A Study on the Mediating Effect of Customer Orientation between O2O Service Quality and Customers’ Perceived Service Satisfaction*

Min-Jung KANG¹, Zhuolun WU², Hee-Joong HWANG³


Abstract

Purpose: O2O (Online to Offline) is an internet-based platform. The purpose of this study is to confirm the effect of service quality of O2O food delivery service on service satisfaction, and whether customer orientation mediates the relationship between service quality and service satisfaction. Research design, data and methodology: This paper surveyed Chinese consumers using the O2O food delivery platform through a questionnaire technique. Smart PLS 3.0 was used to verify the hypothesis of this study. PLS is characterized by the advantage of minimizing measurement errors and maximizing the influence of each factor. Results: It was confirmed that O2O food delivery companies need to increase service quality (information quality, product quality, and social quality, system quality) in order to obtain customer satisfaction. Additionally, the perceived customer orientation was found to completely mediate the relationship between perceived service quality (information quality, product quality) and perceived service satisfaction. Conclusions: The service level of the O2O delivery company to the customer's request when a problem occurs in the customer's order must be raised to increase the customer's satisfaction. For example, timely response to customer inquiries and timely feedback of delivery information to customers during the delivery process should improve the quality of after-sales service.

Key words: O2O, Service Quality, Customer Orientation, Service Satisfaction

JEL Classification Code: M30, M31, M39, M10, M16

1. Introduction

O2O (Online to Offline) is a representative example of the 4th Industrial Revolution. O2O refers to a technology that combines reality and cyber-based on advanced technology. It is a form of supplying online demand offline and has spread in earnest with the spread of smartphones. In recent years, it is expanding its scope to interiors, food, vehicles, lodging, offices, and even jobs.

According to the ‘2018 China O2O Food Service Industry Development Report’, the size of the Chinese food service delivery market in 2017 was over 204.6 billion yuan. The number of online delivery subscribers in 2017 was 300 million, a 15% increase from 2016. It is expected to grow to 350 million people in 2018.

In O2O services, new technologies such as artificial intelligence and big data provide real-time customized services to consumers through the platform (Kim & Kim, 2019).

Delivery O2O service identifies companies that can receive current products and services through a delivery app and provides monitoring services for the entire process from order, payment, and arrival. This is different from the existing delivery service, where consumers order directly from a company, wait until they arrive, and pay at the site after delivery of food. The core competitiveness of food O2O service is efficient manpower, cost management, and secure logistics. However, problems emerged with the rapid
growth of the O2O food delivery market. Consumers expressed dissatisfaction with the poor quality compared to product price, poor service attitude, the slow response speed of O2O platform, delayed delivery of meals, and unsanitary meals.

Gu, Bao, and Lee (2019) said that in the case of O2O, consumers feel more disappointed or lost because they can check the quality of the service provided at the time of purchase. Therefore, many studies have been conducted on various information systems and e-commerce quality factors.

The purpose of this study is to analyze the relationship between O2O service quality and service satisfaction for food delivery O2O service users and to verify the mediating effect of customer orientation in the relationship between O2O service quality and service satisfaction. Also, based on the results of the study, it is intended to present practical plans and research significance.

2. Literature Review

2.1. O2O Platform

In the O2O e-commerce model, a business operator operating an O2O platform delivers offline store information such as discounts, information provision, and services to internet users. Consumers access product information online and purchase products or experience services through an online payment.

Platform-type O2O is a service-linked type and includes services that provide information online or mediate transactions and purchases for various services performed offline. Food delivery O2O can be said to be an O2O service that enables win-win growth by mediating information through interconnection in a virtual space called the O2O platform.

The O2O service is operated with a strategy that focuses on customer base and marketing efficiency by connecting online and offline business models to the service area (Park, 2020). O2O business is to develop a new business model or expand to the service area by linking online and offline. O2O is operated with a strategy to strengthen the customer base and marketing efficiency (Park, 2020). O2O business includes both economical and convenient characteristics of online and on-the-spot and immediate characteristics of offline (Tian, Wu, & Lee, 2017).

The food delivery O2O platform is a transaction format in which consumers check delivery information online, create orders, complete online payments, and restaurants receive orders and deliver food to designated locations. Holmlund (2008) stated that the O2O commerce service raises the social value and positive intention of using customers by forming a new social network through communication between users such as information sharing and experiences after using products. Kollmann (2015) emphasized that the online and offline channels included in the O2O model should not be mutually competitive, but that offline sales should be jointly led through integration.

2.2. Perceived Service Quality

Grönnroos (1984) used the concept of ‘perceived service quality’. He defined it as the result of the comparative evaluation of consumers’ perceived service. Giao, Trung, and Truong (2019) stated that service quality is a very abstract concept and is distinguished from products. It is also measured as the difference between expectations and performance. Service quality is an important factor affecting the consumer's experience value, relationship quality, and behavioral intention (Tran, 2020).

Gummerus (2004) stated that online service quality refers to a process in which customers evaluate shopping consumption experiences and transactions through online channels. Guo, Park, and Lee (2018) stated that the e-service quality of a taxi booking app has a positive effect on perceived value, satisfaction, and continued intention to use.

Kim (2010) revealed that service quality (process, outcome, service) is an important factor in improving customer satisfaction in banks. Parasuraman et al. (2005) created e-servqual, a measure for inspecting website service quality, by applying it to the means-purpose framework based on the 11 dimensions of e-servqual (Reliability, responsiveness, accessibility, flexibility, ease of navigation, efficiency, assurance/reliability, security/protection, price, knowledge, aesthetics, customization/personalization) and literature studies suggested in previous studies.

O2O food delivery service quality includes not only the supply quality of the meal itself, but also the operation status of the online order receiving equipment, speed, and service during delivery, a safe online transaction environment during transaction, and timely consumption information update.

Kim et al. (2017) found that information quality, system quality, and customer service quality positively influence satisfaction and repurchase in a study on the effect of service quality perception on behavioral intentions for O2O delivery apps, a life-oriented service.

Huang and Benyoucef (2012) defined information quality as the quality of all information related to product content, and presented accuracy, speed, usability, ease and value as conceptual attributes of information quality. Lee (2017) argued that the intangible attributes of health information influence consumers’ need for health information and acceptance of health communication. Niu and Lee (2018) said that among the factors of e-service quality of online travel agency sites, information accuracy affects perceived value and satisfaction, so it is necessary to
prepare a strategy to provide accurate information to users.

System quality helps users reduce the time and effort required for information search and sharing, and makes them immerse themselves in information search behavior (Gao et al., 2014). Perceived system quality is a well-designed and established system. A high evaluation of the system quality has a positive effect on business efficiency and customer satisfaction with the system (Jun, Lee, & Jung, 2019).

Social quality is composed of subjective norms, social identity, image factors, and perceptions of altruism, to the extent that it allows the formation of social capital through networks between users and develops relationships and communication (Ko et al., 2011). Subjective norms determine whether or not an individual performs an action, and is determined by the influence of the reference group (Fishbein & Ajen, 1975).

Cho and Kim (2014) remarked on social quality in terms of social quality, the degree to which people around them recommend and support what they use, the degree to which they think sharing information is meaningful, the degree to which they can help other users. It is composed of the degree to which it supports to establish a relationship and to the degree to which it helps people around me to positively recognize me. Besides, they revealed that social quality has a higher influence on behavioral attitudes such as purchase intention or recommendation intention than information quality and service quality.

Mcknight, Choudhury, and Kacmar (2002) argued that even if social media provides high-quality and valuable information, users’ dissatisfaction occurs if system problems such as slow speed or incomplete supplementation of user information occur. Zhou, Li, and Liu (2010) also stated that if the perception of system quality is negative, users will not use social media. In addition, they argued that the more people who use social media on mobile, the more it is necessary to build a system to avoid inconvenience on a small screen.

The concerns of consumers using O2O food delivery services are the taste and ingredients of the food, whether the food is delicious, whether the ingredients are suitable, and the relationship between the food and health that consumers prefer (Subramani, 2015).

2.3. Perceived Service Satisfaction

Oliver (1999) argues that satisfaction refers to the reaction to the perceived evaluation through comparison between the quality expected before purchasing after consumption of the purchased product or service received and the quality perceived after purchase.

Kotler (2009) defined customer satisfaction as an emotion of joy or disappointment that occurs after a customer purchases a product, depending on whether the performance meets the expected level.

Kashif et al. (2016) found that SERVQUAL’s quality factors, customer satisfaction, and customer loyalty had a significant impact relationship.

2.4. Customer Orientation

As the competition among companies intensifies and consumer influence increases, customer-oriented marketing is becoming more important. A customer-oriented attitude maximizes customer satisfaction and improves business performance (Choi, 2018).

Byone (1996) defined customer orientation as providing services according to changes and demands of customers, providing customers with options and provisions for services, and striving for service quality that meets customer preferences. Kotler (2003) emphasized that customer orientation is important for service providers to understand customers’ expectations and desires from the customer’s point of view, and to create a special and discriminatory advantage by effectively satisfying their high needs over other competitors.

Donovan (2001) defined customer orientation as satisfying customer needs and maintaining an edge in competition. He presented customer orientation as a multidimensional concept such as satisfying needs, delivering, understanding needs, and personal relationships. ‘Satisfying needs’ is the attitude of a service provider to respond delicately to the needs of customers, and to provide special services by considering each customer’s importance. It means an effort to understand customers through careful observation and listening to body language.

Most customers tend to continue to use service organizations because of factors such as favorable feelings and intimacy formed in the relationship with the service provider rather than service excellence (Henning-Thurau, 2004).

3. Research Methods and Materials

3.1. A Study Model and Hypothesis

The following hypotheses were established. A research model is shown in Figure 1.

H1: Information quality of O2O food delivery platform service will have a significant positive impact on perceived service satisfaction.

H2: Product quality of O2O food delivery platform service will have a significant positive impact on perceived service satisfaction.

H3: Social quality of O2O food delivery platform service...
will have a significant positive impact on perceived service satisfaction.

**H4:** System quality of O2O food delivery platform service will have a significant positive impact on perceived service satisfaction.

**H5:** Perceived customer orientation will significantly mediate the relationship between information quality of O2O food delivery platform service and perceived service satisfaction.

**H6:** Perceived customer orientation will significantly mediate the relationship between product quality of O2O food delivery platform service and perceived service satisfaction.

**H7:** Perceived customer orientation will significantly mediate the relationship between social quality of O2O food delivery platform service and perceived service satisfaction.

**H8:** Perceived customer orientation will significantly mediate the relationship between system quality of O2O food delivery platform service and perceived service satisfaction.

### 3.2. Configure Questionnaires

The composition of the questionnaire is shown in Table 1.

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Measurement Indicators</th>
<th>Related Study</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Information Quality</strong></td>
<td>O2O food delivery service provides detailed food information.</td>
<td>DeLone &amp; McLean (1992)</td>
</tr>
<tr>
<td></td>
<td>O2O food delivery service provides accurate food information.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>O2O food delivery service provides timely information.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Food information from O2O restaurant delivery service is useful for your choice.</td>
<td></td>
</tr>
<tr>
<td><strong>Product Quality</strong></td>
<td>O2O food delivery service offers a variety of food.</td>
<td>Subramani (2015)</td>
</tr>
<tr>
<td></td>
<td>O2O food delivery service provides delicious food.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>O2O food delivery services provide enough food.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>O2O food delivery service provides high-performance food.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>O2O food delivery service provides fresh food ingredients.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>O2O food delivery service provides hygienic and aesthetic packaging.</td>
<td></td>
</tr>
<tr>
<td><strong>Social Quality</strong></td>
<td>O2O food delivery service provides a place to interact with many people.</td>
<td>Ko et al. (2011), Jo &amp; Kim (2014)</td>
</tr>
<tr>
<td></td>
<td>O2O food delivery service helps other users.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If my family, coworkers, and friends use O2O food delivery service, I think it’s better to use it too.</td>
<td></td>
</tr>
<tr>
<td><strong>System Quality</strong></td>
<td>O2O food delivery service makes it easy to upload posts (photos, articles, etc.).</td>
<td>DeLone &amp; McLean (2003)</td>
</tr>
<tr>
<td></td>
<td>O2O food delivery service is easy to use.</td>
<td>Gao et al. (2014)</td>
</tr>
<tr>
<td></td>
<td>It is convenient to access the contents of the O2O food delivery service.</td>
<td></td>
</tr>
<tr>
<td><strong>Perceived Service Satisfaction</strong></td>
<td>It is satisfactory to order meals on the O2O platform.</td>
<td>Oliver (1999)</td>
</tr>
<tr>
<td></td>
<td>It is pleasant to order meals on the O2O platform.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I think ordering meals on the O2O platform is a very good decision.</td>
<td></td>
</tr>
<tr>
<td><strong>Customer Orientation</strong></td>
<td>O2O food delivery service checks the quality of service to customers from time to time.</td>
<td>Henning-Thurau (2004)</td>
</tr>
<tr>
<td></td>
<td>O2O food delivery service always checks and anticipates the services customers need.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>O2O food delivery service tries to resolve customer complaints.</td>
<td></td>
</tr>
</tbody>
</table>
3.3. Collecting Data and Analysis Method

351 consumers who used China's O2O food delivery platform service were asked to fill out a questionnaire for this study. PLS (Partial Least Square, partial least squares) was used to test the hypothesis set in this study. It has an operation method similar to that of the structural equation model, but PLS is the main purpose of prediction rather than explaining the relationship between factors. PLS is characterized by the advantage of minimizing measurement errors and maximizing the influence of each factor, and it can be said that the analysis is more focused on the prediction by minimizing the errors between measurement variables and prediction errors of potential factors. Also, since it does not follow strict assumptions, it is possible to analyze regardless of the sample size without being limited by the number of variables compared to the structural equation model. It can be said that it is a method that focuses more on the analysis of the explanatory power of the predictor variable for the result variable rather than the fit of the model (Chin, Marcolin, & Newsted, 2003).

4. Empirical Analysis Results

4.1. A Study Model and Hypothesis

When the composite reliability (CR) of the measurement item is 0.7 or higher, it is evaluated to be internally consistent (Fornell & Larcker, 1981). The reliability values shown in this study were all 0.8 or higher, indicating that reliability between constituent concepts was secured (Hair et al., 2006). In the case of the average variance extracted (AVE) value, the value for each variable should exceed 0.5, but this study found that all AVE values were above the reference value. Since the internal validity, Cronbach's α value, and mean extraction variance value for all variables all exceeded the standard value, it can be evaluated that the validity and reliability of the measurement variables used in this study were secured. The analysis results are as shown in the following Table 2.

PLS structural equation model analysis is an analysis of the causal relationship between the measured variables through path analysis, and the path coefficient is randomly reconstructed from the sample of the same size.

Table 2: Validity and Reliability Analysis

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Cronbach's Alpha</th>
<th>Composite Reliability</th>
<th>Average Variance Extracted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Quality</td>
<td>.944</td>
<td>.959</td>
<td>.856</td>
</tr>
<tr>
<td>Product Quality</td>
<td>.955</td>
<td>.965</td>
<td>.848</td>
</tr>
<tr>
<td>Social Quality</td>
<td>.928</td>
<td>.954</td>
<td>.874</td>
</tr>
<tr>
<td>System Quality</td>
<td>.949</td>
<td>.963</td>
<td>.868</td>
</tr>
<tr>
<td>Perceived Customer Orientation</td>
<td>.955</td>
<td>.965</td>
<td>.847</td>
</tr>
<tr>
<td>Perceived Service Satisfaction</td>
<td>.953</td>
<td>.970</td>
<td>.914</td>
</tr>
</tbody>
</table>

A bootstrap sampling method is performed using original extraction (Hair et al., 2014). This study analyzed the significance of the path coefficient through 500 resampling processes using smart pls 3.0. Significance is evaluated through the estimation of the path coefficient and the t-value based on the error, and since bootstrap evaluates non-parameters, it is suggested that evaluation by confidence intervals is desirable (Henseler et al., 2009). At the significance level of 5%, a critical value (t_value=1.96) was applied to determine whether or not each hypothesis was accepted. The path analysis results are shown in table 3.

Table 3: Path Analysis Results

<table>
<thead>
<tr>
<th>Path</th>
<th>coefficient</th>
<th>Mean.boot.</th>
<th>S.E</th>
<th>t_value</th>
<th>P_value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Quality → service satisfaction</td>
<td>-0.125</td>
<td>-0.099</td>
<td>0.135</td>
<td>0.920</td>
<td>0.358</td>
</tr>
<tr>
<td>Product Quality → service satisfaction</td>
<td>-0.206</td>
<td>-0.214</td>
<td>0.190</td>
<td>1.085</td>
<td>0.278</td>
</tr>
<tr>
<td>Social Quality → service satisfaction</td>
<td>0.400</td>
<td>0.382</td>
<td>0.147</td>
<td>2.732</td>
<td>0.007**</td>
</tr>
<tr>
<td>System Quality → service satisfaction</td>
<td>0.231</td>
<td>0.240</td>
<td>0.109</td>
<td>2.118</td>
<td>0.035*</td>
</tr>
</tbody>
</table>

Note: * <.05, ** <.01, *** <.001
Among the service quality characteristics, social quality ($t=2.732$) and system quality ($t=2.118$) were analyzed to have a significant effect on perceived service satisfaction, and hypothesis 3 and hypothesis 4 were supported. However, among the service quality characteristics, information quality ($t=0.920$) and product quality ($t=1.085$) were analyzed to have no significant effect on perceived service satisfaction, and hypothesis 1 and hypothesis 2 were rejected.

The results of analyzing the mediating effect of customer orientation are shown in Table 4 below.

<table>
<thead>
<tr>
<th>Path</th>
<th>coefficient</th>
<th>Mean.boot.</th>
<th>S.E</th>
<th>t_value</th>
<th>P_value</th>
</tr>
</thead>
<tbody>
<tr>
<td>information quality → customer orientation → service satisfaction</td>
<td>0.196</td>
<td>0.189</td>
<td>0.079</td>
<td>2.473</td>
<td>0.014*</td>
</tr>
<tr>
<td>product quality → customer orientation → service satisfaction</td>
<td>0.340</td>
<td>0.345</td>
<td>0.128</td>
<td>2.656</td>
<td>0.008**</td>
</tr>
<tr>
<td>social quality → customer orientation → service satisfaction</td>
<td>0.045</td>
<td>0.044</td>
<td>0.065</td>
<td>0.687</td>
<td>0.492</td>
</tr>
<tr>
<td>system quality → customer orientation → service satisfaction</td>
<td>0.085</td>
<td>0.079</td>
<td>0.083</td>
<td>1.023</td>
<td>0.307</td>
</tr>
</tbody>
</table>

Note: ‘*’ <.05, ‘**’ <.01, ‘***’ <.001

Information quality did not directly affect perceived service satisfaction, but it was found that it had a positive and significant effect on service satisfaction through perceived customer orientation. Also, it was confirmed that product quality also had a positive and significant effect on service satisfaction only through perceived customer orientation. Therefore, customer orientation completely mediated the relationship between information quality (or product quality) and perceived service satisfaction. Therefore, hypotheses 5 and 6 were adopted. However, hypotheses 7 and 8 were rejected.

5. Results and Discussion

This study analyzed the effects of the service quality of China's O2O food delivery service platform on perceived service satisfaction.

The following research results were found by constructing a conceptual model between variables through literature research and verifying the model through empirical research.

First, it was found that among the service quality of O2O food delivery service platform, information quality and product quality did not directly affect service satisfaction. Therefore, hypothesis 1 was rejected. As a result of this, it was confirmed that even if the information quality is high, service satisfaction does not directly increase.

Second, it was confirmed that among the service quality of O2O food delivery service platform, information quality and product quality had a positive and significant effect on perceived service satisfaction only through perceived customer orientation. Based on this result, when managing information quality and product quality, it suggests that customers' perceived service satisfaction can increase when priority is given to solving problems and understanding customer needs. As customers' expectations increased, it was found that it is important to solve service problems and provide personalized products from the perspective of customers in managing information quality and product quality, which is the service quality of the O2O food delivery service platform.

Third, it was found that the service quality of the O2O food delivery service platform, social quality, and system quality had a direct effect on service satisfaction.

The implications of this study are as follows. Due to the rapid evolution of IT information technology and smartphones, consumers are using applications in all areas of real life. In reflection of these changes in consumer behavior, research on the service quality and continued use intention of delivery apps reflecting IT technology was conducted in the restaurant service industry. In this context, this study is meaningful in that the research was conducted by subdividing the service quality perceived by customers using food delivery apps in detail.

Also, the influence of information quality and product quality on service satisfaction among the service quality factors was thoroughly verified. Through this, a theoretical basis that must be accompanied by the concept of customer orientation among service quality using delivery apps was presented.

It was found that social quality and system quality directly affect the satisfaction of O2O food delivery service. Through this, it was confirmed that it is important that close acquaintances and several people use the O2O food delivery app, and that the system quality needs to be improved by increasing the usability and ease of use.

The limitations of this study and future research directions are as follows.

This study used 351 subjects for statistical analysis. However, when considering the number of users of China's
O2O food delivery platform service, there is a limit on the size of the sample. Besides, the subjects of the study were Chinese. In future research, it would be good to get different results and implications for consumers in other countries such as Korea.

In this study, service quality was classified into four dimensions (information quality, product quality, social quality, and system quality). However, there are many more different dimensions of service quality. In the future, it is necessary to confirm the effect of more dimensions of service quality.

References


