

Assessing E-Customer Loyalty in Relation to Customer Satisfaction during COVID-19 Pandemic using M-S-Qual Model

**Mary Ann Pimentel, Jlord Jeus Czar Ramiterre, Venusmar Quevedo
and Sheila Mae Carungay**

Department of Industrial Engineering
College of Engineering

Adamson University, Manila, Philippines

mary.ann.pimentel@adamson.edu.ph, jlord.jeus.czar.ramiterre@adamson.edu.ph,
venusmar.quevedo@adamson.edu.ph, sheila.mae.carungay@adamson.edu.ph

Abstract

This paper extends the research on understanding of the essence and specification, as well as the relevance of the online service industry that affects customer loyalty in relation to their satisfaction in the Philippine context. Quantitative method was utilized in the study by quantifying four hundred Filipino online shopper's respondents to provide a comprehensive information of which from 9 dimensions of mobile service quality (Efficiency, System Availability, Content, Privacy, Fulfillment, Responsiveness, Compensation, Contact, and Billing) positively affects the customer satisfaction and understand the level of customer loyalty under the covid-19 pandemic. The results were drafted and analyzed using Service Quality Gaps, Ordinal Logistic Regression, and Spearman Correlation Analysis. The modified model found the surge of online sales under the pandemic can impact the overall expectation and perception of customers towards online shopping. It is further concluded that the significant factors that have a major influence on the customer satisfaction and loyalty are efficiency, fulfillment, and content. The results also suggest that the customer's loyalty are antecedents of customer satisfaction.

Keywords

Customer Loyalty, Serv-Qual, Mobile Service Quality, Customer Satisfaction, Spearman Correlation Analysis

1. Introduction

Online shopping platforms are growing rapidly and has become a trend for business ideas in the Philippines with the emerging technology of m-commerce, especially during the time of pandemic. The demand for online shopping for a wide variety of products, from essential goods to luxury goods has been rapidly increasing. The greatest challenge for mobile service providers is the delivery of high-quality service (Veloso et al., 2017). A strategic objective based on services is a crucial success factor for survival in a strong competitive e-environment (Rita et. al., 2019). In this regard, mobile service providers pay particular attention to monitoring and improving service quality that significantly influence customer satisfaction and loyalty, which are determinant variables in maximizing profit and establishing competitive edge (Elizar et. al., 2020). The quality improvement greatly influences customer satisfaction and loyalty, in both manufacturing and service industries. It implies that companies must first receive a favorable response from its customer before customer satisfaction and loyalty is established (Yusra and Agus, 2019). Mobile service providers aiming to deliver excellent services must consider how users view their mobile services, and this awareness includes a way of evaluating the efficiency of their services (Huang, 2015). However, it is still critical for service providers to have a good and clear understanding of exactly what the customer expectations and perceptions. In a continuously changing world, the expectation of customers changes rapidly. (Pankaj, et al., 2018). It has become imperative for service providers to assess whether they meet customer needs and expectations which is measured by aspects like online service quality, satisfaction and loyalty to customers. Numerous studies in the service industry have investigated that service quality is a significant antecedent of satisfaction (Cronin and Taylor, 1992; Veloso et al., 2017; Zaibaf et al., 2012; Zhang and Prybutok, 2005). The key to customer satisfaction lies in identifying and assessing customer perception and expectation (Parasuraman, et.al., 1985).

The pandemic has caused a shift in consumer behavior and activity, which has had a direct impact on the e-commerce business (Basu, P. & Raina, R., 2020). While crucial in protecting public health against the spread of COVID-19, the enhanced community quarantine as well as other quarantine/lockdown policies severely curtailed business activity across much of the Philippines (ADB, 2020). The fact that only essentials, particularly medical goods, are available, as well as people's aversion to spending money beyond their means, presents both constraints and opportunities (Basu, P. & Raina, R., 2020). Some firms are thriving, while others are struggling. This is true for a variety of Internet-based enterprises, including online entertainment, food delivery, shopping, online education, and flexible workplace solutions (Donthu, N. & Gustafsson A., 2020). The absence of consumer demand puts firms' financial capacity to stay afloat, as well as their ability to maintain their employees, to the test. Some MSMEs are attempting to meet today's demand pattern by providing online and delivery services (Barretto, A., 2020). Customers were driven to utilize the internet and make it a habit in their usual life as a result of the Coronavirus (Bhatti, A. et.al, 2020). This encouraged e-commerce companies to extend their market share and inspired traditional merchants to enter the online sector (Oxford Business Group, 2021).

Entrepreneurs have embraced the digital phenomena for online selling even more as people resort to online purchasing because of pandemic constraints (Arreola, R., 2020). According to Davis, S. & Toney, L. (2020), last 2020, mobile retail commerce sales increased by 31.5 percent, and they are predicted to increase by another 28.8 percent this year. Mobile retail revenue will reach \$432 billion in 2022, up 25.1 percent from 2021. In Southeast Asia, the Philippines had seen the greatest increase in the use of shopping applications (53 percent) (Caña, P., 2020). According to a report released in March 2020 by payments provider PPRO, 78 percent of Filipino customers, surveyed by We Are Social and social media management platform Hootsuite, had made an e-commerce purchase in the previous month by July 2020. A total of 64 percent used a mobile device to make this purchase, which is higher than the global average of 52 percent (Oxford Business Group, 2021).

With the emerging usage of smartphone and market penetration, causing mobile commerce (m-commerce) to become an increasingly important platform that has drawn much attention in the market industry (Ashraf et al., 2016). According to Statista (2020), the number of e-Commerce users in the Philippines is expected to amount to 53.6 million by 2024, whereas the revenue in the e-Commerce market is projected to reach US\$7,665 million in 2025, an increase of 183.7% from 2020.

However, according to recent studies; m-commerce is still in its early stages (Ashraf 2016). Therefore, the understanding of the essence and specification, as well as the relevance of the online service industry affects the consumer satisfactions and loyalty. Due to such fierce competition faced by the online shopping service providers, it is very crucial for the service to have a better understanding of the essence and specification, as well as the consumer's perception and expectation of them to provide and maintain them as customers. Closing or eliminating the gaps between the customer expectations and perception on the service quality can provide utmost satisfaction to the customers, which could lead to customer retention.

Customer perception study is important to identify the needs of the customer. By measuring the customer satisfaction perceived by the service quality, it provides understanding of which customer's expectations are fulfilled and which other factors need to be satisfied; determining their preference, expectations and wants on service quality - helps in understanding customer's needs and create strategies to satisfy the customers (Chandrasekhar, 2019). Hence, quality is the ultimate measurement of customer satisfaction. Only the customer can define the quality of service or product.

As the m-commerce technology emerges, the online shopping platforms are growing rapidly and has become a trend for business ideas in the Philippines. And with the increasing competition in m-commerce, it has become imperative for the mobile service providers to have a better understanding of customer's perception and expectation of their service in order to gain their loyalty and attract more users.

Thus, this research aims to identify the relationship between the customers' level of loyalty and their satisfaction with the service provided by online shopping providers from different online shopping platforms.

Specifically, this research answers the following questions:

- i. What is the respondent's level of online shopping satisfaction in terms of the 9 dimensions of mobile service quality?

- ii. What are the significant factors that have a major influence on customer's online shopping satisfaction and loyalty?
- iii. What is the relationship between customer satisfaction and customer loyalty?

1.1 Objectives

The primary objective of this research is to identify the level of loyalty of the customers in relation to their satisfaction with the service provided by online shopping providers from different online shopping platforms.

The researchers' specific objectives are the following:

- i. To determine the respondent's level of virtual product shopping satisfaction in terms of the 9 dimensions of mobile service quality.
- ii. To determine the significant factors that have a major influence on customer's online shopping satisfaction and loyalty.
- iii. To identify the relationship between customer satisfaction and customer loyalty.

2. Literature Review

1.1 Online Shopping

Online shopping has grown worldwide in recent years. As the Internet increases in reach and prominence, more and more people are becoming more familiar with it and using it as a tool for looking for information and shopping online (Lissitsa & Kol, 2016). The remarkable growth of online service providers for the last two decades has undeniably raised the excessively ambitious aspirations of online business to consumer (B2C) business (Celik, 2016). Most consumers have realized the value of online shopping in their daily lives, such as addressing space and time constraints, accessibility, affordable pricing, professional advice, personalized support and information sharing (Lim, 2015). After its transformation to a global knowledge exchange and distribution network, the Internet has evolved as a valuable marketing medium to serve as a forum for domestic and foreign transactions (Lim, et.al. 2016)

Online shopping is rising so rapidly that the scale of the global online shopping industry is expected to exceed 4 trillion by 2020. And in the US alone, we plan to see 300 million online shoppers in 2023 (Ouellette, 2020). According to Statista.com (2020) retail e-commerce sales globally amounted to US\$3.53 trillion in 2019, which is expected to increase to US\$6.54 trillion in 2022. While The overall amount of e-commerce spending in South East Asia rose by more than US\$50 billion in 2018, up more than 20% compared to 2017, which is still expected to increase since when it comes to mobile commerce, online shoppers across Southeast Asia are much more involved, with three countries in the region making the top five in the worldwide (datareportal.com, 2019).

2.2 Online Shopping Trend in the Philippines

Filipinos being the heaviest internet users worldwide, spending an average of 10 hours and 2 minutes a day, according to Hootsuite (2019), it will be no surprise that the Philippines' e-commerce market size will reach from 9 billion U.S. dollars in 2019 to 12 billion U.S. dollars by 2025 according to statista.com (2020). According to datareportal.com (2019), GlobalWebIndex reported that Philippines has matched the global average of purchasing online at 75%, being the top 7th in Southeast Asia with the most percentage of internet users who purchased online.

2.3 E-customer Satisfaction & E-loyalty

According to M. F. Shamsudin et al (2015), customers, regardless of its size, is the company's main revenue driver and profit generator. These factors are the key for the company's sustainability (Mustafa B, 2015) and long term market expansion (M. F. Shamsudin et al., 2019). This refers to the level of customer satisfaction provided by the company.

Customer satisfaction becomes an important factor for a company (Cheshin et al., 2018). According to Mei-Ying Wu et al (2015) customer satisfaction is a function of the difference between the perceived performance and expectation. Therefore, it is an evaluation of pleasure fulfillment accumulated from the comparison between perceptions of the performance or quality of a product or service and personal anticipations. M. F. Shamsudin et al. (2018) believed that customer satisfaction should stand as the core of a company's planning strategy to achieve sustainability and expansion.

In fact, a number of studies proved that customer satisfaction has a positive and significant impact on overall company's success. According to M. F. Shamsudin et. Al (2019), a satisfied customer has a high probability to repeat its buying experience. This way will help the company, not only preserving the customer, it also helps the company to expand its profit and create new avenues for new customers.

However, a number of companies fail to understand the concept on how to enhance it and what are the factors affecting customer's satisfactions (Alarussi and Alhaderi, 2018). Contrary to satisfaction, customer dissatisfaction can negatively impact any type of business. Alternatively, it can destroy a business (Yang et al., 2018). In today's digital age, a customer's bad experience with a business can spread to a larger audience with a single tweet through social media and can destroy the company's reputation. Borshade et al. (2018) stated that dissatisfied customers are likely to share their buying experience to more than 20 people. Furthermore, an estimated 96% of unhappy customers tend to not complain about its buying experience, however 91% of those are more likely to not complain and never come back. (Peterson et al., 2018).

Therefore, it is important for a company to take preparatory measures to ensure customer satisfaction is maintained and establish customer relationships. According to previous studies, customer satisfaction is a significant antecedent of customer loyalty, engagement and service quality (Wu et al., 2015; Abror et al., 2019). By measuring the customer satisfaction, it helps to understand the concept of customer expectation and perceived quality and performance; create an effective strategy to understand the customers demand to satisfy them (Chandrasekhar, 2019).

The concept of customer e-loyalty has parallels with the same concept of loyalty to a retail industry, in the sense that loyalty to a retail industry creates purchase behaviors and repeated visits to the store (Al-dweeri et al., 2015). To date there have been a lot of articles published that indicate how the nature of e-service quality influences e-loyalty (Visansakon, & Saowapakpongchai, 2015; Wu et al., 2015; Abror et al., 2019). Nonetheless, these papers do not distinguish the two types of loyalty, behavioral and attitudinal. Attitudinal loyalty refers to a customer's psychological attachment with a brand or product (Saini & Singh, (2020). Behavioral refers to having a positive attitude that leads to customers repurchase frequency over time (Shafiee & Bazargan, 2018). By this means, e-loyalty, or loyalty in general, does not solely about customers repurchase behavior, and nor about commitment, but these factors should be considered.

2.4 ServQual and ES-Qual

Measuring service quality has been a significant area in the marketing literature over the last few decades. In 1985, Parasuraman, Zeithaml, and Berry introduced a model that measures the gap between customer's expectation and perception on the service provided (Ghotb Abadi et al., 2015). At first, they proposed ten dimensions to measure service quality; tangibles, reliability, responsiveness, competence, courtesy, credibility, security, access, communication and understanding the customer. But in 1988, they reduced the dimensions into five; reliability (the ability to perform the promised service dependably and accurately), assurance (the knowledge and courtesy of employees and their ability to inspire trust and confidence, and tangibles (the physical facilities, equipment, and appearance of personnel) with 22 item attributes that measures the performance across these five dimensions using Likert scale. (Yarimaglo, 2015), empathy (the caring, individualized attention the firm provides its customers), responsiveness (the willingness to help customers and provide prompt service) (Pakurar et al., 2019; Palese et al., 2018) or RATER model.

SERVQUAL models, as shown in Figure 1, have been utilized in measuring service quality of several industries (healthcare, banking, hospitality and tourism, and education). It has become the most used model to evaluate the quality of services both researchers and practitioners (Palese et al., 2018) because of its positive impact on organization's performance, customer satisfaction, customer loyalty, lower cost, and profitability (Rahman, 2015). Usman Ahmad Qadri (2015), measured the level of gap between excellent bank (expectation) and account holder's experience (perception) among the banking customer in Pakistan with the regards of service quality. Qolipour et al., (2018) assessed the quality of public and private hospital services in Iraq through 250 patients' perspective using SERVQUAL model to improve their weaknesses. Stefano et al., (2015) evaluate the quality of a large hotel in Brazil using the fuzzy SERVQUAL in order to provide high quality service. While, Gregory J.L. (2019) investigated how one program applied SERVQUAL model helps to identify opportunities for growth.

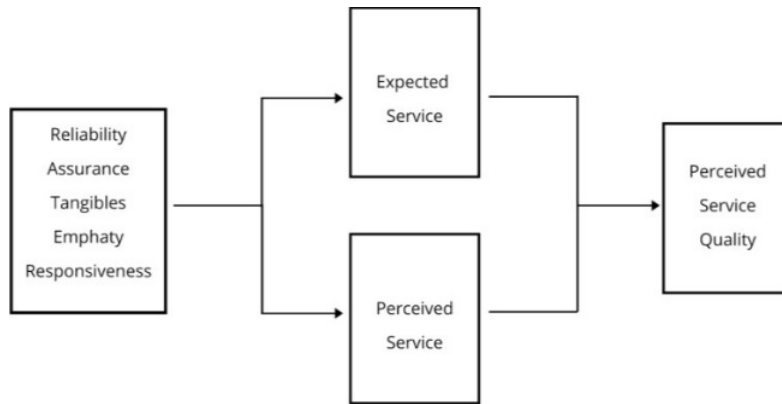


Figure 1. The conceptual framework SERVQUAL Model (Parasuraman et al. 1988)

With the growth of the e-service environment in numerous industries, researchers recognized the importance of e-Service Quality (Zhou et al. 2018). Many measurement scales have been modified into several models for e-service (Rita et al, 2019). Clearly, the SERVQUAL model mentioned above is not appropriate to measure e-service.

In 2005, Parasuraman et al. proposed ES-QUAL (electronic service quality) and E-RecS-QUAL (e-service quality recovery) model for measuring e-service (e-retailing) quality. ES-QUAL is the main service quality measurement assessing service quality delivered by Web sites. While E-RecS-QUAL measures the quality of recovery services provided by Web sites (Yarimoglu, 2015).

ES-QUAL includes four dimension and 22 item attributes; efficiency fulfillment, system availability, and privacy. E-RecS-QUAL is composed of three dimensions and 11 item attributes: responsiveness, compensation and contact, shown in Figure 2 below. According to several studies, ES-QUAL has a positive impact on customer satisfaction (Kao et al., 2016; Amin, M., 2016; Su et al., 2016). Also several studies proved that customer satisfaction and customer loyalty have significant relationships (Blut et al., 2015; Amin, M., 2016; Kao et al., 2016). ES-QUAL has a positive impact on an organization's performance, customer satisfaction, and profitability for an online service environment just as SERVQUAL does in a traditional service environment.

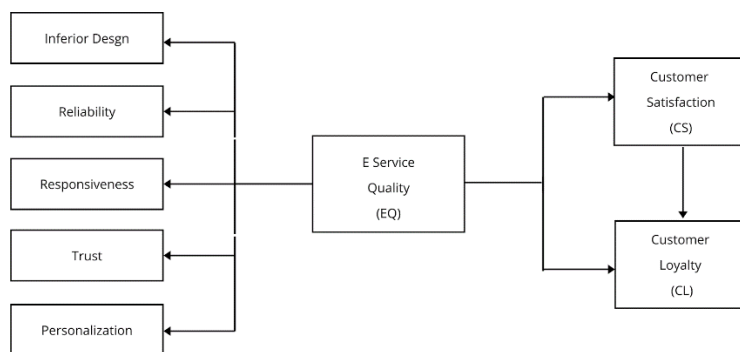


Figure 2. The conceptual framework model for ES-QUAL (Parasuraman et al. 2005)

2.5 MS-Qual

According to Paiz et al., (2020), the advancement of mobile device technology has resulted in the growth of mobile commerce. This increasing growth has contributed to the expansion of mobile commerce (Nguyen et al., 2018). With this growth opportunity, mobile service providers face challenges due to the tight competition and customer's changeable demand. (Prihantoro et al., 2018; Sandrin et al., 2016).

Indeed, mobile commerce is a highly competitive market with a changeable, unpredictable and unstable customer demand (Sandrin et al., 2016). Therefore, mobile service providers should improve their service quality to fulfill the

customer satisfaction (Ulkhaj et al 2019). They must understand how customers perceive their mobile service to deliver a superior service. (Huang et al., 2015).

The Mobile Service Quality (M-S-Qual) enables mobile service providers to measure the quality of their mobile services and determine the factor affecting customer satisfaction (Huang et al., 2015). Although many measurements, such as Serv-Qual and E-S-Qual that can assess the service quality in general, M-S-Qual are specifically designed to assess service quality in the mobile environment (Huang et al., 2015).

Huang et al., (2015) introduced M-S-Qual which aims to measure the two mobile commerce shopping experiences; the virtual and physical products. It consists of two parts, which measures shopping experiences for virtual and physical products. The dimensions for virtual shopping experience are efficiency, fulfillment, privacy, and contact, responsive with 16 item attributes and for physical products are content, responsiveness, compensation, and billing with 25 item attributes, shown in Figure 3 below.

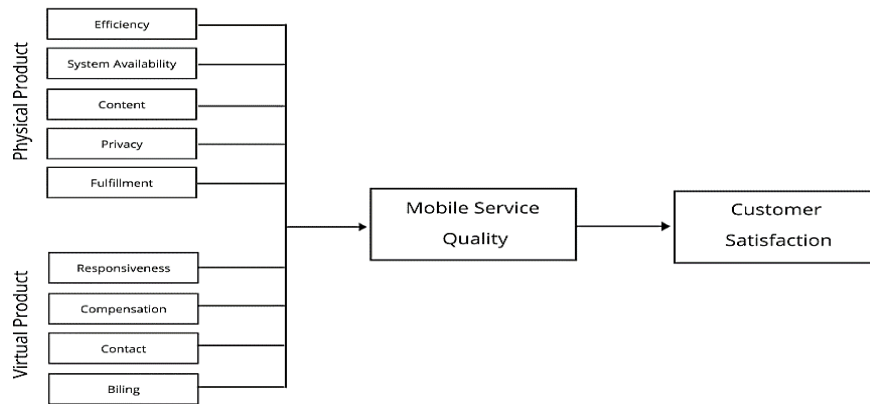


Figure 3. Conceptual Framework of MS-QUAL

3. Methods

This study evaluates significant variables in assessing the dynamic correlation of the perceived and expected customer satisfaction and loyalty on online shopping platforms using Mobile Service Quality Model. To achieve the objective of this study, the researchers will be using Quantitative Research Design as the method of research. This could allow researchers to achieve an accurate result as well as provide comprehensive information of which of the 9 dimensions of mobile service quality positively affects the customer satisfaction in purchasing online, and understand the level of customer loyalty during the pandemic. The gathered data will be subjected to statistical analysis and software.

3.1 Research Instrument

In order to form questionnaire, the researchers used a standardized questionnaire for M-S-Qual that is designed by Huang et al. (2015). The questionnaire was modified in order to make it more suitable for respondents and appropriate attributes. The modified questionnaire removes excessive items which contain similar attributes. The modified questionnaire includes 9 dimensions of mobile service quality namely: efficiency, system availability, content, privacy, fulfillment, responsiveness, compensation, contact, and billing, with 28 (from 52) attributes overall. The respondents evaluated the questionnaire on a 7-point Likert scale, which equivalent to 1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = neutral, 5 = somewhat agree, 6 = agree, and 7 = strongly agree.

For the reliability test of the questionnaire, the researchers used the Cronbach's Alpha reliability test. According to Taherdoost (2016), when using Likert scales, Cronbach's Alpha is regarded as the most suitable test of reliability.

In analyzing data gathered, the researcher used the M-ServQual model to measure service gaps between customers' perceived expectation and performance of the service quality provided by online shopping platforms in the Philippines. Measuring the quality gaps, the researcher can determine the virtual satisfaction level of the customers towards the online shopping platform they patronize. Hence, the service quality is a fundamental antecedent to the level of customer satisfaction (Wu et al., 2015; Abror et al., 2019). Therefore, measuring the service quality gaps can gauge

the overall level of customer satisfaction. In order to analyze the factors affecting customer satisfaction and loyalty, the researchers used Ordinal Logistic Regression to determine which factors associated between variables. Spearman's Rank Correlation or Spearman's rho was used for measuring the strength of relationship between two targeted variables for correlation analysis purposes.

For analyzing the gathered data, the researcher used the IBM – SPSS and Microsoft Excel Software.

The researchers conducted surveys online to gather data that are needed in the study. The structured questionnaire consists of five sections, each of which contains relevant questions pertaining different parts of the study. The first section determines the respondents profile and their online purchase activity. The second and third section is the M-S-Qual structured questionnaire which determines the respondent's expectations on the quality of services towards online shopping platforms before they availed their services in terms of the 9 dimensions of mobile service quality namely: Efficiency, System Availability, Content, Privacy, Fulfillment, Responsiveness, Compensation, Contact, and Billing with a 28 item scale, and determines the respondent's perception on the quality of services towards online shopping platforms after they avail their services in terms of the 9 dimensions of mobile service quality. The fourth section determines the respondent's overall satisfaction rating on the quality of service that they have experienced in using the online shopping platform. And lastly, the fifth section determines the respondent's level of loyalty to the online shopping platform they patronized. The questionnaire was framed in the format of a 7-point-likert scale.

The purpose of this survey is to assess m-commerce service quality for virtual and physical shopping experience. Thus, the scale was designed to assess m-commerce shopping experiences for both virtual and physical products.

The researchers used a purposive sampling method to identify the respondents of the study. Purposive sampling technique is a non-profitability sampling technique which makes use of the expert's judgement in the selection of cases or chooses cases with a particular intent in mind. Participants are selected on the basis of the attributes they embody that were necessary in the research.

The researchers used Slovin's formula to identify the number of respondents needed in the study.

4. Data Collection

Based on the objective of the study, the data is obtained through gathering of survey results to determine the perception and expectation of customers on online shopping platforms. The researchers collected the primary data from the structured survey questionnaires that they distributed among the online shoppers of Metro Manila through different social media sites.

5. Results and Discussion

This chapter provides overview on the analysis and discussion of the data gathered from the instrument used. To analyze the result, the researchers used SPSS to present the level of satisfaction towards online shopping platforms during pandemic, reliability test, correlation, and descriptive analysis. This chapter also shows the frequency and percentage distribution of the survey result.

Table 1. Reliability Test

Cronbach's Alpha	Cronbach's Alpha based on Standardized Item	Number of Respondents
.998	.998	400

The Table 1 shows the reliability test of the 89 items Likert scale data gathered from 400 online shopping customers. Cronbach's Alpha was used to measure the reliability of each item used in the survey. The result indicates a high level of internal consistency for the 7-point Likert scale of our sample with a value of .988. According to Taber (2018), the data are reliable if the alpha value is greater than the acceptable value which is 0.70.

5.1 Numerical Results

Table 2. Overall Satisfaction for 9 Service Quality Dimensions

Statement	Strongly Dissatisfied	Dissatisfied	Somewhat Dissatisfied	Neutral	Somewhat Satisfied	Satisfied	Strongly Satisfied
Overall Satisfaction	0%	0.2%	0%	5.5%	22.4%	41.6%	29.9%
Overall Efficiency	0%	0.2%	0.5%	5.2%	21.2%	41.4%	31.2%
Overall System Availability	0%	0.5	0.2%	6.5%	16.7%	40.6%	35.2%
Overall Content	0%	0.2%	1.0%	7.5%	20.0%	37.9%	32.9%
Overall Privacy	1.0%	0.5%	3.0%	12.0%	21.4%	29.9%	31.9%
Overall Fulfillment	0%	0.2%	1.2%	7.5%	20.0%	36.4%	34.4%
Overall Responsiveness	0.2%	1.0%	2.2%	10.0%	23.7%	33.7%	28.9%
Overall Compensation	0.7%	1.7%	1.7%	23.5%	22.9%	33.2%	25.9%
Overall Contact	1.0%	1.0%	1.0%	14.2%	21.2%	35.2%	26.2%
Overall Billing	0%	0%	0.5%	7.0%	15.5%	35.7%	41.1%

Table 2 shows the percent distribution of the overall satisfaction of the customers with the online shopping platform they frequently use during the pandemic, and the overall satisfaction on the 9 dimensions of mobile service quality. Most of the respondents were satisfied in terms of the overall satisfaction, overall efficiency, overall system availability, overall content, overall fulfillment, overall responsiveness, overall compensation, and overall contact, with the corresponding percent distribution of 41.6%, 41.4%, 40.6%, 37.9%, 36.4%, 33.7%, 33.2%, and 35.2%, respectively. While in terms of the overall privacy and overall billing, most of the respondents said that they are strongly satisfied with the percent distribution of 31.9% and 41.1%, respectively.

Table 3. Customers' Loyalty towards Online Shopping Platform

Statement	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
Loyalty 1	0.2%	1.0%	1.2%	3.2%	12.7%	33.9%	47.4%
Loyalty 2	0.2%	0.5%	1.0%	5.5%	16.7%	32.4%	43.4%
Loyalty 3	0.5%	1.2%	1.7%	5.2%	16.7%	30.2%	44.1%
Loyalty 4	2.5%	1.2%	3.7%	13.7%	24.2%	28.7%	25.7%
Loyalty 5	3.2%	3.0%	5.0%	18.0%	22.2%	24.7%	23.7%

Table 3 shows the frequency distribution of the respondents' loyalty to the online shopping platform they are frequently using. On the first statement which states that they will recommend this online shopping platform to others, 47.4% of the respondents strongly agree. For the second statement which states that they will do more business with the platform for the next purchases, 43.4% of the respondents strongly agree, which is also same for the third statement that states that they will consider the platform to be their first choice in shopping online, with 44.1% of the respondents strongly agree. While for the fourth statement where they will continue to do business with the platform even if its price increases somewhat but no new service/product is available, and the last statement which states that, they will not take their business to a competitor that offers better prices and discounts, most of the respondents responded "agree" with the percent distribution of 28.7% and 24.7%, respectively.

Table 4. Service Gap of Service Quality on Online Shopping Platform

Dimensions	CP	CE	Gap
The online shopping platform will be user friendly.	6.23	6.21	0.02
The online shopping platform will enable me to complete a transaction quickly.	6.17	6.26	-0.09
The online shopping platform will be well organized.	5.98	6.11	-0.13
Efficiency	6.13	6.27	-0.07
This online shopping platform will always be available for business	6.15	6.27	-0.12

This online shopping platform will launch and run smoothly.	5.92	6.05	0.13
System Availability	6.04	6.16	-0.13
The content of the online shopping platform will be concise and accurate.	5.75	5.82	-0.07
This online shopping platform will provide complete, appropriate and important content.	5.80	5.96	-0.16
The online shopping platform will provide regularly updated content.	5.86	6.04	-0.18
Content	5.80	5.94	-0.14
The platform will protect my personal information	5.75	5.90	-0.15
The platform will not share my personal information with other mobile sites	5.75	5.95	-0.20
Privacy	5.75	5.93	-0.18
The online shopping platform will deliver orders within the timeframe promised.	5.67	5.91	-0.15
This online shopping platform will make items available for delivery within time frame.	5.85	6.04	-0.19
This platform will be truthful about its offerings.	5.48	5.64	-0.16
When the order is completed, the order information will be sent in a timely fashion.	5.91	6.02	-0.11
Fulfillment	5.75	5.90	-0.15
The online shopping platform will provide me with convenient options for returning items.	5.41	5.65	-0.24
The online shopping platform will handle product returns well.	5.41	5.62	-0.21
The online shopping platform will offer a meaningful guarantee in returning the item.	5.41	5.61	-0.20
The platform will tell me what to do if my transaction is not processed.	5.56	5.90	-0.34
This online shopping platform will provide a telephone number to reach the company.	5.41	5.63	-0.22
This online shopping platform will have customer service representatives available online.	5.55	5.79	-0.24
Responsiveness	5.46	5.70	-0.24
The online shopping platform will compensate me for problems it creates.	5.38	5.56	-0.18
Compensation	5.38	5.56	-0.18
The service agents will provide consistent advice.	5.43	5.71	-0.28
The customer service representatives will be polite.	5.68	5.88	-0.20
Contact	5.56	5.80	-0.24
The online shopping platform will provide convenient payment procedures.	6.12	6.30	-0.21
The platform will provide accurate billing.	6.09	6.26	-0.17
The company will resolve billing issues quickly	5.76	5.91	-0.15
The prices of the products and services available at the platform will be economical	5.88	6.07	-0.19
The platform will offer a variety of price schedules.	5.88	6.01	-0.13
Billing	5.94	6.11	-0.17

Note: CP = Customer Perception; CE = Customer Expectation; Service Gap = Perception-Expectation

Table 4 shows that all the M-SERVQUAL dimensions for customer online shopping perception were lower than their expectation. The dimensions with largest gaps are associated with the efficiency and responsiveness of customer service representatives. Indicating that the online shopping performance of this dimension failed to reach the expectation of online customers on these two attributes. While, the overall dimension gaps of Privacy and Compensation are -0.18. Indicating that the online shopping providers are unable to meet the expectation on handling feedback and privacy of the customers online. This was followed by Billing Dimension with a quality gap of -0.17 which was associated with the level satisfaction of the payment convenient online. Therefore, the customers were dissatisfied with all the service performance provided by the online shopping platforms during the COVID-19 pandemic as it was perceived not to meet customer expectation in the M-SERVQUAL dimensions.

Table 5. Parameter Estimates of Customer Satisfaction and Customer Loyalty

	Customer Satisfaction		Customer Loyalty		
	Estimates	Sig	Estimates	Sig	
Location	Perception on Efficiency	.493	.004	.731	<.001
	Perception on System Availability	.288	.088	.243	.113
	Perception on Content	.237	.198	.373	0.26

Perception on Privacy	.200	.072	.091	.365
Perception on Fulfillment	.573	<.001	.076	.620
Perception on Responsiveness	.034	.857	.308	0.68
Perception on Compensation	.007	.091	.188	.088
Perception on Contact	.109	.433	-.036	.772
Perception on Billing	-.002	.998	.206	.171
P-value		$p < .001$		$p < .001$
Pseudo R ²	Nagelkerke	.439		.498

Table 5 shows the estimates of the coefficient, p value, and Pseudo R². The result indicates the model is statistically significant and better model fit. In terms of magnitude of coefficient, customers' Perception on Efficiency, Fulfillment and Content are statistically significant. The result suggests that the two perceptions are statistically significant and significant factors that greatly impact customer satisfaction and loyalty on online shopping platforms they patronize.

Table 6. Spearman's Correlation Matrix of Overall Satisfaction towards Loyalty

	OS	L1	L2	L3	L4	L5	OL
Overall Satisfaction	1						
Loyalty 1	.548**	1					
Loyalty 2	.528**	.744**	1				
Loyalty 3	.473**	.678**	.630**	1			
Loyalty 4	.474**	.589**	.578**	.591**	1		
Loyalty 5	.447**	.383**	.336**	.384**	.598**	1	
Overall Loyalty	.607**	.782**	.753**	.760**	.867**	.747**	1

Note: **. Correlation is significant at the 0.01 level (2-tailed). Sig. (2tailed) for all values are <0.001

In the correlation Analysis, which shown in Table 6, Spearman's rho was used to determine the bivariate linear relationship between overall satisfaction and customer loyalty on online shopping platforms. The spearman's correlation coefficient indicates a very strong positive relationship between these variables ($\rho = .548$) and ($\rho = .528$). While, variable coefficient of ($\rho = .473$), ($\rho = .474$), and ($\rho = .447$) shows a strong relationship between the two variables. The overall customer satisfaction and loyalty coefficient ($\rho = .607$) suggest that these two variables have a very strong positive relationship. The test significant indicates that with $p < 0.001$, we can reject the null hypothesis that both variables are independent in the general population. Therefore, we can conclude that with a confidence level of more than 95% the observed positive correlation between overall satisfaction and loyalty are interdependent.

5.2 Graphical Result

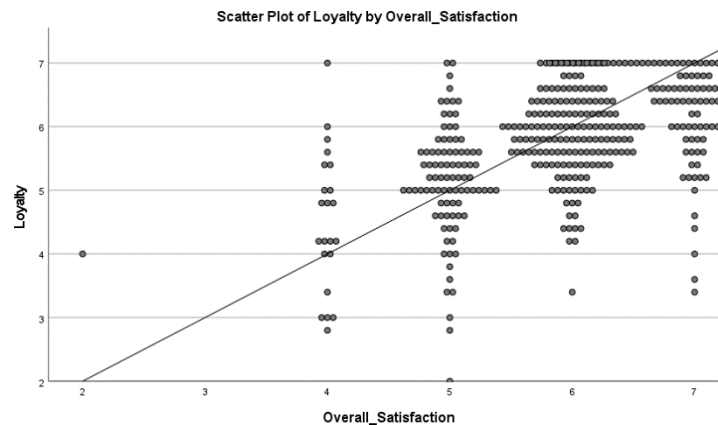


Figure 4. Scatter Plot between Overall Satisfaction and Loyalty

Figure 4 shows the scatter plot between overall satisfaction and loyalty. It indicates a moderate positive relationship between two variables as the graph shows an uphill trend. It suggests that when customer's satisfaction increases (moving to the right), the chance of customer retention is also increasing (moving upward) which indicates high quality of m-service. It is also observed that the correlation coefficient between overall satisfaction and loyalty lies between 5.

6. Conclusion

Indeed, COVID-19 pandemic reshaped the consumer trends in the Philippines and, globally due to inevitable adaptation to digitalization, Ecommerce have embraced the digital phenomenon. It is obvious that this shift demand challenges to satisfy customers' need which is represents a key driving force in enhancing competitive and delivering service quality. Therefore, the purpose of this study is to identify the factors affecting customer online shopping satisfaction in relation to customer loyalty from the response of 400 online shopping customers.

Research question 1: What is the respondent's level of online shopping satisfaction in terms of the 9 dimensions of mobile service quality?

The level of online satisfaction in terms of nine dimensions of mobile service quality was measured using service quality gap. The scores of nine M-ServQual dimensions were all negative, indicating that the performance failed to reach the customers' expectations mainly on contact and responsiveness dimension which has the largest gaps. The two dimensions are associated with the availability and efficiency of customer service assistance of the platform. Therefore, the customers were dissatisfied with all the service performance provided by the online shopping platforms during the pandemic as it was perceived not to meet customer expectation in the M-ServQual dimensions.

Research question 2: What are the significant factors that have a major influence on customer's online shopping satisfaction and loyalty?

In order to identify significant factors that have the major influence on customers' online shopping satisfaction and loyalty, the Ordinal Logistic Regression was used. As generated from the results of the ordinal logistics regression, the Efficiency and the Fulfillment are both factors that significantly affect the customer satisfaction out of the 9 dimensions of mobile service quality mentioned. While for customer loyalty, the factors that have a major influence are the Efficiency and the Content. The online service providers should focus on improving the said dimension in order to satisfy and retain the loyalty of their customers. In conclusion, the significant factors that have a major influence on the customer satisfaction and loyalty are Efficiency, Fulfillment, and Content.

Research question 3: What is the relationship between customer satisfaction and customer loyalty?

The relationship between customer satisfaction and loyalty towards online shopping platforms are validated through correlation analysis. Through spearman's rho correlation analysis, the association between two variables was determined. The result suggests that overall satisfaction and loyalty have a strong relationship. As the correlation coefficient lies between the strong positive ratio. The authors also argued that customer loyalty are great antecedents of customer satisfaction. Moreover, the link between customer satisfaction and loyalty supports the theory which states that the positive or negative purchase experience of a customer influences their purchase behavior. Therefore, the researcher concluded that there is a strong relationship between customer satisfaction and loyalty. The test significance also supported our conclusion, as the test significant value of the relationship is less than 0.05 ($p = <.001$), which suggests to reject the null hypothesis and accept the alternative hypothesis.

6.1 Recommendation

By fulfilling the purpose of the study, the researchers aim to help the online shopping platforms, businesses and providers of m-commerce and future researchers to further expand the applicability of the research topic.

Provided by the impact of 9 dimensions and relationship of customer satisfaction and loyalty, the m-commerce providers or any online shopping platforms can use the research study as a basis for more efficient and effective service quality after pandemic. The service quality has two core elements, the customer expectation and perception. Closing or eliminating the gaps between expectation and perception on the service quality can provide the highest customer satisfaction. By identifying what factors affect service quality, it provides understanding of which customers' expectations are fulfilled and which factors need to be satisfied. It can also help platforms, businesses and service

providers to understand customer's needs or wants and create strategies to fill the gap in order to satisfy the customers. Thus, service quality is the ultimate measurement of customer satisfaction. Only the customer can define the quality of service or product. This study determined the service quality gaps of online shopping services using the M-ServQual model. It is found that all dimensions namely; Efficiency, System Availability, Content, Fulfillment, Privacy, Responsiveness, Compensation, Content and Billing has a negative satisfaction level towards online shopping services.

From the findings, it is clear that with the surge of online sales during the COVID-19 Pandemic, the customer perception did not exceed customer expectation. In order to satisfy the quality service of online shopping platforms, the researchers recommend online shopping platforms, businesses, or service providers to enhance the quality dimension under M- Serv-Qual specifically on Responsiveness and Contact dimension. Thus, service providers must strive to improve m-service quality. In order to improve their customer service assistance, service providers should be always available to attend to customer's concern and orders. Moreover, providing high service quality increases customer satisfaction, which further increases customer loyalty towards online shopping platforms. Thus, a satisfied customer tends to have high probability to repurchase and use the platform again which leads to customer retention or loyalty. This way, it will help the business, to not only retain customers, it also helps the company to expand its profit and its business. The researchers recommend service providers to take preparatory measures to ensure the highest quality service, especially after the COVID-19 pandemic, to maintain customer satisfaction and establish customer relationships. The nine dimensions of mobile service quality used in this study could use service providers as a measure to implement strategies to improve their quality service. Therefore, e-loyalty or loyalty in general is not solely about customers repurchase behavior nor about commitment, but the quality of service they provide should be considered.

This study contributes to the existing literature of Mobile Service Quality model, customer loyalty and satisfaction on online platform services during COVID-19 pandemic, and greater opportunity for improvement are expected as the m-commerce in the Philippines are continuously growing. For future researchers and further enhancement of this study, the researchers recommend to explore on different E-commerce platforms or markets. This would proffer a more in-depth analysis of how customer satisfaction or loyalty can be affected depending on the location or service. The researcher also recommends to examine the aftermath of COVID-19 pandemic in relation to E-commerce's customer satisfaction and loyalty. Lastly, they can consider the use of other statistical tools and analysis to strengthen the claims of the result.

References

- Abror, A., Patrisia, D., Engriani, Y., Evanita, S., Yasri, Y. and Dastgir, S., Service quality, religiosity, customer satisfaction, customer engagement and Islamic bank's customer loyalty, *Journal of Islamic Marketing*, vol. 11, no. 6, 2019.
- Bhatti, A., Akram, H., Basti, H.M., Khan, A.U., Naqvi, S.M.R. and Bilal, M., E-commerce trends during COVID-19 Pandemic, *International Journal of Future Generation Communication and Networking*, vol. 13, no. 2, 2020.
- Bilgihan, A., Kandampully, J. and Zhang, T., Towards a unified customer experience in online shopping environments: Antecedents and outcomes, *International Journal of Quality and Service Sciences*, vol. 8, no. 1, 2016
- Cheshin, A., Amit, A. and van Kleef, G.A., The interpersonal effects of emotion intensity in customer service: perceived appropriateness and authenticity of attendants' emotional displays shape customer trust and satisfaction, *Organizational Behavior and Human Decision Process*, vol. 144, 2018
- Sandrin, E., An Empirical Study of the External Environmental Factors Influencing the Degree of Product Customization, *International Journal of Industrial Engineering and Management (IJEM)*, vol. 7, no. 4, 2016
- Huang, E.Y.; Lin, S. W. and Fan, Y.C., M-S-QUAL: Mobile service quality measurement, *Electronic Commerce Research and Applications*, vol. 14, no. 2, 2015
- Lim, W., Antecedents and consequences of e-shopping: An integrated model, *Internet Research*, vol. 25, no. 2, 2015
- Paiz, N., Ali, M., Abdullahl, A. and Mansor, Z., The effects of service quality on satisfaction and purchase intention in mobile commerce, *International Journal of Business and Management*, vol. 15, no. 4, 2020
- Prihantoro, W. P., Satria, A. and Hartoyo, H., The determinant factors of behavior in m-commerce application usage for online purchasing, *Indonesian Journal of Business and Entrepreneurship (IJBE)*, vol. 4, no. 2, 2018
- Shafiee, M. and Bazargan, N., Behavioral customer loyalty in online shopping: The role of e-service quality and e-recovery. *Journal of Theoretical and Applied Electronic Commerce Research*, vol. 13, no. 1, 2018
- Ulkhag, M., Widodo, A., Widhiyaningrum, Yulianto, M. and Gracia, M., An integrated M-S-QUAL and importance-performance analysis approach for assessing service quality of mobile commerce application., *AIP Conference*

Proceedings, vol. 6, no. 1, 2019

Varol, S. and Marquez, A., An empirical study on assessing brand loyalty in automobile industry using hidden markov model, *Academy Of Marketing Studies Journal*, vol. 24, no. 1, 2020

Wul, M. and Tseng, L., Customer Satisfaction and Loyalty in an Online Shop: An Experiential Marketing Perspective”, *International Journal of Business and Management*, vol. 10, no. 1, 2015

Biographies

Mary Ann M. Pimentel, an Industrial Engineer at Toshiba Information Equipment (Philippines) Inc. A graduate of Bachelor of Science in Industrial Engineering, batch 2021 in Adamson University, Manila, Philippines. She had been an active student leader during college years in different organizations such as Philippine Institute of Industrial Engineering – Operations Research Society of the Philippines Adamson University Chapter, and Red Cross Youth Council – Adamson University Chapter, holding different positions every term. She is a certified Lean Six Sigma Yellow Belt, which she had obtained last August 2020.

Jlord Jeus Czar F. Ramiterre, a Management Trainee and Operations Excellence Officer at DHL Supply Chain Inc. Jlord obtained his Bachelor degree in Industrial Engineering in Adamson University, Manila, Philippines. He has been involved to student organizations during his college years, holding different positions of the Philippines Institute of Industrial Engineering – Operation Research Society of the Philippines Adamson University Chapter and Red Cross Youth Council - Adamson University Chapter He attained his certification for Lean Six Sigma Yellow Belt and Project Management training last August 2020 and June 2022, respectively.

Venusmar Quevedo is an Associate Professor of the Industrial Engineering Department at Adamson University, Manila, Philippines. Dr. Quevedo holds a Bachelor of Science degree in Industrial Engineering from Adamson University and both her Master’s degree in Industrial Engineering and Doctor of Philosophy in Educational Evaluation and Research from University of the Philippines. She has been recognized as one of the Inspiring Woman Engineer by the Philippine Technological Council with her more than 35 years of experience and contribution in the industry. She has taught courses in management, feasibility and engineering research for engineers. She has published and presented research papers both local and international.

Sheila Mae Carungay is a Full-Time Faculty Member in the Department of Industrial Engineering at the Adamson University, Manila, Philippines. She earned B.S. in Industrial Engineering from Mapua University and M.S. in Management Engineering from Adamson University. Sheila is a Professional Industrial Engineer with over 15 years of industry experience before entering the academe in 2018. She had joined companies where she earned her expertise in Supply Chain and Operations Management through various industries such as semi-conductor manufacturing, hosiery manufacturing, food restaurant and retail for health and beauty. She has taught courses in Engineering Management, Methods Engineering, Human Resources Management, Technopreneurship, Supply Chain and Engineering Economy. She is a member of PIIE (Philippine Institute of Industrial Engineers), a local organization of Industrial Engineers in the Philippines.