

A Comparative Analysis of Factors Influencing Consumer Preference for e-Shopping and In-Store Shopping Using Structural Equation Modelling

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Abstract

For decades, the Philippines have been benefiting from brick-and-mortar shops but have altered dramatically after the COVID-19 pandemic. As the globe transitions to a new normal, this study aims to determine the factors that influence e-Shopping and online shopping. Specifically, it investigates the buyers' characteristics in relation to their shopping preferences by utilizing the structural equation modeling (SEM) approach. A total of 277 Filipinos answered the survey questionnaire, which contained 39 questions. The results of SEM indicated that buyers' characteristics have a mediating effect on influence factors – environment, which identified that customers' features include status shoppers, brand conscious, and recreational shoppers. Customers' primary concern in online shopping is payment security and privacy, while others prefer to buy products online due to accessibility and convenience. Some brand conscious customers consider physical contact with products in shopping. On the other hand, the result also showed that influence factors – product and influence factors – environment have no significant direct effect on customer shopping preference. But customers find that orders are easy to place, 24 hours accessibility and several payment options are advantages in an online shopping interface. In contrast, the ability to touch the product, immediate availability of the product, and sales assistance are the advantages of in-store shopping.

Keywords

e-Shopping, in-store shopping, buyers' characteristics, shopping preferences, structural equation modeling

1. Introduction

While businesses were shuttered due to the COVID-19 pandemic, people of all ages seem to gravitate toward online shopping in large numbers and with increasing frequency. IBM's US Retail index reported a 75% drop in a department store and other "non-essential" retailer sales in the second quarter. Adoption by previously uninitiated users has skyrocketed, particularly in under-penetrated categories such as grocery. Consumers' adoption of omnichannel services, particularly for social commerce, has expanded over this period. Indeed, Oullette (2021) forecasts that internet shoppers in the United States alone would reach 300 million by 2023.

Filipinos are among the world's most avid internet users, logging on for an average of ten hours daily. This is one of the reasons why the Philippines had seen the biggest growth in shopping applications in Southeast Asia, with a 53 percent increase during the epidemic. Caña (2020) said that the country's shopping applications accounted for a total of 4.9 billion sessions. In general, the Philippines saw the greatest increase in online spending this year compared to the first half of 2019. This trend in online shopping may catalyze future consumer preference studies. While online and in-store shopping appears to be comparable, there may be significant distinctions (Browne, Durrett & Wetherbe, 2004). For example, online consumers are, by definition, isolated from the store's physical location, imposing intrinsic limits on the buying experience, such as the inability to grasp a product and examine its characteristics attentively. What the online shopping experience lacks in tactile information, it compensates for with clearly presented product details; products online are marked with often overwhelming amounts of information, which influences the overall shopping experience of consumers (Kim & Lennon, 2000). Consumers spend a few hours comparing prices and then complete the purchasing process in-store. Thus, the time and energy spent acquiring information are not reduced in the online context in comparison to the in-store setting.

Despite substantial study has been undertaken to determine the factors that influence e-commerce and online shopping, there is a dearth of empirical data that takes into account the COVID-19 implications and anticipated new normal conditions in this context. As the globe transitions to a new normal, it is necessary to examine and investigate buyers' characteristics in relation to their shopping experience selection. In this context, an intriguing topic will be addressed: "what are the combined impacts of perceived importance of product qualities and environmental influences on customers' shopping preferences?" The current study, in particular, seeks to accomplish the following goals:

1. To determine the buyers' characteristics and how they perceived the customers' shopping preference in e-shopping and/or in-store shopping during the COVID-19 pandemic.
2. To determine the mediating effect of the product categorization and environmental influencing factors between the buyers' characteristics and the customers' shopping preference in e-Shopping and/or in-store shopping during the COVID-19 pandemic.
3. To determine consumers' shopping preference on their choice of shopping store platform during the new normal in the Philippines.

Additionally, this study will advance our understanding of the factors that influence customers' characteristics and, subsequently, their buying preferences about their preferred shopping store platform during the COVID-19 epidemic. Finally, the findings of this investigation may contribute to the literature that emerges as a result of the COVID-19 pandemic.

2. Methods

In the current situation, the COVID-19 epidemic has upended individuals' lives on a global scale, affecting everything from how we work to how we interact and even how we shop, altering consumer preferences. In late March 2020, a poll done by Numerator Insights Data (2021) revealed that 40% of customers assessed themselves as "very concerned" about the virus. And, despite recent advances on vaccine delivery in 2021, customers remain anxious about the pandemic, which will continue to impact their spending decisions in the coming months.

A cross-sectional study will be performed based on a questionnaire from the researchers among the population in Manila, Philippines. This study aims to discover an individual's buyer's characteristics, provided the COVID-19 pandemic made major changes in their buying platform's preference. This investigation is therefore guided by the following operational framework as shown in figure 1, which illustrates the interdependence of customers' buying preferences with the following determinants: buyer characteristics, product categorization affecting variables, and the utility value of in-store and/or e-commerce platforms. The researcher also proposed the following hypotheses:

- H1₀: There is no significant relationship between the buyers' characteristic to the products being offered by the store.
H1_a: There is a significant relationship between the buyers' characteristic to the products being offered by the store.
- H2₀: There is no significant relationship between the buyers' characteristic to the environmental factors.
H2_a: There is a significant relationship between the buyers' characteristic to the environmental factors.
- H3₀: There is no mediating effect between the products being offered by the store to the customers' shopping preference.
H3_a: There is a mediating effect between the products being offered by the store to the customers' shopping preference.
- H4₀: There is no mediating effect between the environmental factors to the customers' shopping preference.
H4_a: There is a mediating effect between the environmental factors to the customers' shopping preference.

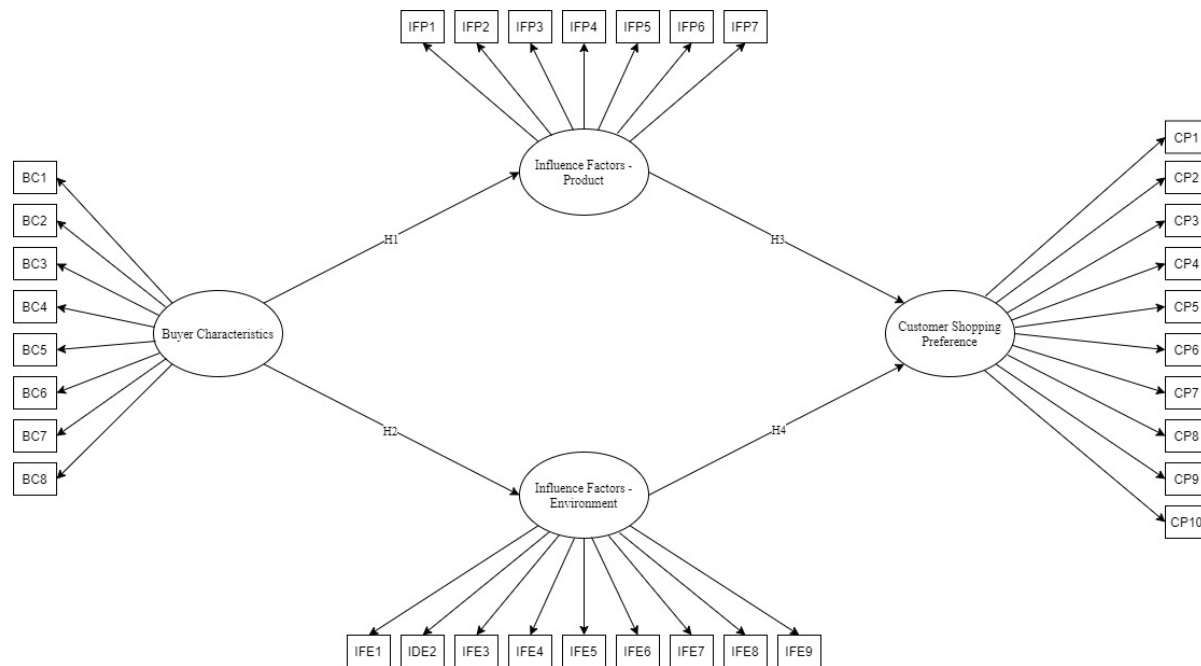


Figure 1. Conceptual Framework

3. Data Gathering

By following the constructed operational framework, a self-administered question is developed for this study to evaluate the factors influencing the consumers' preferences towards their choice of shopping store platform during this COVID-19 pandemic. The questionnaire consists of six sections: (1) Demographic Information (i.e., gender, age, employment status, educational attainment, monthly income, frequency of shopping, credit card owner, car owner), (2), Buyers' Characteristic, (3) Influence Factor - Product, (4) Influence Factor - Environmental, (5) Consumers' Shopping Preference. All latent constructs included in the operational framework will be measured by utilizing a 5-point Likert scale.

4. Data Analysis

Structural Equation Modeling (SEM) will be utilized to test the formulated hypotheses in this study. It is an advanced statistical approach that is designed mainly to describe causal relationships between the latent constructs (Hair, 2010). AMOS 22 with a maximum likelihood estimation approach will also be utilized to run the SEM. Based on the operational framework as illustrated in figure 1, the SEM construct has five latent variables with two mediating variables which is the influence factor for product and environment.

To analyze the model's fit, six measurements will be used by following some previous studies (Chin et al., 2018; Lin et al., 2017; Nadlifatin et al., 2016). These are Incremental Fit Index (IFI), Tucker Lewis Index (TLI), Comparative Fit Index (CFI), Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AFGI), and Root Mean Square Error of Approximation (RMSEA).

5. Results and Discussion

As previously indicated, data were collected from research participants through the use of a survey questionnaire. Apuke (2017) explored a variety of research tools relevant to contemporary research and utilized by contemporary scholars and researchers. Qualitative research instruments differ from quantitative research tools in this regard. Numerous advantages exist for the researcher when using a survey questionnaire. As a result, this instrument is used to elicit data from research participants. Additionally, when compared to other research instruments, a survey

questionnaire enables the collection of primary data quickly, which is especially important given as the world is experiencing a pandemic (i.e., interview questionnaires and case studies).

This study's first objective was to determine the buyers' characteristics and how they perceived the customers' shopping preference in e-shopping and in-store shopping during the COVID-19 pandemic. To obtain the data for this study, the researcher conducted an online survey for consumers who had a recent purchase online and at traditional stores (i.e., department stores, supermarkets, etc.). A total of 227 participants were collected through the online survey. Table 1 summarizes the demography of the respondents and the received responses.

Table 1. Descriptive Statistics of the Respondents (n=277)

Demographic Profile	Category	N	%
Gender	Female	166	73.1
	Male	51	22.5
	Gay	6	2.6
	Lesbian	1	0.4
	Prefer not to answer	3	1.3
Age	Below 18	5	2.2
	18 to 35 years old	108	47.6
	36 to 55 years old	110	48.5
	Older than 55 years old	4	1.8
Employment Status	Student	14	6.2
	Employed full time	142	62.6
	Employed part time	10	4.4
	Self-employed, Business Owner	31	13.7
	Out of work and looking for work	11	4.8
	Out of work but not currently looking for work	5	2.2
	Homemaker	14	6.2
	Retired	0	0
Educational Attainment	Highschool	21	9.3
	Technical Vocational	9	4
	Bachelor	163	71.8
	Masteral	25	11
	PhD	9	4
Monthly Salary/Allowance	Less than PHP 15,000	40	17.6
	PHP 15,000 - PHP 30,000	43	18.9
	PHP 30,000 - PHP 45,000	34	15
	PHP 45,000 - PHP 60,000	29	12.8
	PHP 60,000 - PHP 100,000	28	12.3
	PHP 100,000 and above	53	23.3

Figure 2 demonstrates the initial SEM of this study for evaluating the customers' shopping preferences during this COVID-19 pandemic. Meanwhile, table 2 displays the initial model fit test findings conducted in the AMOS software. According to the initial findings, the model has not met the suggested cut-off thus, it cannot pass as a good model fit. As a result, a revised SEM was calculated by deleting variables with factor loadings smaller than 0.4 and applying some modification indices. Modification indices are a technique for enhancing the model advocated by Hair (2010). Using the suggested modification indices, it is possible to minimize disparities between the conceptualized and approximated models.



Figure 2. Initial SEM Output Model

Table 2. Initial Model Fit Test Result

Measure	Parameter Estimates	Suggested Cut-Off
IFI	0.750	> 0.90
TLI	0.732	> 0.80
CFI	0.748	> 0.90
GFI	0.704	> 0.80
AGFI	0.668	> 0.80
RMSEA	0.083	≤ 0.05 – 0.08

Figure 3 demonstrates the final SEM output for evaluating the customers' shopping preference among Filipinos during the COVID-19 pandemic, and table 3 demonstrates the final model fit test result. As presented, the result showed a significant improvement in the parameter estimates of each calculated indices as compared to the previous measurement. All fit metrics were greater than the indicated cut-off, indicating that the described model's postulated construct was an excellent approximation of the observed data.

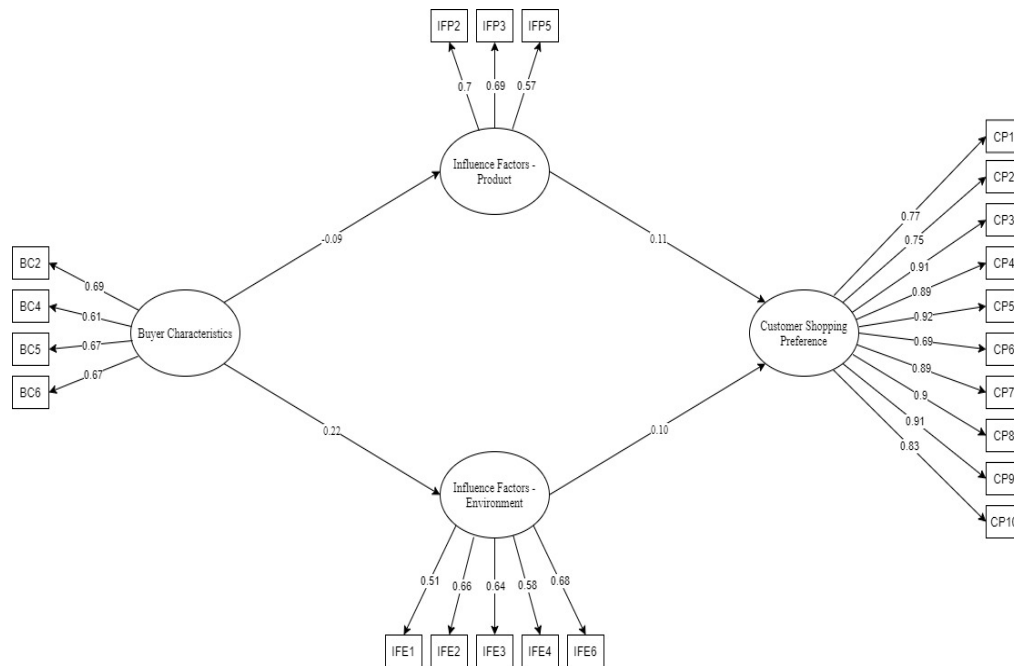


Figure 3. Final SEM Output Model

Table 3. Final Model Fit Test Result

Measure	Parameter Estimates	Suggested Cut-Off
IFI	0.977	> 0.90
TLI	0.970	> 0.80
CFI	0.977	> 0.90
GFI	0.909	> 0.80
AGFI	0.871	> 0.80
RMSEA	0.044	≤ 0.05 – 0.08

Table 4 presents the direct, indirect, and total effects of this study's different latent factors. Buyers' characteristics may affect the two variables: the influence factors – product and influence factors – environment. However, the results indicate that there is a significant relationship between the buyers' characteristics to the environmental factors. In contrast, it does not directly affect the products being offered by the store. Two variables may affect the customers' shopping preference in online/in-store shopping. Unfortunately, the store's products and the environmental factors do not have a significant effect on the customers' shopping preferences.

Table 4. Direct Effects, Indirect Effects, and Total Effects

Variables	Direct	P-value	Indirect	P-value	Total Effect	P-value
BC → IFP	-0.089	0.407	-	-	-0.089	0.407
BC → IFE	0.219	0.001	-	-	0.219	0.001
IFP → SP	0.105	0.191	-	-	0.105	0.191
IFE → SP	0.095	0.476	-	-	0.095	0.476

As part of the government's precautionary measures, the majority of brick-and-mortar stores have been closed, and internet shopping has been one of the most popular methods of purchasing essentials throughout the COVID-19 pandemic. Since the COVID-19 epidemic, people's shopping habits have shifted as a result of congested malls and empty storefronts. The purpose of this study is to determine the numerous elements that influence in-store and online shopping to improve customers' experiences during a pandemic. As a result, SEM was used to investigate the relationships between Buyers' Characteristics (BC), Influence Factors – Product (IFP), Influence Factors – Environment (IFE), and Customer Shopping Preference (SP). A questionnaire was provided to all respondents, and a total of 277 data samples were collected.

Prior to the epidemic, customers generally preferred in-store buying to Online shopping. Consumer goods with a short shelf life, such as domestic cleaning products, packaged meals, and beverages, were still primarily purchased in-store. Now, the epidemic has honed customers' perceptions of which types of commodities are vital. In this study, BC has a substantial direct effect on IFE ($\beta: 0.219, p=0.001$), which has various implications for customers buying during the pandemic:

1. Status shoppers' primary concern is payment security and privacy. Individuals who believe that online payments are riskier opt to reduce their purchases from the internet (Koyuncu & Bhattacharya, 2004), while others prefer to buy products online due to accessibility and convenience.
2. with products in online shopping, unlike in in-store shopping (González-Benito et al., 2015). Customers of both in-store and online shopping want to compare the information of each product. Sometimes, the online order that customer placed turned out to be incorrect or different from what was expected (Purwantono et al., 2021).
3. Recreational shoppers' primary concern is their shopping experience. Customers who have had positive online shopping experiences are more likely to browse and buy online. In contrast, customers who have had positive in-store shopping experiences are more likely to shop in stores (Frag et al., 2007).

On the other hand, the result showed that buyers' characteristics have no significant direct effect on influence factors – product ($\beta:-0.089, p=0.407$). Customers consider household cleaning, health, pharmacy, beauty, home appliances, and furniture products as essentials during the pandemic. Products that are mentioned are the usual products that are on sale in online shopping.

In addition, the result also showed that influence factors – product ($\beta:0.105, p=0.191$) and influence factors – environment ($\beta:0.095, p=0.476$) have no significant direct effect on customer shopping preference. But customers find that orders are easy to place, 24 hours accessibility and several payment options are advantages in an online shopping interface. In contrast, the ability to touch the product, immediate availability of the product, and sales assistance are the advantages of in-store shopping.

Despite the study's substantial contributions, the researcher wants to emphasize several of the study's limitations in addition to its findings. First, since this study has been motivated by the COVID-19 pandemic, future research should also include the intention to shop for the customers during this time as one of the variables. Second, this study did not take cultural influences into account (e.g., shopping habits, family size, and lifestyle). The researcher proposes conducting future research on these cultural factors that may have a direct or indirect effect on customers' buying preferences. Third, future studies should also consider the purchasing power of the customers as one of the variables that could affect their preference. Finally, this study's samples were gathered through the use of an online questionnaire. Future research should collect additional samples to obtain more detailed and precise results.

6. Conclusion

As part of the government's preventive measures, the majority of brick-and-mortar stores have been closed, and internet shopping has been one of the most popular methods of purchasing during the COVID-19 pandemic. People's shopping habits have shifted as a result of congested malls and vacant storefronts. This study used Structural Equation Modeling (SEM) to examine the combined effects of perceived importance of product features and environmental factors on consumers' buying preferences. A total of 227 individuals responded to the online survey form, which included 49 questions.

The result of this study showed that buyers' characteristics have a mediating effect on influence factors – environment, which identified that customers' features include status shoppers, brand conscious, and recreational shoppers. Customers' primary concern in online shopping is payment security and privacy, while others prefer to buy products online due to accessibility and convenience. Some brand conscious customers consider physical contact with products in shopping. On the other hand, the result also showed that influence factors – product and influence factors – environment have no significant direct effect on customer shopping preference. But customers find that orders are easy to place, 24 hours accessibility and several payment options are advantages in an online shopping interface. In contrast, the ability to touch the product, immediate availability of the product, and sales assistance are the advantages of in-store shopping.

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