

Integrating E-S-QUAL Model and Analytical Hierarchy Process to Assess Consumers' Preferences in Selected Online Shopping Platforms in Manila, Philippines

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Abstract

With the basis of existing literature on service quality in online purchasing, this study aims to produce new knowledge to understand better the essential elements of e-commerce service quality that impact customer satisfaction and consumer behavior. This research concentrates on customer satisfaction for the top online shopping platforms in the Philippines based on the four dimensions of the E-S-QUAL model. The item statements of the dimensions are then ranked using Analytical Hierarchy Process. This research will show the specific dimensions and sub-criteria that these companies can improve their services. Moreover, the evaluation process results serve as a benchmark for best practices in the online shopping industry.

Keywords

AHP, E-S-QUAL, Online Shopping, quality, and shopping industry.

1. Introduction

For more than a decade, the Internet has fueled active consumer participation. As of January 2021, the Philippines recorded 73.91 million internet users (Datareportal, 2021), an increase of 6.1% between 2020 and 2021. In the aftermath of the Covid-19 outbreak, the country continues to depend on e-commerce to cope with economic recovery. The Philippines' e-commerce industry has seen a spike as lockdown measures have impacted brick-and-mortar firms. As an outcome, the importance of e-commerce was recognized in the country, which signifies economic recovery and growth. With e-commerce's contribution of 3.4% to the country's GDP in 2020 (Department of Trade and Industry, 2021), this shows that there is economic potential for the surge of the use of e-commerce. The shopping platforms have become a tool of most retailers because of the government restrictions for health protocols in the public areas of the National Capital Region of the Philippines. According to the GWI report of Q3 2020, a broad survey conducted for internet users aged 16 to 64, 87.8% of the users visited an online retail site or store using any device. On the same report, 85.7% of the users used shopping platforms, and 80.2% purchased a product online. These numbers indicated a significant e-commerce activity of the Filipinos.

This research study will cover the top five most visited e-commerce sites in the Philippines, Shopee, Lazada, Zalora, eBay, and the Facebook Marketplace (Statista, 2021). As limited as these platforms are, there is still a need to measure customer satisfaction to improve their services further. Many customers started using shopping platforms rather than

going to the physical store. Hence, the challenge of these online shopping platforms is to improve their strategies in delivering excellent services to maintain the loyalty of their customers (Agatz, Campbell, Fleischmann, & Savelsbergh, 2011). Increasing service quality and improving satisfaction judgments of consumers will create positive behavioral intentions (Brady & Robertson, 2001).

The history of the following pre-selected e-commerce site and the background of these platforms currently operational in the Philippines are shown in the succeeding texts. The Shopee Philippines was initially launched in 2015 by the Singapore-based company, the Sea Group (Shopee Philippines, 2022). Another group in the competition is the Lazada Philippines, founded in 2012 by Rocket Internet. Aside from the Philippines, its businesses are in the Southeast Asian countries; Indonesia, Malaysia, Singapore, Thailand, and Vietnam. The Zalora Philippines, on the other hand, was founded in the same year of its competitor Lazada Philippines in 2012. It is part of the global network of the Zalora Group, wherein it is wholly owned by the Global Fashion Group (GFG) (Ngwe & Teixeira, 2017). eBay Philippines, the oldest in this group of competitors, was launched in 2004. Its mother company, eBay, was founded in 1995 by Pierre Omidyar in San Jose, California (eBay, 2022). The fifth e-commerce in this study is the Facebook Marketplace started in 2016 by its founder Deb Liu and became available in the Philippines in 2018 (Maceda, 2018).

SERVQUAL or the Service Quality model is the most popular in measuring service quality (Parasuraman, Zeithml, & Berry, 1985). It involves five dimensions of measurement: reliability, assurance, responsiveness, tangibles, and empathy. On the other hand, E-service quality is distinct from traditional-based service quality, which incorporates the interaction between the seller and the buyer. The E-S-QUAL, or Electronic Service Quality, is a customer evaluation of an e-overall service's quality. Twenty-two items are being considered in this method from four dimensions, efficiency, fulfillment, system availability, and privacy (Parasuraman, Zeithml, & Malhotra, 2005). The researchers' goal is to assess Metro Manila consumers' preferences using the E-S-QUAL dimensions then rank them using Analytical Hierarchy Process (AHP).

1.1 Statement of the Problem

According to the literature, traditional SERVQUAL dimensions are being used by customers to evaluate the service quality of businesses. SERVQUAL was adapted into numerous models in the online business setting by many academics. WebQual (Barnes & Vidgen, 2002), eTailQ (Wolfenbarger & Gilly, 2003), E-S-Qual (Parasuraman, Zeithml, & Malhotra, 2005) are the most well-known adapted models of SERVQUAL. With E-S-QUAL, online shopping platforms can determine their competencies, weaknesses, and customers' specific preferences. Respondents in this research will only cover Metro Manila consumers.

1.1.1 Question Forms

1. What are the customer satisfaction ratings for the four online shopping platforms in the Philippines using the E-S-QUAL dimensions?
2. How do these online shopping platforms rank using Analytical Hierarchy Process?
3. What specific dimensions can help the shopping platforms improve their services?

1.2 Objectives

The main objective of this research is to assess consumer preferences using E-S-QUAL dimensions. Specifically, this research aims to achieve the following objectives:

1. To determine the customer satisfaction ratings for the four online shopping platforms in the Philippines using the E-S-QUAL dimensions
2. To show how these online platforms rank using Analytical Hierarchy Process.
3. To discover the specific dimensions that can help the shopping platforms improve their services

2. Literature Review

2.1 Service Quality Measurement

The SERVQUAL scale is a commonly used and intensely discussed measure of service quality (Hoffman & Bateson, 2020) SERVQUAL is a diagnostic instrument that, according to its creators, identifies a company's broad flaws and competencies in the field of service quality. The SERVQUAL measurement scale is based on five service quality criteria from extensive customer focus group interviews. Parasuraman (1985) created the SERVQUAL model, which identifies ten good service characteristics: credibility, security, accessibility, communication, consumer

understanding, tangibles, reliability, responsiveness, competence, and courtesy. Eventually, (Parasuraman, Zeithml, & Berry, 1985) condensed ten characteristics into five: tangible, responsiveness, reliability, assurance, and empathy. The SERVQUAL method is used in much research in the literature to evaluate service quality in various systems. Here are the examples:

- The E-S-QUAL model is used for assessing electronic service quality in the e-commerce industry (Kang, Jang, & Park, 2016).
- E-SERVQUAL was developed to evaluate the effect on customer perceptions of the existing relationship and determine the bank's performance (Baber, 2019).
- PubHosQual (public hospital service quality), an expanded version of the SERVQUAL model, assesses public hospitals' perceived service quality (Aagja & Garg, 2010).
- The HEALTHQUAL model is used to assess service quality, incorporating important hospital hygiene and sanitation (Asiamah, Opuni, Aggrey, & Adu-Gyamfi, 2021).
- TRANSQUAL model, as an extension of the SERVQUAL paradigm, is used to construct a bus performance index of existing public transportation systems based on the perceptions and expectations of bus riders (Suria, Ahmad, & Siti, 2019).
- AIRQUAL model (Farooq, Salam, Fayolle, Jaafar, & Ayupp, 2018) looked into the impact of service quality characteristics on customer satisfaction for Malaysian Airlines.

The theory of means-end-chain theory (Gardial, Woodruff, Schumann, & Burns, 1994) is the foundation of the hierarchical concepts of e-service quality. The same theory suggests that consumers can assess their customer journey for an online store regarding detailed and concrete experiences, which may be attributable to higher-order dimensions (Johnson, 1984). Customers may, for example, rate their shopping experiences based on very particular online store qualities like "online assortment width," which can then be linked to higher-order performance dimensions like "website design. In this theory, each feature is connected to a higher-order dimension. Those dimensions are linked to a higher-order summary construct, like the overall e-service quality. Consumer satisfaction, customer repurchase intentions, and word-of-mouth behavior are connected with overall e-service quality (Parasuraman, Zeithml, & Berry, 1985).

2.2 Analytical Hierarchy Process

The Analytic Hierarchy Process (AHP), invented by (Saaty, 1980), is one of the most extensively utilized and efficient approaches for ranking alternatives in multi-criteria decision-making. The framework of the model, comparison judgment of the alternatives and criteria, and synthesis of the priorities are all founded on three principles (Dagdeviren, Yavuz, & Ulukan, 2009). The relative ease with which this strategy handles several criteria is one of its key advantages. Furthermore, AHP is simpler to comprehend and efficiently manages qualitative and quantitative data. AHP has numerous advantages because it strives for uniformity in judgments. It allows users to express their thoughts on interconnected issues in a hierarchical or multi-leveled format (Abdullah & Najib, 2014). Despite its popularity and accessibility of use, AHP is frequently criticized for failing to cope with the ambiguity that exists in human subjective assessments.

2.3 Significance of the Study

Given the critical role these online shopping platforms played during the pandemic, the findings of this study will benefit society and the economy in general. The higher the demand for these online shopping platforms, the more competitive they will be. As a result, service businesses can use the suggested solutions generated from the findings of this study to improve the quality of services offered to clients. The study will assist the researchers in uncovering crucial areas in the service sectors that many other studies were unable to consider. As a result, new knowledge in the e-commerce industry, particularly online shopping platforms, may be acquired.

The projection in this year's online businesses would be one million in numbers in the country. This trend in eCommerce will create more ideas from the big players in the industry. This research study is an excellent tool for those enterprises where and which area of their strengths and weaknesses to enhance and work out, respectively (Velasco, 2022).

2.4 Conceptual Framework of the Research

The major goal of this study is to compare and assess customer satisfaction and preferences with Philippine online shopping platform services across the four E-S-QUAL criteria. The researchers will also use the Analytic Hierarchy Process to rate these online shopping platforms. Figure 1 shows the conceptual framework of this paper.

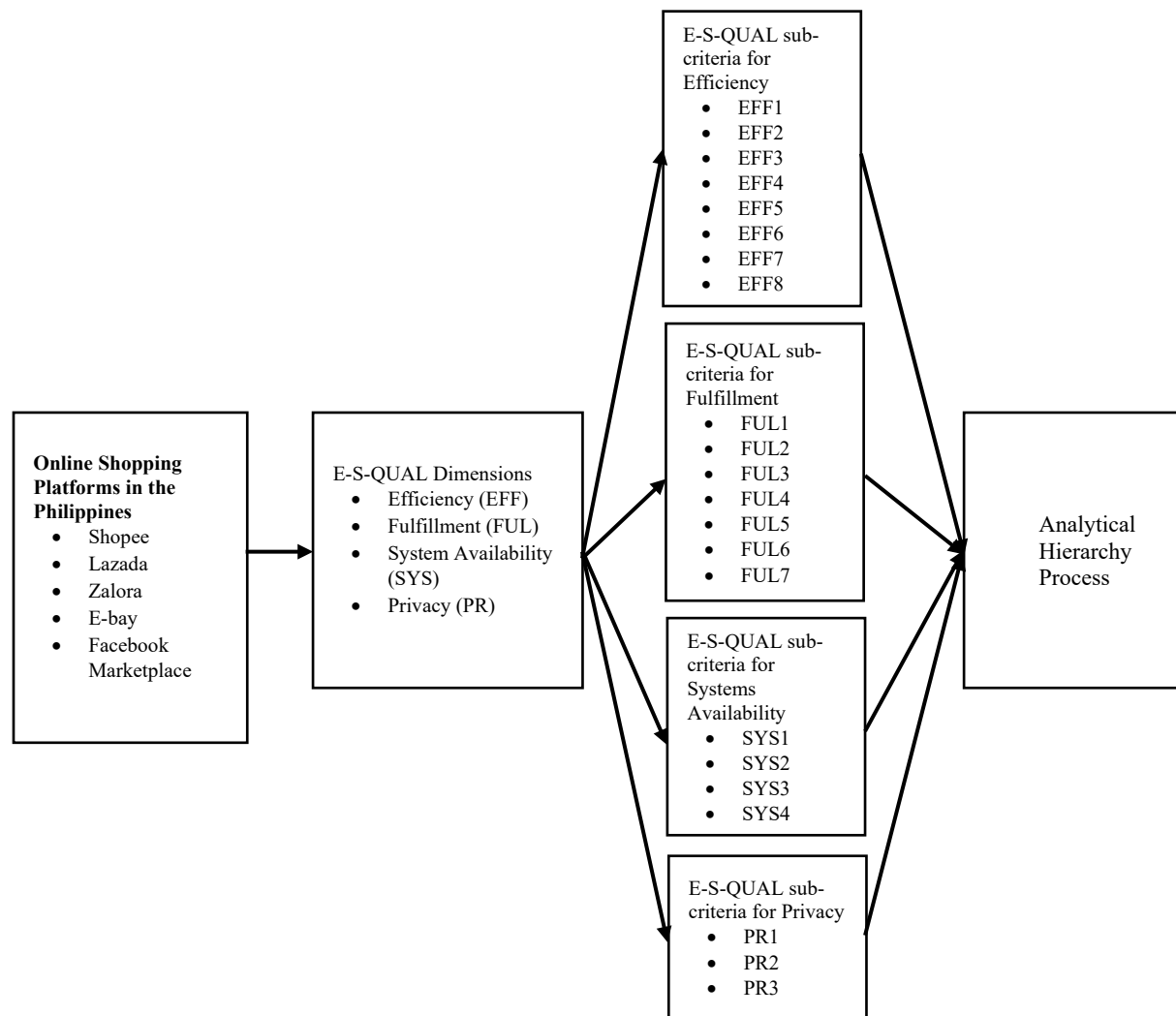


Figure 1. Conceptual Framework of the Study

3. Methodology

The researchers conducted a survey to a sample size of 152 respondents aged over 17 years old residing in Metro Manila. The survey contained the four dimensions of the E-S-QUAL with 22 items or sub-criteria to cover the measure of the service quality. The dimensions and item statements used in the survey form (Table 1) were adopted from (Parasuraman, Zeithml, & Malhotra, 2005) and sourced by (Silalahi, Handayani, & Munajat, 2017).

Table 1. Dimension and Item Statements of E-S-QUAL

Dimensions	Item Statement
Efficiency	EFF1: The site makes it easy to find what the customer needs.
	EFF2: It makes it easy to get anywhere on the site.
	EFF3: It enables the customer to complete a transaction quickly.
	EFF4: Information at the site is well organized.

	EFF5: It loads its page fast. EFF6: The site is simple to use. EFF7: The site enables the customer to get on to it quickly, EFF8: The site is well organized.
Fulfillment	FUL1: It delivers orders when promised. FUL2: The site makes items available for delivery within a suitable period. FUL3: It quickly delivers what the customer order. FUL4: It sends out the items ordered. FUL5: It has in stock the items the company claims to have. FUL6: It is truthful about its offerings. FUL7: It makes accurate promises about the delivery of products.
System Availability	SYS1: The site is always available for business. SYS2: The site launches and runs right away. SYS3: The site does not crash. SYS4: Pages at this site do not freeze after the customers enter the order information.
Privacy	PR1: It protects information about the customers' web-shopping behavior. PR2: It does not share the customers' personal information with other sites. PR3: The site protects information about the customers' credit cards.

Data collection was conducted through an online questionnaire using Google Forms, and the link was shared on social media such as Facebook, Messenger, Viber, and WhatsApp. Respondents were directed to a website containing the questionnaire via the shared link for its self-administration. The questionnaire has an initial question if the respondent resides in NCR and has used an online shopping platform before to filter the respondents. If the answer to either one of the questions is no, the survey will end.

Respondents were instructed to respond based on the online stores provided in the survey and used during the pandemic period. Online stores included in this research are Shopee, Lazada, ZALORA, E-Bay, and Facebook Marketplace. The constructs will be measured using a five-point scale ranging from 5 – Strongly Agree to 1 – Strongly Disagree.

The survey result was encoded in Expert Choice software to rank the consumer preferences. An Expert Choice is software for AHP. Results will show how the online shopping platforms perform according to the 22 items in E-S-QUAL. In this research, the corresponding weights for each dimension and item statements were adapted from the study of (Mamakou & Roumeliotou, 2021). In the reference research, global weights and their respective ranks were used (Table 2).

Table 2. Global Weights of Dimensions and Item Statements

Dimensions	Item Statement	Global Weight	Rank
Efficiency (0.185)	EFF1	0.0290	13
	EFF2	0.0285	14
	EFF3	0.0268	16
	EFF4	0.0181	19
	EFF5	0.0154	20
	EFF6	0.0316	12
	EFF7	0.0146	21
	EFF8	0.0209	17
Fulfillment (0.278)	FUL1	0.0359	10
	FUL2	0.0139	22
	FUL3	0.0197	18
	FUL4	0.0815	3
	FUL5	0.0328	11
	FUL6	0.0667	4
	FUL7	0.0275	15

System Availability (0.284)	SYS1	0.0454	8
	SYS2	0.0645	5
	SYS3	0.0557	6
	SYS4	0.1187	2
Privacy (0.253)	PR1	0.0433	9
	PR2	0.0471	7
	PR3	0.1627	1

Figure 2 shows the logical hierarchy guide in the use of AHP to determine the best online shopping platform

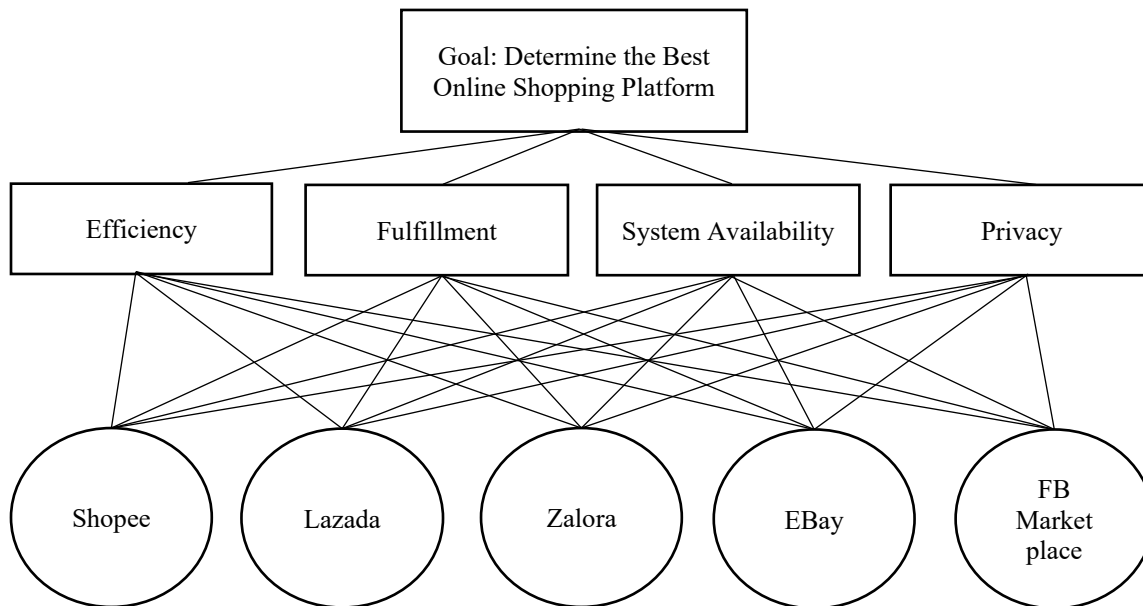


Figure 2. Logical Hierarchy for E-S-QUAL Dimensions and Online Shopping Platforms

4. Result

4.1 Participants

A total of 152 respondents participated in the survey, of which 148 live in National Capital Region (NCR) and use online shopping platforms. Out of 148 respondents, only one disagrees with the terms and conditions of the survey, making the number of valid participants be 147.

Majority of the respondents live in Quezon City (30.61%). Other respondents are from Manila (10.88%), Marikina (7.48%), Makati (7.48%), Caloocan (6.80%), San Juan (4.76%), Pasig (4.76%), Las Piñas (4.08%), Muntinlupa (4.08%), Parañaque (4.08%), Taguig (3.40%), Valenzuela (3.40%), Mandaluyong (3.40%), Pasay (2.04%), Pateros (1.36%), Malabon (0.68%) and Navotas (0.68%).

Table 3 shows the age group of the respondents. 55.78% are female, 42.86% are male, and 1.36% prefer not to say their gender. A total of 89.12% of the respondents are college graduates and have post-graduate degrees. Regarding their employment status, 84.35% are employed, 7.48% are students, 4.08% are unemployed, 3.40% are self-employed, and 0.68% are retirees.

Table 3. Age Group of Respondents

Age Group	No. of Respondents	Percentage
17-30 years old	63	42.86%
31-40 years old	62	42.18%
41-50 years old	18	12.24%
51-60 years old	2	1.36%
61 years old and above	2	1.36%
Total	147	100%

Table 4 shows the respondents' count according to their household income. These individuals were the research's target respondents since they had access to the online shopping platforms being studied.

Table 4. Household Income Group of Respondents

Age Group	No. of Respondents	Percentage
Php100,001 and above	26	17.69%
Php15,001 - Php30,000	46	31.29%
Php30,001 - Php40,000	22	14.97%
Php40,001 - Php50,000	15	10.20%
Php50,001 - Php80,000	13	8.84%
Php80,001 - Php100,000	10	6.80%
Under Php15,000	15	10.20%
Total	147	100%

4.2 Statistical Treatment

Before we go through the Analytical Hierarchy Process, Grubb's test was conducted to ensure that no outliers affected the accuracy of the results. In case outliers were observed in the data, those responses were removed. Table 5 summarizes the outlier test results and indicates the standard deviation. An outlier is detected for EFF2 and PR1 item statements for Shopee platform questions. These two (2) respondents were removed from the sample, making the valid respondents be 145. Moreover, Table 6 summarizes respondents' average rating for each online shopping platform on each dimension and item statement after removing outliers.

Table 5. Grubb's Outlier Test Results

Item Statement	N	LAZADA		SHOPEE		ZALORA		E-BAY		FB Marketplace	
		SD	Outlier Detected	SD	Outlier Detected	SD	Outlier Detected	SD	Outlier Detected	SD	Outlier Detected
EFF1	147	0.91	None	0.73	None	0.89	None	0.88	None	1.1	None
EFF2	147	0.83	None	0.76	Y	0.91	None	0.9	None	1.1	None
EFF3	147	0.91	None	0.91	None	0.91	None	0.92	None	1.1	None
EFF4	147	0.99	None	0.99	None	0.95	None	0.9	None	1.13	None
EFF5	147	0.93	None	0.93	None	0.88	None	0.85	None	1.06	None
EFF6	147	0.97	None	0.97	None	0.92	None	0.86	None	1.05	None
EFF7	147	0.88	None	0.88	None	0.88	None	0.86	None	1.05	None
EFF8	147	0.97	None	0.97	None	0.88	None	0.92	None	1.14	None
FUL1	147	0.92	None	0.92	None	0.86	None	0.89	None	1	None
FUL2	147	0.83	None	0.83	None	0.85	None	0.93	None	1.02	None
FUL3	147	0.86	None	0.77	None	0.86	None	0.88	None	0.99	None
FUL4	147	0.86	None	0.71	None	0.88	None	0.9	None	1	None
FUL5	147	0.93	None	0.84	None	0.92	None	0.88	None	1.03	None
FUL6	147	0.91	None	0.89	None	0.92	None	0.9	None	1.14	None

FUL7	147	0.90	None	0.8	None	0.89	None	0.88	None	1.07	None
SYS1	147	0.88	None	0.85	None	0.89	None	0.93	None	1.07	None
SYS2	147	0.87	None	0.79	None	0.86	None	0.89	None	0.97	None
SYS3	147	0.97	None	0.97	None	0.88	None	0.85	None	1.01	None
SYS4	147	0.91	None	0.89	None	0.87	None	0.89	None	0.99	None
PR1	147	0.91	None	0.88	Y	0.87	None	0.89	None	1.03	None
PR2	147	1.03	None	0.91	None	0.88	None	0.93	None	1.09	None
PR3	147	0.87	None	0.86	None	0.91	None	0.9	None	1.04	None

Table 6. Mean Scores of Online platforms on each Item Statement of E-S-QUAL

Item Statement	LAZADA	Shopee	ZALORA	E-Bay	FB Marketplace
EFF1	4.0966	4.4207	3.7379	3.6414	3.8759
EFF2	4.1103	4.4345	3.7241	3.6207	3.9241
EFF3	4.1724	4.4069	3.7586	3.6069	3.4552
EFF4	3.7931	4.2414	3.7655	3.6897	3.2828
EFF5	3.9586	4.1448	3.7517	3.6276	3.7034
EFF6	4.0138	4.4207	3.6828	3.5931	3.6897
EFF7	4.0276	4.3517	3.7724	3.6414	3.6207
EFF8	3.8000	4.2414	3.7862	3.6552	3.2897
FUL1	4.0414	4.0483	3.8552	3.6138	3.4966
FUL2	4.0897	4.1586	3.8138	3.5931	3.6207
FUL3	4.0276	4.0759	3.8069	3.5517	3.5517
FUL4	4.1655	4.2345	3.8000	3.6069	3.5172
FUL5	3.9586	4.0483	3.7931	3.5862	3.4138
FUL6	3.7448	4.0069	3.8207	3.6138	3.3172
FUL7	3.9103	4.0414	3.8483	3.5793	3.4207
SYS1	4.1103	4.1724	3.8759	3.6345	3.5931
SYS2	4.0000	4.2000	3.8138	3.669	3.7103
SYS3	3.7448	3.8759	3.6552	3.5379	3.6345
SYS4	3.9172	4.0138	3.7793	3.5931	3.5793
PR1	3.9172	4.1517	3.8069	3.6414	3.4000
PR2	3.8690	4.1310	3.7793	3.6690	3.4483
PR3	3.9586	4.1379	3.8000	3.6897	3.4759

4.3 Analytical Hierarchy Process

With Expert Choice software, the analytical hierarchy process in assessing consumers' preferences was performed on the five online shopping platforms. The global weight and rank in Table 2 were used in the software. Table 7 shows the summary of the results of the Analytical Hierarchy Process.

Table 7. Summary of Analytical Hierarchy Process

Item Statement	Global Weight	LAZADA	Shopee	ZALORA	E-Bay	FB Marketplace
EFF1	0.029	0.256	0.412	0.102	0.077	0.152
EFF2	0.029	0.245	0.323	0.141	0.107	0.185
EFF3	0.027	0.288	0.440	0.123	0.085	0.064

EFF4	0.017	0.253	0.361	0.176	0.123	0.086
EFF5	0.014	0.261	0.396	0.155	0.078	0.110
EFF6	0.032	0.231	0.387	0.124	0.094	0.164
EFF7	0.014	0.231	0.387	0.164	0.124	0.094
EFF8	0.021	0.253	0.361	0.176	0.123	0.086
FUL1	0.036	0.375	0.425	0.130	0.050	0.020
FUL2	0.013	0.319	0.486	0.114	0.035	0.046
FUL3	0.020	0.353	0.461	0.121	0.033	0.033
FUL4	0.082	0.348	0.477	0.103	0.041	0.031
FUL5	0.033	0.300	0.450	0.144	0.070	0.036
FUL6	0.067	0.169	0.426	0.240	0.113	0.051
FUL7	0.028	0.273	0.427	0.173	0.076	0.051
SYS1	0.045	0.339	0.469	0.121	0.040	0.030
SYS2	0.065	0.256	0.412	0.152	0.077	0.102
SYS3	0.056	0.243	0.400	0.159	0.078	0.120
SYS4	0.119	0.292	0.415	0.155	0.078	0.059
PR1	0.043	0.241	0.398	0.171	0.117	0.072
PR2	0.047	0.243	0.400	0.159	0.120	0.078
PR3	0.163	0.263	0.419	0.160	0.097	0.062
Total	1.000	6.032	9.132	3.263	1.836	1.732

It was taking the highest global weight of 0.163, which is PR3. The site protects information about the customers' credit card under the Privacy dimension; Shopee takes the lead in consumer preference, showing consumers' trust in Shopee in handling confidential information. In contrast, Facebook Marketplace has the lowest rating in this item statement.

Shopee obtained the highest consumer preference among all the item statements in FUL2: The site makes items available for delivery within a suitable period. But in Global weight, FUL2 is the lowest priority. In contrast, Facebook Marketplace's FUL1 delivers orders when promised and has the lowest consumer preference with a score of 0.020. FUL1 ranks 10 in the global ranking.

Shopee consistently has the highest weighted scores in all item statements of consumer preferences. Meanwhile, Facebook Marketplace has 15 item statements with the lowest weighted scores. Figure 3 shows the graphical representation of these weighted scores.

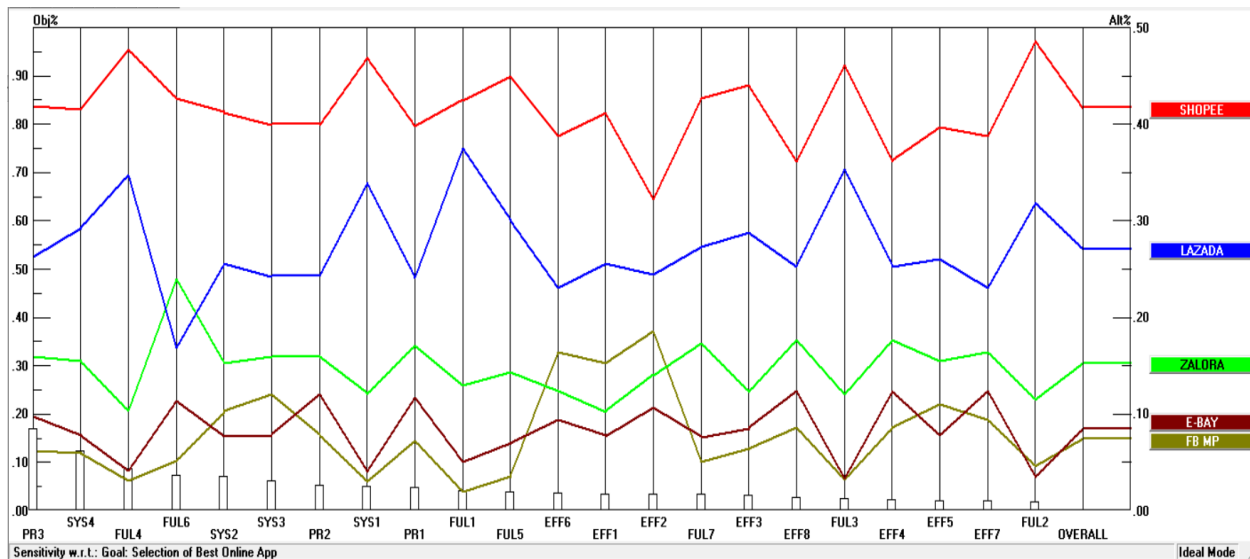


Figure 3. Graph of AHP for Online Shopping Platforms

Overall, Shopee was determined to be the best online shopping platform in the National Capital Region, with a score of 9.132. This was followed by LAZADA, with an overall score of 6.032. Next is ZALORA with a score of 3.263, then E-Bay with 1.836, and last is Facebook Marketplace with a score of 1.732.

5. Conclusion and Recommendation

In this study, the researchers used the E-S-QUAL model and AHP methodology to determine the best online shopping platform in National Capital Region. Consumer satisfaction ratings are shown in Figure 3. Based on the results, Shopee is the leading online shopping platform. LAZADA, ZALORA, E-BAY, and Facebook Marketplace have many things that can be further explored for the sake of customer satisfaction and can use Shopee as their benchmark to improve their services further. The research also shows the specific dimensions and item statements that these platforms can be focused on. In addition, it is also highly recommended for each of these companies included in this research study to update their internal and external business strategies using different tools such as the SWOT analysis, PESTEL, and others alike for them to exploit the results in this paper. This research focused on the consumer preferences with respondents based on National Capital Region, Philippines. Further studies can be applied to the other regions of the country. This research is also limited to the E-S-QUAL dimensions; additional studies with product offerings and promotions as dimensions can also be explored for future studies.

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