sites that target those with hectic lifestyles. Customers prefer purchasing online because it allows them more freedom to shop when and where they want. With the evolving tastes of city dwellers, online food delivery businesses have mushroomed [5]. This concept of meal delivery is rapidly expanding as a result of the growing number of working people and the increasingly time-starved nature of modern urban life. There has been a lot of research done around the world on online buying habits, so we know a lot about how people behave when they purchase online. Several studies support this notion. Customers prefer online services for a variety of reasons, including convenience,

frequent use, practicality, and others. Similar findings have been reported elsewhere [6][7][8]. With more options to select from, screen information, and compare products, online shopping has allowed consumers to cut the amount of time spent making decisions. Customers appreciate the convenience of online food delivery since they no longer have to worry about being late because of traffic or the weather [9]. Previous studies have mainly concentrated on online shoppers, but the online meal delivery industry is still in the dark [10][11]. Despite Bangladesh's expanding e-commerce business, researchers have yet to fully understand shoppers' habits when it comes to ordering meals online. Through the identification of characteristics favoring online food buying through food delivery intermediaries in a developing country, this study adds to the current body of information. There are a lot of new entrants into the Bangladesh market, so it's crucial that existing businesses and those looking to break in have a firm grasp on the nature of consumer behavior there. This research will contribute to the sparse literature by attempting to better understand how customers make decisions and what makes the online meal delivery industry tick.

1.2 Motivation

Online food delivery is a relatively new phenomena in Bangladesh and a rapidly growing industry worldwide. Businesses have responded to a growing demand on the part of consumers by offering home delivery of food due to the proliferation of the internet and the hectic lifestyles of modern people. As the e-commerce platform has the capacity to affect the economy, businesses, and people's quality of life, it would be beneficial to have a deeper understanding of the consumer environment. There has to be more study done by academics and professionals to have a handle on the rapidly expanding online food delivery market. This paper extends on the scant prior literature on the online food delivery industry and investigates the habits of its consumers. Managers will appreciate the paper's insights into consumers' perspectives.

1.3 Rationale of the Study

Although many people use these apps, there has not been enough study on the service quality and customer satisfaction of delivery apps, which has a significant impact on

the food service business as the number of users grows in tandem with the number of smartphone users.

➤ Determining the effects of service quality aspects of delivery apps on customer satisfaction and reuse intention, the current study aims to provide a strategy for relevant businesses and researchers to enhance the quality of delivery apps.

➤ Business can either raise customer satisfaction by raising the objective quality of its service or by raising the degree of perceived quality by increasing the perception of the quality of the service among consumers through advertising.

1.4 Research Questions

Our research effort includes the definitive framing of certain queries and the sequential delivery of their solutions.

1. What purpose does research serve?
2. To what extent does a machine provide elucidation in this evaluation?
3. How do we go about implementing the method?
4. What outcome has archived from the analysis?
5. Is it improving the customer satisfaction?

1.5 Expected Output

The primary goal of this research is to foresee how customers in Dhaka, Bangladesh, will react to online food delivery services and raise customer satisfaction in the future using food delivery applications. This research will show that even with these drawbacks, Dhaka city residents value online food delivery services.

1.6 Project Management and Finance

Data collection was a lengthy process for me. When I need information, I have to actively seek it out from real, live people. About every ten kilometers, I set out to gather information. When interviewing subjects, I need to make sure they have food. The total cost of my trip, both ways, was close to a thousand taka. In other words, I attended college. Every class, I am tasked with gathering information. My average daily expenditures used to be 200 takas. My trip lasted for a full week. There, I dropped 1,400 takas.

1.7 Report Layout

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CHAPTER 2
BACKGROUND

2.1 Preliminaries/Terminologies

One example of a technological innovation that has had a large impact on people's daily lives is the smartphone. Smartphones can do many things, such take pictures, play games, and connect to the internet. Additions to the current MP3 player and video player mobile phones' features, which include making calls and Messages can be sent and received between two phones. Moreover, online connectivity may be accessed from any location at any time, and offers a wide range of web services and software programs available for usage within an operating system.

2.2 Related Works

Due to rising wages and more women participating in the labor force, there has been an uptick in both the demand for fast food delivery and the number of times people eat out [12]. Delivery apps, which make it possible to order meals from a smartphone, emerged alongside the proliferation of smartphones and apps with a wide variety of uses. Using the user's current location, deli very apps help people quickly and conveniently find nearby eateries [13]. One of the main benefits of meal delivery apps is that they make it easy to find and order food that is available for delivery in the user's desired location [14]. South Korea's three most popular delivery apps are called Baedal ui minjog, Yogiyo, and Baedaltong. Launching in April 2010, Baedaltong was the first delivery app service in South Korea. Unlike its competitors, it charges significantly less for its services by utilizing automatic text-to-voice conversion technology and a direct-to-restaurant point-of-sale (POS) system for placing orders. Also, its customers have praised its co-prosperity approach with local companies in place of traditional advertising methods like TV commercials [15].In June 2010, Baedal-ui minjog launched its services with the release of an iPhone application, and by October 2014, the company had captured 60% of the market. Improved usability due to a number of payment choices, satisfied customers, and the likelihood of repeat purchases, together with a marketing strategy that promotes numerous initiatives (including "My store CF"), have all contributed to the store's rise to prominence [16].Providing a wide range

of services, it has been met with widespread approval from both consumers and entrepreneurs. One relatively new service, called "Let's study together," offers free lessons in computer use to business owners who use Baedal-ui minjog [17].Yogiyo's prominence grew as a result of its massive advertising spend relative to the other two leading deli-food apps. Deliver Hero, the leading European food delivery service, established Yogiyo in South Korea in 2012. It's not only a South Korean company; it has outposts in dozens of other nations, including China, the UK, Australia, and Mexico. Yogiyo's automatic order transmission technology is something the company built in-house, so the restaurant gets the order and the payment immediately after the customer places it using the app on their smartphone. In the next step, the order details are sent to the restaurant's terminal as well as the proprietor's and the delivery person's mobile devices [18]. However, delivery businesses and customers have consistently voiced concerns about exorbitant prices, which are separate from the explosive rise of delivery apps. The Korea Women's Federation for Consumers conducted a survey that found some app users simply look up the restaurant's phone number within the app, call them directly, and order their food. This is out of concern that the restaurant might have to cut corners in order to make up for the loss of revenue brought on by the app's steep service fees. The major delivery apps have reduced their prices to between 2.5% and 12.5% as a result of the growing competition. According to the Korea Internet and Security Agency [19].Products are defined as inanimate items, machines, or things, while services are defined as acts, efforts, or performances [20].Online food ordering has become increasingly popular as individuals have less time to go out to restaurants or cook for themselves as their schedules get busier [21].Online meal delivery services are defined as business platforms by Pigatto et al. (2017), which handle the customer's order, payment, and process monitoring but not the actual cooking of the food [22].Customers no longer need to physically contact with a salesperson in order to make purchases; rather, they can do it via the company's website, a customer app, or by e-mail, chat, or SMS [23].Innovative distribution methods provide higher value to clients and are used as a new basis of difference by service and product providers, as stated by [24].Value creation is a process that involves the actions of multiple actors, including the service provider, the client, and others, to ultimately create value for the customer, as stated by Gr€onroos and Gummerus (2014). There are essentially two sorts of

grocery stores that offer delivery services. The first group consists of shops' proprietors [25]. Fast food restaurants like Pizza Hut, McDonald's, Domino's, Kentucky Fried Chicken (KFC), and many more dominate this market segment of the BFJ 123,2 536. The second group consists of many delivery-service aggregators that work with numerous different eateries [26]. UberEATS, Food Panda, Room Service, Grub Hub, HungryNaki, PathaoFood, and many more are all examples of such services. As new online platforms compete for markets and customers around the world, the restaurant-to-home delivery industry is undergoing profound transformation. Customers now have access to a wider variety of eateries with the advent of online food-delivery services, and they can place orders from their phones [27].

2.3 Comparative Analysis and Summary

According to Hirschberg et al. (2016) in their article "The shifting market for food delivery," the most popular method of food delivery is the traditional model. For the most part, most people still place their orders over the phone when they want food delivered from local pizza joints or other eateries. This category has a 90% market share. However, the proliferation of digital technology is transforming this sector, just as it has other markets. Due to the ease, it provides, consumers have grown accustomed to making purchases via apps and websites and now expect the same when ordering food. More people are eating out now than ever before due to rising urbanization, women's workforce engagement, and rising family income (Bezerra et al., 2013). There has been a rising pattern of eating away from home among metropolitan young men with disposable cash. In general, people prefer foods that are greater in calories. As reported by [28]. Going out to restaurants was seen as a waste of time because it was seen as a luxury until the early 1990s. The fact that customers opted for a la carte restaurants despite their high time and financial costs suggests that it was not a top priority in everyday decision making [29]. Numerous studies have examined consumer patterns in relation to Indian food delivery applications including Zomato, Swiggy, Food panda, UberEATS, and Fasoos. The purpose of the research undertaken by Vinaik et al. (2019) was to identify the most important considerations of customers while using a meal ordering app, as well as the most useful criteria for comparing different apps in this space [30]. Customers of online meal delivery services like Swiggy, Food panda,

Zomato, etc., according to research by Chandrasekhar et al. (2019), value uniqueness in terms of pricing, quality, and speed of service [31]. Zomato, Swiggy, UberEATS, and Food panda are just some of the online meal ordering and delivery businesses that [32] compared and contrasted. Among students in India, online meal delivery services have been studied by[33]., who concluded that these services aid in time management by making it easier to get the foods that students want. Customers' trust in a website, their level of pleasure with their purchases, and their willingness to return were all factors investigated by Kedah et al. (2015), who conducted the study in Malaysia [34]. It was the goal of Chai and Yat's (2019) study to develop a unified model to examine the factors that lead Malaysian city dwellers to show interest in OFD services [35]. According to Daud and Yoong's (2019) research, the time element was the only one of two factors (the other being price) that significantly influenced customers' intentions to use online FDI services in Malaysia [36]. In order to foster a healthy internet takeaway environment, it will take the combined efforts of online food delivery platforms and restaurants, relevant government agencies, consumers, and the rest of society [37].

2.4 Scope of the Problem

This paper's overarching goal was to conduct an empirical analysis of the variables that affect diners' decisions while placing an online food order. The goal of this study was to analyze customer habits in Bangladesh's rapidly expanding online food delivery industry.

2.5 Challenges

During the process of acquiring the data, I was faced with a variety of challenges, and it was up to me to design solutions for overcoming those challenges. Ultimately, I was successful in obtaining the data. Despite the fact that I had the link distributed to a significant number of people, just a small percentage of those people had responded. It is required for me to spend a large amount of time standing at the front of the classroom in order to take accurate attendance in the classroom. This requires me to spend a lot of time standing there. As a result of the large number of individuals that listen to it but then leave very fast when it is finished, there are not enough people present to fill it. This is the reason why there has been a decrease in overall attendance.

CHAPTER 3
RESEARCH METHODOLOGY

3.1 Research Subject and Instrumentation

Focuses on the findings of this work, we were able to use a relatively simple sampling strategy to obtain our data. People in them were asked to fill out questionnaires both online and offline. In the online survey, participants were given questionnaires that were collected as soon as they were completed. After weeding out 202 obviously fake or partial responses, we were left with 211 (51.2% complete) questionnaires from a total of 414 initial respondents. The 355 questionnaires used in the offline survey were returned 100% of the time. Only 191 (53.8% of total) of the paper surveys were usable after weeding out replies that were obviously false or otherwise unfinished. To get an accurate sample size, we employed a mix of online (211, or 52.5% of the total) and paper (191, or 47.5% of the total) surveys (402).

3.2 Data Collection Procedure/Dataset Utilized

3.2.1 Data Sample and Size

There is some subjectivity and difficulty in determining what the bare minimum sample size should be for an exploratory factor analysis. When it comes to factor analysis, academics sometimes disagree on the optimal sample size. Factor analysis, according to, requires at least 300 cases. Numerous researchers, including recommend using a sample size of at least 100 when doing a factor analysis. Sample sizes of 100 were rated as inadequate by, whereas those of 200 and 300 were rated as adequate. If the factor loadings are large, Field (2000) argues, then a modest sample size may be sufficient. The minimum sample-to-variable ratio has been suggested as a way to determine the sample size by a number of researchers. The optimal sample-to-variable ratio likewise varies widely; suggestions range from 3:1 to 6:1, 10:1, 15:1, and 20:1. There are eight independent variables, so the sample size must be at least 160 to account for variability. According to these guidelines, a total of 276 participants were selected for the factor analysis in this study (see Table 1). Researchers polled 276 people who have used an

online meal ordering service to determine how they feel about the service and what they think is most essential about the industry as a whole.

3.2.2 Procedure for Data Sampling

We used a non-random technique of sampling, based on the availability of respondents. Participants were polled first on whether or not they had ever used an online food delivery service. Positive responders were extended an invitation to take part in the study. There was no compulsion to take part. The participants were assured that their identities would be protected at all times and that the results would only be utilized in the classroom. Participant screening resulted in the elimination of anyone who did not report ever having used an online meal delivery service. Data collection instruments were chosen after reviewing relevant literature and consulting with professionals in the field. Every effort was made to use widely accepted items for each variable in the study. The survey only included yes/no questions. The initial questionnaire was designed to gather information about the target audience, their preferences, their frequency of buying food online, and the main motivations for doing so.

3.3 Statistical Analysis

Microsoft Excel and IBM's SPSS were used to conduct a variety of analysis on the survey responses collected from consumers. All analyses in this study were run with the statistical program SPSS 15. A descriptive study of online food-delivery users was performed first. Second, in order to further examine the responses towards elements of online meal delivery, a one sample T-test was used to test hypotheses. When the p-value was less than 0.05, statistical significance was declared. Finally, principal component analysis was used as a data reduction technique for factor analysis in order to separate out unique contributing variables.

3.4 Proposed Methodology/Applied Mechanism

3.4.1 Analytical Apparatus

Microsoft Excel and IBM's SPSS were used to conduct a variety of analysis on the survey responses collected from consumers. All analyses in this study were run with the statistical program SPSS 15. A descriptive study of online food-delivery users was performed first. Second, in order to further examine the responses towards elements of online meal delivery, a one sample T-test was used to test hypotheses. When the p-value was less than 0.05, statistical significance was declared. Finally, principal component analysis was used as a data reduction technique for factor analysis in order to separate out unique contributing variables.

3.4.2 Data suitability for exploratory factor analysis (EFA)

The Kaiser-Meyer-Olkin (KMO) test and the Bartlett's test of sphericity (BTS) are used to determine if factor analysis is feasible given the sample size. Factor analysis can be performed on the sample data if the KMO is larger than 0.6 and the BTS significance 0.05. The sample data is appropriate for factor analysis, as indicated by the KMO value of 0.762 and the BTS significance level of 0.000.

3.4.3 Evidence of reliability and validity using exploratory factor analysis (EFA)

Due to the novelty and rapid development of the online meal ordering concept, exploratory factor analysis (EFA) was employed to better understand it. Because of the results of the EFA, the dependability of the variables has been improved by eliminating redundant or irrelevant ones. The hypotheses for this study were established by a combination of a thorough examination of the existing literature and in-depth interviews with recognized experts in the field. Using a one-sample t-test, we find that all eight of our independent variables are significant. We used a number of different criteria to isolate the causes. Bartlett's test of sphericity and the Kaiser-Meyer-Olkin (KMO) test were used to check if the dataset was suitable for a data reduction technique, respectively. First, we got eigenvalues for all the factors in the data so we could analyze

them. The point at which the curve starts flattening was found using a screen test plot, which plotted eigenvalues versus the number of components [38]. The factors with an eigenvalue greater than one were taken into account. Another metric used to settle on the final factor count was the cumulative variance %. Although there is no hard and fast rule for the minimum acceptable cumulative percentage of variance estimated that it might be as low as 50%-60%. These two factors accounted for 51% of the overall variations in the study's data. Furthermore, the communality for everything was greater than 0.3. With a non-zero value of 0.198 for the determinant of the correlation coefficient, we can conclude that multi-collinearity does not exist between the variables and that at least one component can be recovered from the data set.

3.5 Implementation Requirements

1. Laptop
2. Microsoft excels
3. Microsoft PowerPoint
4. Google Form
5. Microsoft word
6. Windows 10
7. 8 GB RAM
8. 1 TB SSD

CHAPTER 4

EXPERIMENTAL RESULTS AND DISCUSSION

4.1 Experimental Setup

In this thesis work I have used some hardware and software to do the brief study and analysis of food delivery Service Applications.

Hardware:

1. CPU
2. Mouse
3. Keyboard

Software:

1. Windows 10
2. Microsoft Excel
3. Google Form
4. Microsoft word

4.2 Experimental Results & Analysis

One of the things I had on my agenda for the day was to carry out some kind of survey as one of my goals for the day. I carried out a survey and asked a sizeable number of people who are employed in a wide variety of fields to take part in it so that I could determine the percentage of respondents who make use of meal delivery services. This was done with the intention of determining whether or not respondents utilize meal delivery services. I was curious to learn the percentage of the population that makes use of these services. According to the results of the research, 70.8% of respondents use an online system to place their orders for meals, while 29.2% of them do not make use of any kind of online ordering system at all.

Figure 1 shows the Pie chart of people using food delivery service or not.
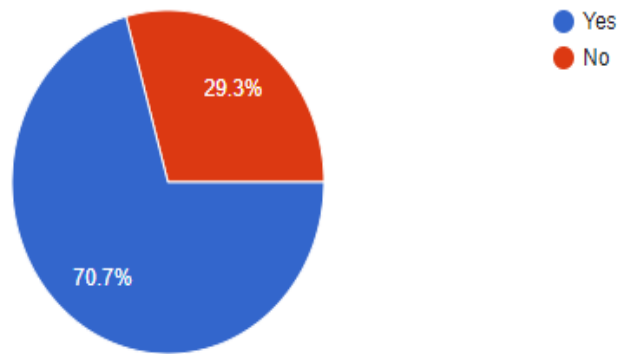
Figure 1: Pie chart of people using food delivery service or not.

Bellow table shows the Descriptive statistics of respondent's profile who has been attended in my survey.

Table 1: Descriptive statistics of respondent's profile

Measure	Items	Frequency	Percentage %
Gender	Male	159	81.5%
	Female	36	18.5%
Age	12-18	3	1.5%
	19-30	192	98.5%
	31-50	0	0%
	50+	0	0%
Occupation	Student	187	95.8%
	Businessman	1	0.5%
	Freelancer	1	0.5%
	Police	1	0.5%
	Unemployed	2	1%
	Youtuber	1	0.5%
	Govt service	1	0.5%
	Job holder	1	0.5%

In Bangladesh, you can use a number of various methods to place a food order. The likes of Food Panda, Pathao Food, Hungrynaki, E-Food, and Sohoz Food are among them. According to my findings, 87.8% of people use Food panda, 4.1 % use Pathao Food, 6.1 % use Hungrynaki, 0 % use E-food, and 2% use Sohoz food.
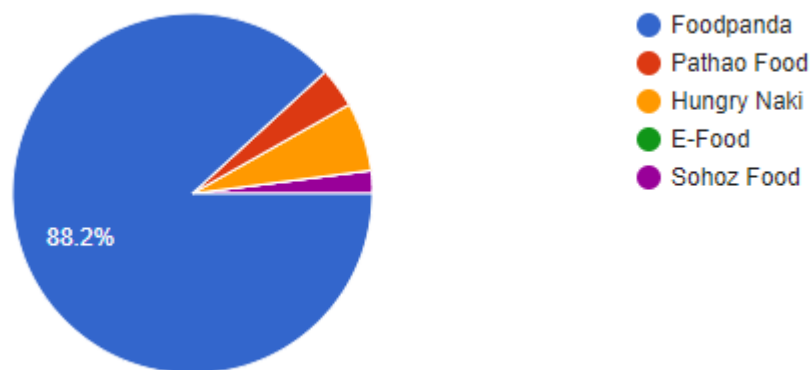

Figure 2: Analyzing result of people using different types of food delivery Applications

My survey's respondents have represented a wide range of demographics. The youngest are only 1.5%, while the oldest are 98.5%: they're all between the ages of 19 and 30.
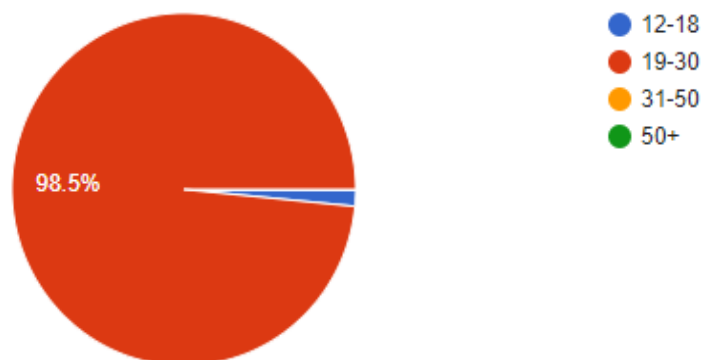

Figure 3: Analyzing result of Age who uses food delivery Application

Is it simple and quick to utilize the app for the food delivery service? this was one of the questions in our survey. They have found it to be highly user-friendly (96.4% have

mentioned this). In addition, 3.6% reported that they are unable to use it in a time- and effort-saving manner.
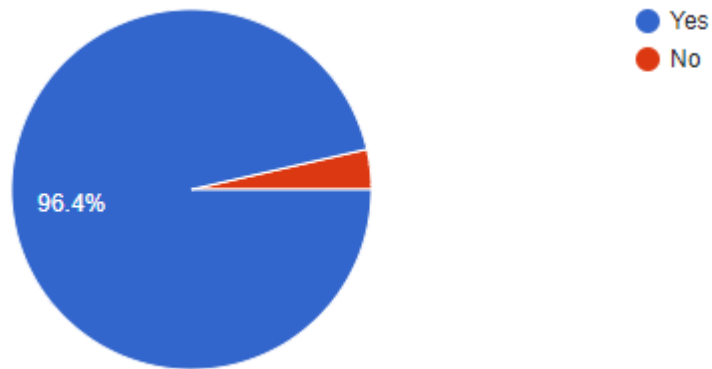

Figure 4: Pie chat of the people who are uses food delivery Application more easily and comfortably.

A cross-section of the population, including men and women, participated in our survey. Only 18.5% of the population consists of females, while the male percentage is 81.5%.
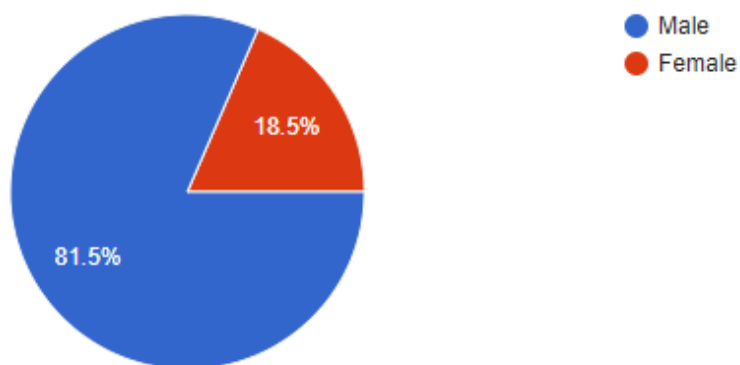

Figure 5: Analyzing result of Gender who use food delivery Application

We asked in the survey, "Can you order food through the app just like you would at a restaurant?" Eighty percent of them are confident in their ability to place food orders. To top it all off, 20% have complained that they can't place a food order.
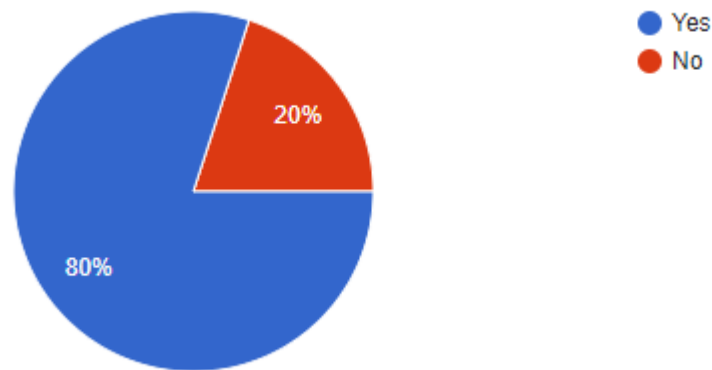

Figure 6: Analyzing result for ordering process of food in the app the way we order food in a restaurant.

Our poll asked if, after placing an order, diners could alter their meal or place a new order, so we wanted to make sure it was an option within the app as well. They have reported a satisfaction rate of 44.6% with the amenity. In addition, 55.4% claimed they were not eligible to receive the advantage.
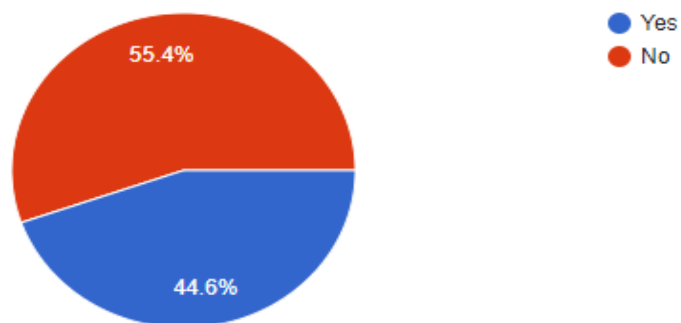

Figure 7: beneficial result of food delivery Application like adding extra food to cart or remove from cart.

Among the questions we asked was whether or whether, just like regulars at their favorite eateries, app users can count on consistent quality. They report receiving this perk at a rate of 62.6%. In addition, 37.4% claimed they were not eligible for this assistance.
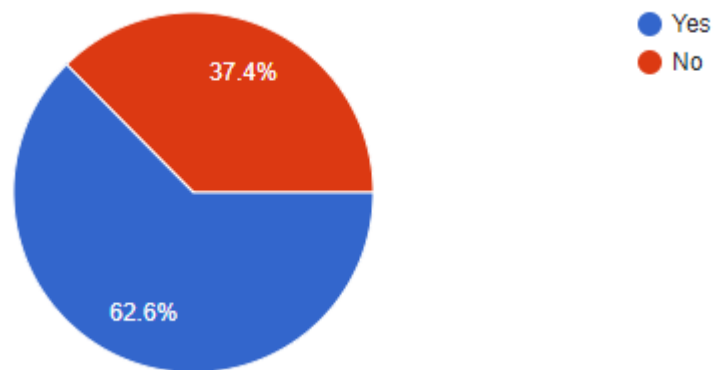
Figure 8: Analyzing result of benefit for using the food delivery Application

Our survey questioned, "Have you ever forgotten to pay extra money when ordering meals through the app?" Thirty-three percent of respondents agreed that they had. In addition, 69.7 percent claimed they were immune to the issue.

Figure 9: Analyzing result of facing some problem of using the food Application

There was a question in our survey about how often you use the app you use to place food orders, and whether or not you had to recall any special instructions for doing so.

Overall, 83.1 percent of respondents agreed with the statement. Yet another 16.9% flat-out admitted they couldn't.
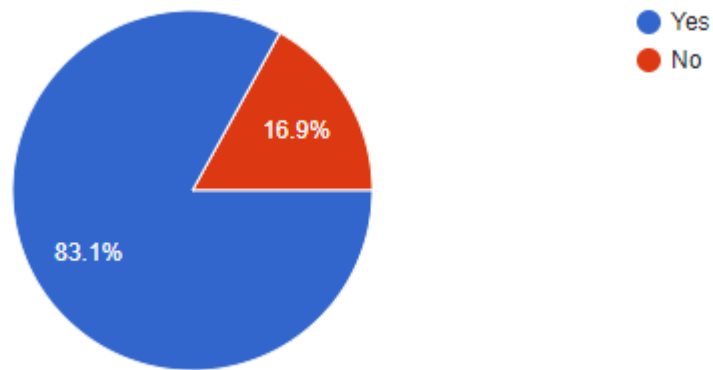
Figure 10: Analyzing result of "easy to use" of food Application
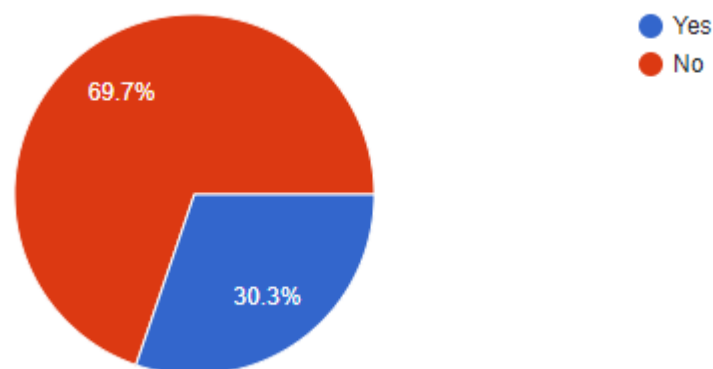
We wanted to know if the software you use is simple to navigate. Most people (94.9%) agreed. And 5.1% flat-out rejected it!
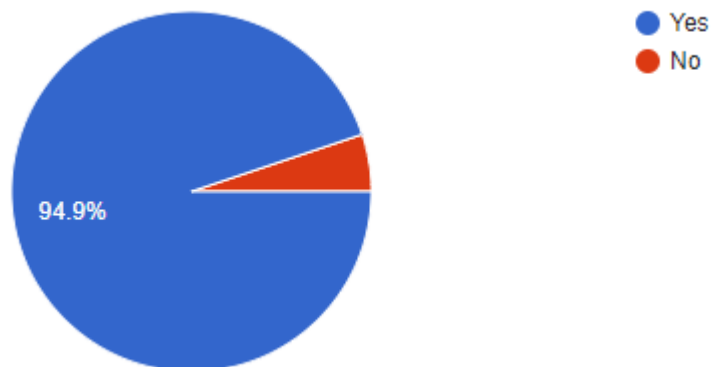
Figure 11: Analyzing result of usability of food Application

Our survey asked, "Do you find that the app you use to place food orders has a sleek and modern design?" The vast majority (90.3%) agree that it's lovely and appealing. Furthermore, 9.7% of respondents found the aesthetic to be pleasing.
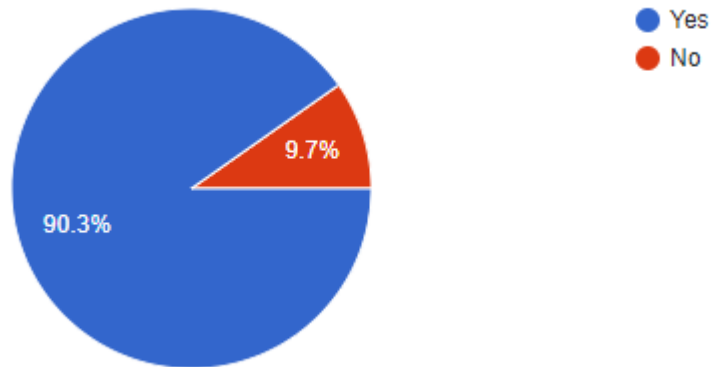
Figure 12: Analyzing result about Designing of Food delivery app

In our survey, we asked whether or not respondents had ever successfully communicated with the company in question to resolve a similar issue. They answered yes (61.5%). A total of 38.5 percent were unable to do so.
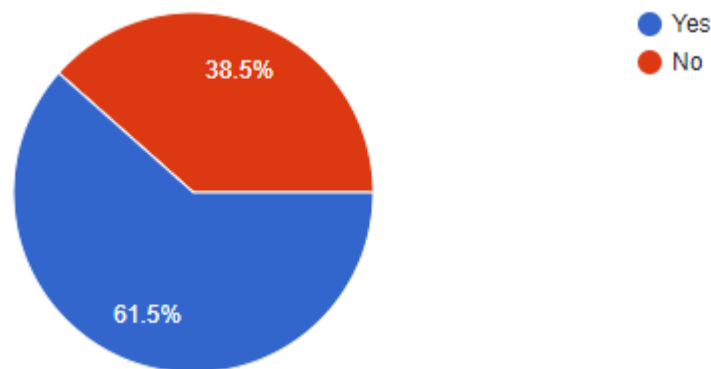
Figure 13: Statical result of Direct chatting Option availability of Food order service

In our survey, we asked if the food delivery app you use provides any instructions on how to use it. To have a simple time operating the app. In total, 81.5% of respondents gave their affirmative answer. The percentage of those who answered "no" was 18.5%.
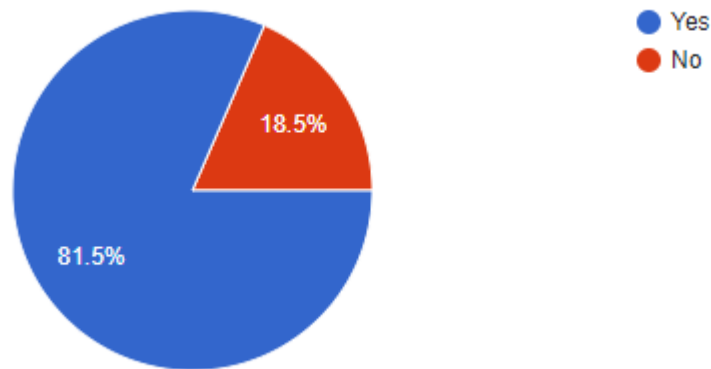
Figure 14: Statical result of user friendly of Food ordering Service Application.

4.3 Discussion

As a consequence of our research, we will have an in-depth understanding of each of the many online meal delivery systems as well as the applications for each of these systems. In addition, we will be able to compare and contrast the advantages and disadvantages of each of these systems. Due to the fact that we will have acquired fresh information, this will be the case. Because of this, we will have a better understanding of which options among the different meal delivery alternatives are best suited to meet our requirements. There is a very good chance that this will be the case as a direct result of the fact that this research is going to supply us with the aforementioned facts. In addition, we are aware of the user performance and levels of satisfaction with each and every application. This includes, but is not limited to, Food Panda, HungryNaki, E-food, Sohoz Food, Pathao Food, and other applications of a kind that is comparable to these. This encompasses both favorable and negative comments made by users.

CHAPTER 5

IMPACT ON SOCIETY ENVIRONMENT AND SUSTAINABILITY

5.1 Impact on Society

One of our primary objectives is the use of deep learning for the detection of food. In common with their South Asian neighbors, the people of Bangladesh are slow and care little about their wellbeing. This results in widespread health issues for the general population. When left untreated, hypertension can lead to organ failure and death. Anyone is susceptible, but you may help prevent certain diseases by learning about them and then adopting a healthy diet. Sickness wreaks havoc on people's lives. Our research will help the public identify meals that raise blood pressure more quickly. Their knowledge of disease management will allow them to improve the quality of care they offer to patients. Through this method, our studies will help people make healthier choices in their daily lives. As a result, they can take measures to reduce illness and improve people's quality of life. Ultimately, this is how our studies will benefit people's health. This system of disease diagnosis will also help people monetarily. We improved the CNN models' training accuracy by using a larger and higher-quality image dataset. In addition to being technologically portable, CNN's models are also straightforward to adopt across platforms. Therefore, even who aren't familiar with hypertension will gain from our study's findings.

5.2 Impact on Environment

The purpose of an economic impact study is to determine how a certain event will affect the economy of a given region, be it a single city or the entire world. Our studies mostly focus on hypertension and how it might have a positive effect on the economy by reducing costs and fostering growth. Our model shows that patients who follow it can cut back on their dosages of medication with positive results. People's health care budgets would benefit greatly if they could use less medication. People in Bangladesh take a substantial quantity of hypertension medication daily.

The prevalence of hypertension is high in Bangladesh. Because of their hypertension, they need to take medication daily. Because of this, the economy is under some strain. Since we conduct research primarily with the intention of bettering people's lives, one way in which we want to stimulate economic growth is by making less use of medical interventions. So it will be good for our economy.

5.3 Ethical Aspects

In our research we use public domain data set. We use dataset from Kaggle which is permissible for anyone to use it. So, we are not violation of any ethical rules. In our research, we are use deep learning methods like fine-tuning GoogLeNet as our deep feature extractor to achieve state-of-the-art performance. We use the Food-101 dataset to archive the State-of-the-art performance. Using Our research, People can easily Recognize the food without any hassle. Our Deep learning method can easily Detect the food and its type so that people can easily identify the food. We know that, In qualitative research, the valuable data and information that facilitates the understanding of the phenomena/problems in question is primarily provided by individuals who are willing to contribute part of their life, such as their time and insight, to research studies; therefore, they should be given a great deal of respect. In addition, great care should be provided to their contribution and the data collected so that their well-being, including physical and mental states and social status, is maintained. In our research All are maintained properly. Various ethical issues arise at every step of the research process as the balance between values to research and well-being of participants needs to be maintained for ethically sound research and the integrity of data. It should be emphasized that research participants will be influenced by researchers in some way and to some degree during the data collection phase, as this is the phase when the interaction among the researcher and participants happens and more often than not, the interaction is direct and face-to-face. Although the relationships between and among ethical issues involved in research are complex and cannot be explained linearly, this particular phase of qualitative research involves certain ethical questions. Researchers need to ask themselves whether:

✓ What they are asking participants to do would harm them in any way,

- ✓ Participants would be forced to do or say things against their will;
- ✓ How the privacy of participants and the confidentiality of collected data will be maintained.

As we Use Public Dataset, we did not violate any security of any people. We always focus that the proper security of people is maintaining or not.

5.4 Sustainability Plan

By providing information to people who have already been given a diagnosis of hypertension, the purpose of this study is to inform people who have already been given a diagnosis of hypertension about the types of foods and beverages that have the potential to raise their blood pressure to levels that are hazardous to their health. The objective of this study is to inform people about the types of foods and beverages that have the potential to raise their blood pressure to levels that are hazardous to their health. Specifically, this information will be focused on the different levels of blood pressure that those people have. This strategy can be implemented not just by the Ministry of Health but also by other organizations that are actively involved in the delivery of general public health care in order to accelerate their operations and improve the quality of service they provide to the general population. Patients will experience an increase in their income as a direct result of our investigation, and the study will also have an effect on the economy of the nation as a whole as a direct result of the rapidly expanding demand for hypertension patients on both local and international markets. Patients will see an increase in their income as a direct result of our investigation. Both of these effects will be the direct outcome of the fast increasing demand for people who suffer from hypertension.

CHAPTER 6

SUMMARY, CONCLUSION, RECOMMENDATION AND IMPLICATION FOR FUTURE RESEARCH

6.1 Summary of the Study

The number of people using delivery apps and the societal impact they have increased in tandem with the rise in the number of people who hold mobile phones. In order to help relevant businesses and researchers improve the service quality of delivery apps, this study sought to determine which aspects of app use have the most impact on customers' levels of happiness and their inclination to use the apps again. This paper set out to provide an in-depth empirical investigation of the factors that drive users to choose specific food apps when they are deciding where to place an online food order. The study set out to investigate the preferences of Bangladesh's rapidly expanding online meal delivery market. This paper employed a survey pool of 276 persons as its data source, with a focus on qualitative and exploratory methodologies. In order to draw conclusions regarding the most important features of online food delivery intermediaries from the perspective of their users, we ran t-tests and factor analysis on all of the data we collected. The timing, quality of service, cost, and freshness of the delivered food are the first factors thought to have a major impact on the overall success of online meal delivery. The availability of a delivery tracking service and the positivity of the delivery staff are examples of the second set of causes.

6.2 Conclusion

This research uncovered what customers value most about their online food delivery service. Indirect and direct reasons were shown to account for the majority of customers' worries. Time of delivery, service quality, price, and food's condition upon arrival are all examples of direct factors because of their close proximity to the service's fundamental delivery process. Some of the perks of a given service's full package are provided by intangible elements like the menu's variety and the delivery service's ability to keep customers updated on their orders' progress. As shown in the study, pricing is one of the factors that influences customer decision making (H1). Consistent with prior

studies, we find that consumers' preferences can be influenced by the service quality and the attitude of the delivery person (H2 and H3, respectively). Based on the results of the survey, it is clear that people who order food online prefer to have many different options to choose from all projected that customers' decisions would be influenced by menu variety, restaurant density, and restaurant openness (2019). Factors such as delivery time, the quality of the food upon arrival, and the availability of delivery monitoring systems are crucial for customers who purchase their meals online. Previous studies and this conclusion both hold true. The study agrees with in suggesting that OFD shops improve quality, variety, and consistently offer dependable and prompt delivery service to encourage repeat purchase. Looking at consumers as unique individuals is an interesting avenue for further study. A person's online conduct can be influenced by a number of factors, including their age, income, education level, ethnicity, and sex; their attitude toward technology; their level of competence and online experience; and the quality of the exchange itself. Although 276 consumers of an online meal ordering service were polled for the study, all of them fell into two age groups: students (18–24) and working professionals (24–35). In order to draw firmer conclusions from future studies, it may be necessary to evaluate models for marginal benefits. The findings call for further research using a diverse sample of participants along demographic characteristics such as age, occupation, and place of employment. The preferences of various demographic subsets can be studied in greater depth. Regular users and specialists in the online meal ordering market might be surveyed qualitatively to identify the most important characteristics for these consumers that will drive the industry forward. More investigation into issues including payment methods, app/website usability, and security is warranted.

6.3 Implication for Further Study

It's extremely important to highlight the differences in consumer behavior amongst individuals as a topic for further research. Differences in age, income, occupation, ethnicity, and sex; a positive outlook toward new technology, in which people believe that technology makes their lives simpler and better; differences in abilities and online experience; and so, on all play a role in the trading process. In order to get a more accurate outcome, it is possible that future research will include model evaluation for

considerable utility. The study suggests conducting more extensive research with a wide range of respondents to better understand the effects of demographic parameters including age, employment, and kind of workplace. It's possible that more investigation into the discrepancies in consumer tastes between various demographics is warranted. The expansion of the online food ordering market can be predicted by doing informal research with regular users and professionals in the field to find out what factors are most important to them. Surveys in other areas of Bangladesh where OFD services are active could also be useful for future research. In addition, a web-based survey was used to gather the information needed for the study. Because of this, future researchers have more leeway in the methods they employ to gather information.

REFERENCES

[1]   HARRIS, H. K. S. D. F. (2014). Software Development Aspects of a Mobile Food Ordering System.

[2]   Chavan, V., Jadhav, P., Korade, S., & Teli, P. (2015). Implementing Customizable Online Food Ordering System Using Web Based Application. International Journal of Innovative Science, Engineering & Technology, 2(4).

[3]   Bressolles, Grégory, François Durrieu, and Sylvain Senecal. "A consumer typology based on e-service quality and e-satisfaction." Journal of Retailing and Consumer Services 21.6 (2014): 889-896.

[4]   Amir, Huma, and Wajid Rizvi. "Influence of perceived risk and familiarity on willingness to transact in online food shopping in developing economies: an (extended) abstract." Creating marketing magic and innovative future marketing trends. Springer, Cham, 2017. 891-895.

[5]   Chai, Lau Teck, and David Ng Ching Yat. "Online food delivery services: Making food delivery the new normal." Journal of Marketing advances and Practices 1.1 (2019): 62-77.

[6]   Saarijärvi, Hannu, Lasse Mitronen, and Mika Yrjölä. "From selling to supporting–Leveraging mobile services in the context of food retailing." Journal of Retailing and Consumer Services 21.1 (2014): 26-36.

[7]   Kimes, Sheryl E. "The current state of online food ordering in the US restaurant industry." (2011).

[8]   Littler, Dale, and Demetris Melanthiou. "Consumer perceptions of risk and uncertainty and the implications for behaviour towards innovative retail services: the case of internet banking." Journal of retailing and consumer services 13.6 (2006): 431-443.

[9]   Srey, Sokunrotanak, Iqbal Kabir Jahid, and Sang-Do Ha. "Biofilm formation in food industries: a food safety concern." Food control 31.2 (2013): 572-585.

[10] Sethu, H. S., and Bhavya Saini. "Customer perception and satisfaction on ordering food via Internet, a case on Foodzoned. com." Manipal. Proceedings of the Seventh Asia-Pacific Conference on Global Business, economics, Finance and social science. 2016.

[11] Yeo, Vincent Cheow Sern, See-Kwong Goh, and Sajad Rezaei. "Consumer experiences, attitude and behavioral intention toward online food delivery (OFD) services." Journal of Retailing and Consumer services 35 (2017): 150-162.

[12] Kim, G. H., Jeun, S. T., & Lee, H. J. (2010). A study on the effects of service quality on repurchase intention on the internet shopping Mall.(with mediating role of trust and customer satisfaction). Journal of KECRA, 11(4), 9-22.

[13] Chatterjee, P. (2001). Online review: Do consumers user them? Advances in Consumer Research, 28, 129-133.

[14] Kim, H. E. (2014, November 15). The beginning of the evo lution of delivery, delivery app golden age. The Sisaon. Retrieved from http://www.sisaon.co.kr/news/articleView. html?idxno=27258

[15] Ko, H. S. (2016). A study on the eelivery app transactions and consumer protection. Law Review, 24(1), 62.

[16] Jung, G. Y. (2015, April 28). 'Baemin' elegant brothers. AJU Business Daily. Retrieved from http://www.ajunews.com/ view/20150428140313992

[17] Lee, H. J. (2015, April 21). Korea communications commi ssion review that fines for personal information leakage app beadaltong. The Kyunghyang Shinmun. Retrieved from http://biz.khan.co.kr/khan_art_view.html?artid=201504211 423151&code=920401&med=khan

[18] Kim, H. E. (2014, November 15). The beginning of the evo lution of delivery, delivery app golden age. The Sisaon. Retrieved from http://www.sisaon.co.kr/news/articleView. html?idxno=27258

[19] Hong, Seungwan, et al. "An analysis of security systems for electronic information for establishing secure internet of things environments: Focusing on research trends in the security field in South Korea." Future Generation Computer Systems 82 (2018): 769-782.

[20] Hoffman, K.D., Bateson, J.E.G. and Ikeda, A.A. (2010), Princ ıpios de Marketing de Serviços, 3rd ed., CengageS~ao Paulo, p. 599

[21] Chen, H. and Hsieh, Y. (2017), "The driving success factors of the online food ordering system – empirical evidence from the UTAUT model".

[22] Pigatto, Gessuir, et al. "Have you chosen your request? Analysis of online food delivery companies in Brazil." British Food Journal (2017).

[23] Cai, S. and Jun, M. (2003), "Internet users' perceptions of online service quality: a comparison of online buyers and information searchers", Managing Service Quality: an International Journal, Vol. 13 No. 6, pp. 504-519.

[24] Chen, J.S., Tsou, T.H. and Huang, A.Y. (2009), "Service delivery innovation: antecedents and impact on firm performance", Journal of Service Research, Vol. 12 No. 1, pp. 36-55

[25] Gr€onroos, C. and Gummerus, J. (2014), "The service revolution and its marketing implications: service logic vs service-dominant logic", Managing Service Quality, Vol. 24 No. 3, pp. 206-229.

[26] Yeo, Vincent Cheow Sern, See-Kwong Goh, and Sajad Rezaei. "Consumer experiences, attitude and behavioral intention toward online food delivery (OFD) services." Journal of Retailing and Consumer services 35 (2017): 150-162.

[27] Hirschberg, Carsten, et al. "The changing market for food delivery." (2016).

[28] 28. Bezerra, I.N., De Moura Souza, A., Pereira, R.A. and Sichieri, R. (2013), "Consumo de alimentos fora do domic ılio no Brasil", Revista de Saude P ublica , Vol. 47 No. 1, pp. 200- 211.

[29] Machado, J.G.C.F. and Pigatto, G. (2015), "Inovaç~ao de marketing para serviços de alimentaç~ao", in Zuin, L.F.S. and Queiroz, T.R. (Eds), Agroneg ocios, Gest~ao, Inovaç~ao e Sustentabilidade, Saraiva, S~ao Paulo, pp. 199-228.

[30] Vinaik, Anita, et al. "The study of interest of consumers in mobile food ordering apps." International Journal of Recent Technology and Engineering 8.1 (2019): 3424-3429.

[31] Chandrasekhar, Natarajan, Saloni Gupta, and Namrata Nanda. "Food delivery services and customer preference: a comparative analysis." Journal of Foodservice Business Research 22.4 (2019): 375-386.

[32] Das, J. (2018), "Consumer perception towards online food ordering and delivery services: an empirical study", Journal of Management, Vol. 5 No. 5, pp. 155-163.

[33] Sethu, H. S., and Bhavya Saini (2016). "Customer perception and satisfaction on ordering food via Internet, a case on Foodzoned. com." Manipal. Proceedings of the Seventh Asia-Pacific Conference on Global Business, economics, Finance and social science. 2016.

[34] Kedah, Z., Ismail, Y., Haque, A.A. and Ahmed, S. (2015), "Key success factors of online food ordering services: an empirical study", Malaysian Management Review, Vol. 50 No. 2, pp. 19-36.

[35] Chai, Lau Teck, and David Ng Ching Yat(2019). "Online food delivery services: Making food delivery the new normal." Journal of Marketing advances and Practices 1.1 (2019): 62-77.

[36] Saad, Ahmed Tausif. "Factors affecting online food delivery service in Bangladesh: an empirical study." British Food Journal (2020).

[37] Lan, H., Yanan, L. and Shuhua, W. (2016), "Improvement of online food delivery service based on consumers' negative comments", Canadian Social Science, Vol. 12 No. 5, pp. 84-88.

[38] Maxham III, James G., and Richard G. Netemeyer. "Firms reap what they sow: the effects of shared values and perceived organizational justice on customers' evaluations of complaint handling." Journal of Marketing 67.1 (2003): 46-62.

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