

# RELATIONSHIPS AMONG MARKETING MIX, CUSTOMER SATISFACTION AND CUSTOMER LOYALTY: EVIDENCE FROM TAIWAN

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## ABSTRACT

*As the widespread use of retail applications increases during and after the pandemic, so does the need to explore factors contributing to customer loyalty in the context of retail applications. This study aims to investigate the relationships among marketing mix, customer satisfaction, and customer loyalty. The current study collected data from a survey of 197 retail application users in Taiwan to test the proposed model. SPSS 20 and AMOS were used to analyze the data. Results indicated that marketing mix is found to have an effect on satisfaction, which in turn exerts an influence on loyalty. However, marketing mix does not directly affect loyalty. Instead, satisfaction fully mediates the relationship between marketing mix and loyalty. The findings may be helpful to researchers as well as mobile retailers interested in customer loyalty. In the end, the findings' theoretical and practical implications are discussed and the direction for future research is provided.*

**JEL:** M30, M31

**KEYWORDS:** Marketing Mix, Customer Satisfaction, Customer Loyalty, Retail Applications, Mobile Retailing

## INTRODUCTION

The COVID-19 pandemic has drastically changed how people live, especially the way people shop. During lockdowns, as in-person shopping activities were restricted, people primarily shifted to online shopping, making purchases by using the applications (apps) on their mobile devices. Understandably, people tried to avoid close contact with others by shopping through mobile apps during the pandemic, which accidentally promoted the widespread adoption of mobile shopping and caused the number of retail apps to soar around the globe. However, it was reported that about 25% of mobile apps are used only once after being downloaded (Statista, 2020). Another survey revealed that mobile users often delete an application (app) they seldom use (The Manifest, 2018). Therefore, it is evident that mobile retailers face intense competition due to customers' discontinuance of using retail apps, which will definitely affect retailers' long-term survival. Toward this end, the question of keeping customers loyal and continuing shopping by using retail apps remains a pressing issue. Fortunately, according to prior literature (Fakhimi Azar, Akbari Vanehabad, & Rasouli, 2011), one of the ways of addressing this issue is to analyze the concept of marketing mix, which is a set of tools companies can use to achieve their goals (Azhar, Prayogi, & Sari, 2018). The current study adopted the marketing mix proposed by Lauterborn (1990) because it is customer-centered and is considered preferable in the digital environment (Lei, 2022). The adopted marketing mix includes four elements, which are customer value, cost, convenience, and communication (4Cs).

Researchers suggested that successful marketing strategies based on marketing mix are conducive to meeting customer demand (Othman, Harun, De Almeida, & Sadq, 2021), which in turn leads to loyalty

(Elgarhy & Mohamed, 2022). Other scholars also emphasized the positive association between marketing mix and loyalty (Ohrabi, Hanbolooki, & Hazavi, 2017). Based on the aforementioned studies, it is believed that marketing mix is one of the crucial factors that mobile retailers can employ to create customer loyalty. Furthermore, as mobile retailers use marketing mix tools to address customer demand, they can gain customer satisfaction, which will contribute to loyalty (Daniawati, Muhandi, & Harahap, 2023). Although a number of researchers have adopted different theories or concepts to examine mobile shopping apps, such as the Technology Acceptance Model (TAM) (Kim, Yoon, & Han, 2016), or the Unified Theory of Acceptance and Use of Technology (UTAUT) (Tak & Panwar, 2017), very few have incorporated the concept of the 4Cs marketing mix in their studies. Hoping to address this gap, this study is motivated to adopt the 4Cs marketing mix to examine the relationships among marketing mix, satisfaction, and loyalty in the context of retail apps. The contribution of the current study will not only extend our knowledge of the 4Cs marketing mix but also help mobile retailers design viable marketing strategies to retain customers. The organization of this paper is as follows. First, a literature review that includes marketing mix, satisfaction and loyalty is discussed and a research model is proposed. Second, data collection and methodology are explained. Third, data analysis and results are reported. Finally, this study discusses key findings, implications, and areas for future research.

**LITERATURE REVIEW AND RESEARCH MODEL**

The research model is shown in Figure 1. The reasons for using the constructs and the relationships among them are explicated in the following parts of this section.

Figure 1: Research Model

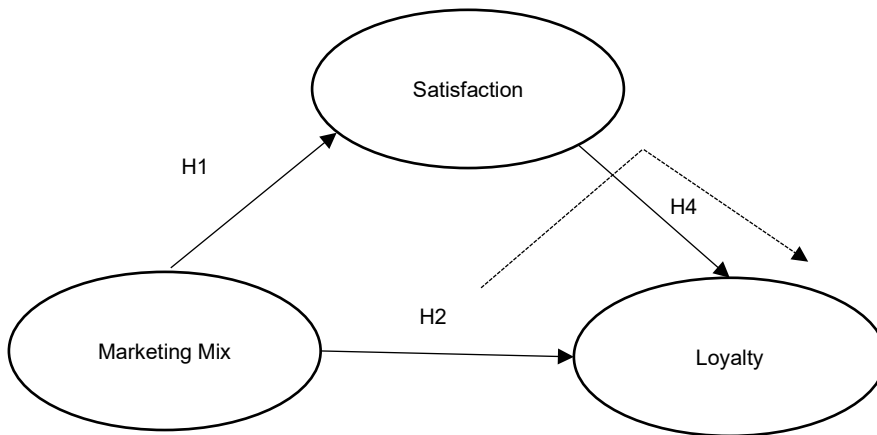


Figure 1 explains the relationships among the factors used in this study, including marketing mix, satisfaction, and loyalty. Continuous lines represent direct relationships, and dashed lines represent indirect relationships.

Marketing Mix

Marketing mix is a set of marketing tools companies employ to satisfy their targeted groups (Cannon, Perreault, & McCarthy, 2008) and achieve their goals (Azhar, Prayogi, & Sari, 2018). The four traditional elements of marketing mix are product, price, place, and promotion (4Ps), which have long been criticized for being enterprise-centered, and only focusing on the perspective of suppliers rather than customers (Manafzadeh & Ramezani, 2016). However, the 4Cs marketing mix proposed by Lauterborn (1990) is considered customer-centered, and its elements include customer value, cost, convenience, and communication. Customer value means that companies must create value for customers in addition to providing products and services (Wang, 2020), and cost refers to the purchase cost of a customer, such as money, time, energy, and physical strength (Guo, 2020). Convenience means customers will experience the slightest difficulty when shopping (Jiang, 2019). For example, customers can choose their preferred

delivery or payment methods (Lei, 2022). Finally, communication refers to all the information provided to customers (Guo, 2019). The current research adopted the 4Cs marketing mix as it is customer-centered (Lauterborn, 1990), and more appropriate in the digital age (Lei, 2022).

#### Satisfaction

The effect of satisfaction is highly significant in the retail industry. In the online context, satisfaction refers to customers' evaluation of their online shopping experiences compared to their experiences with traditional brick-and-mortar stores (Evanschitzky, Iyer, Hesse, & Ahlert, 2004; Szymanski & Hise, 2000). Further, in the mobile commerce environment, Lin and Wang (2006) defined satisfaction with mobile commerce as a customer's level of feeling in response to the shopping experiences. This study defines satisfaction as a customer's total response to the shopping experiences when using retail apps. The marketing mix will deliver value to customers and satisfy them if the results exceed their expectations. Previous literature in this stream has shown evidence for the relationship between marketing mix and satisfaction. For instance, Ohrabi et al. (2017) contended that banking service marketing mix affects customer satisfaction. Thus, the following hypothesis is proposed:

*H1: Marketing mix is positively associated with satisfaction.*

#### Loyalty

Loyalty has long been considered a key mechanism in e-commerce (Reichheld & Schefter, 2000) as loyal customers make purchases more often, recommend the company to friends, even tolerate higher prices and are willing to buy different products from the same company (Chang & Fong, 2010). Consequently, loyal customers will bring substantial income to the company. In the online context, many scholars have also emphasized that increasing customer loyalty is critical for mobile service providers (Deng, Lu, Wei, & Zhang, 2010). Following the same logic, we believe customer loyalty also plays a pivotal role in retail apps. In the current study, loyalty is defined as a customer's intention to reuse an app or to buy from it. It is argued that if customers like the marketing mix elements on retail apps, they will stick to them and encourage their friends to use them. Several empirical studies have demonstrated the positive relationship between marketing mix and loyalty. For example, Azhar et al. (2018) noted that marketing mix positively and significantly affects tourist loyalty. In addition, Daniawati et al. (2023) validated the relationship between health services marketing mix and patient loyalty. Therefore, the following hypothesis is proposed:

*H2: Marketing mix is positively associated with loyalty.*

A related stream of research has indicated that loyalty can be generated via increased satisfaction (Daniawati et al., 2023). In our context, if customers are satisfied with retail apps, they will be more likely to continue using them. In investigating the relationship between customer satisfaction and loyalty, several studies have found that customer satisfaction exerts an effect on customer loyalty (Elgarhy & Mohamed, 2022; Sudari, Tarofder, Khatibi, & Tham, 2019). For example, Wongsawat and Deebhijarn (2019) found that satisfaction is a direct antecedent of loyalty when exploring customer loyalty in tourism. Extrapolating from this argument, the following hypothesis is proposed:

*H3: Satisfaction is positively associated with loyalty.*

Nevertheless, the study results of Chadha and Kapoor (2009) showed that customer satisfaction is an influential mediator of consumer behavior. Elgarhy and Mohamed (2022) explicated that tourist satisfaction mediates the relationship between marketing mix and loyalty. Likewise, some scholars argued that customers must be satisfied before becoming loyal (Wahab, Hassan, Shahid, & Maon, 2016), which means customers will only become loyal with satisfaction (Nguyen, Nguyen, Nguyen, & Phan, 2018). Summarizing the preceding discussion, it is believed that if customers like the marketing mix elements on

retail apps, they will experience satisfaction. Once satisfied, they will continue using the apps. Accordingly, the following hypothesis is proposed:

*H4: Satisfaction mediates the relationship between marketing mix and loyalty.*

## DATA AND METHODOLOGY

The current study adapted operational definitions and measurement items from past research whenever possible. Marketing mix was measured by four dimensions, fifteen-item measures adapted from Wang (2020). The six items measuring satisfaction were taken from Smith (2020). Loyalty was assessed using items from Castañeda (2011). All the items were measured using a five-point Likert scale with anchors ranging from strongly disagree (1) to strongly agree (5). Demographic variables tied to loyalty were also collected, including gender, marital status, age, education, occupation, monthly income, and times of using the app for the past three months. The current study surveyed customers of two 7-ELEVEN convenience stores in Kaohsiung City, Taiwan, from January to March 2022. The target participants consisted of 7-ELEVEN mobile app users. Two experienced interviewers were assigned to two 7-ELEVEN convenience stores to collect data. To ensure eligible responses, at the beginning of each interview, participants were asked if they had installed the 7-ELEVEN app and had used the app for shopping for the past three months. After completing the questionnaire, a gift certificate was offered to appreciate their participation. Totally, 197 complete and valid questionnaires were collected for data analysis. Of the 197 respondents, 111 (56.3%) were females and 152 (77.2%) were single. 107 (54.3%) were between the ages of 21 and 30. 94 (47.7%) reported having completed a college degree. 77 (39.1%) were employees, and 114 (57.9%) reported having a monthly income between NT\$ 15,001 to NT\$ 25,000. Finally, approximately 98 (49.7%) reported using the app 11 to 20 times in the past three months.

## RESULTS

### Measurement Model

The current study used SPSS 20 for descriptive statistics and used AMOS to examine the proposed model. By using confirmatory factor analysis (CFA), the measurement model was examined. The convergent validity was checked by factor loadings, composite reliability (CR), and average variance extracted (AVE). According to Hair, Hult, Ringle, and Sarstedt (2017), the factor loading value should be greater than 0.5. Also, based on Fornell and Larcker (1981), the acceptable value of CR and AVE is 0.7 and 0.5, respectively. As shown in Table 1, all loadings exceeded the 0.5 threshold. The composite reliabilities of the constructs were between 0.780 and 0.912, and the AVE were between 0.532 and 0.675. Therefore, a reasonable convergent validity is proved.

To assess the discriminant validity of the scales, the two criteria suggested by Gaski and Nevin (1985) were used: (1) the correlation coefficient of two dimensions should be smaller than 1, (2) the individual Cronbach's alpha reliability coefficient is larger than the correlation coefficient of two dimensions. Table 2 illustrates that all the diagonal values were larger than the inter-construct correlations, which corresponds with the criteria required to demonstrate discriminant validity.

Table 1: Measurement Model Assessment

Constructs	Dimensions	Items	Loadings	Cronbach's alpha	CR	AVE
Marketing Mix	Customer Value	mm1_1	0.794	0.826	0.828	0.616
		mm1_2	0.788			
		mm1_3	0.772			
	Cost	mm2_1	0.810	0.785	0.780	0.543
		mm2_2	0.729			
		mm2_3	0.665			
	Convenience	mm3_1	0.896	0.911	0.912	0.675
		mm3_2	0.827			
		mm3_3	0.794			
		mm3_4	0.775			
		mm3_5	0.811			
	Communication	mm4_1	0.841	0.848	0.852	0.591
		mm4_2	0.736			
		mm4_3	0.784			
		mm4_4	0.708			
	Satisfaction	sf1	0.709	0.871	0.872	0.532
sf 2		0.666				
sf 3		0.708				
sf 4		0.740				
sf 5		0.757				
sf 6		0.791				
Loyalty	loy1	0.701	0.902	0.903	0.571	
	loy2	0.819				
	loy3	0.818				
	loy4	0.738				
	loy5	0.725				
	loy6	0.790				
	loy7	0.686				

Table 1 indicates the range of values of Cronbach's alpha is between 0.785 and 0.911, all of which pass the 0.7 threshold. It also indicates that composite reliability (CR) has values between 0.780 and 0.912, all of which also pass the 0.7 threshold.

Table 2: Descriptive Statistics and Correlations

Dimensions	M	S.D.	1	2	3	4	5	6
1. Customer Value	3.49	0.93	0.826					
2. Cost	3.54	0.89	0.685**	0.785				
3. Convenience	3.57	0.97	0.449**	0.490**	0.911			
4. Communication	3.70	0.91	0.632**	0.588**	0.382**	0.848		
5. Satisfaction	3.52	0.81	0.728**	0.674**	0.448**	0.730**	0.871	
6. Loyalty	3.47	0.84	0.740**	0.669**	0.477**	0.630**	0.825**	0.902

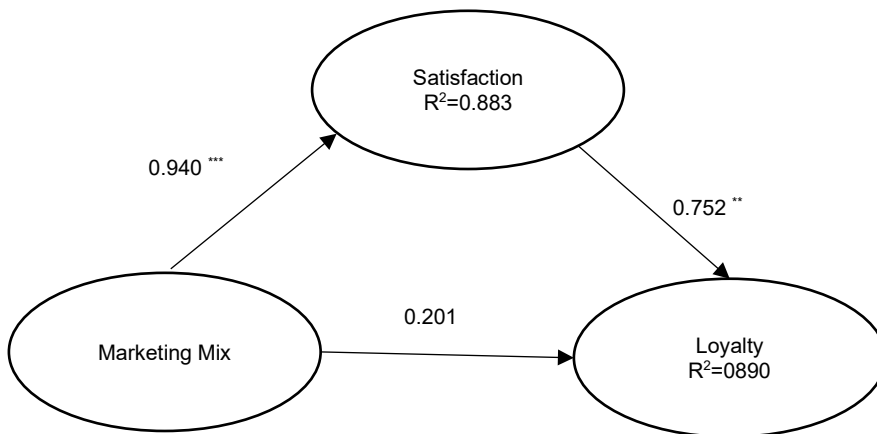
Table 2 shows the descriptive statistics and correlations of all the dimensions. Diagonal elements (in shade) are Cronbach's alpha values, whereas off-diagonal ones are the correlations among dimensions. Diagonal elements should be larger than off-diagonal ones to establish discriminant validity. \*P<0.05, \*\*P<0.01, \*\*\*P<0.001

As data were collected through a cross-sectional approach, the issue of common method variance (CMV) might occur in the measurement model. As a result, CMV was checked by using Harman's single-factor test (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). The current study divided all constructs items in the proposed model into various factors. It was found that the first element of the factors illustrated 46% of the variance, which showed that CMV is not a problem according to prior literature standards. The variance inflation factor (VIF) and tolerance values of all the constructs were both computed, too. Based on Mason and Perreault Jr (1991), multicollinearity will not be an issue in the dataset if the VIF values are smaller than 10 and the tolerance values are larger than 0.1. The findings showed that the VIF values were 2.73 and the tolerance values were 0.37. As a result, there are no serious multicollinearity issues.

Structural Model

The current study used the AMOS structural model to examine the hypotheses. Figure 2 and Table 3 summarize that all the hypotheses were supported except H2. In addition, Figure 2 demonstrates the explanatory power of the research model. As expected, marketing mix significantly and positively affects satisfaction, with a path coefficient of 0.940 ( $t = 4.663$ ), supporting hypothesis 1. Moreover, satisfaction significantly and positively affects loyalty, with a path coefficient of 0.752 ( $t = 2.750$ ), supporting hypothesis 3. However, marketing mix is not positively associated with loyalty, with a path coefficient of 0.201 ( $t = 0.918$ ). Thus, hypothesis 2 is not supported. Finally, the research model explained 89% of variance in loyalty. R2 is 88% when marketing mix was used to predict satisfaction.

Figure 2: Results of the Structural Model



The simple linear regressions are presented in this figure. The percentage of variance for satisfaction and loyalty is 88% and 89%, respectively.

Table 3: Summary of Hypotheses Testing Results

Hypotheses	Path Coefficient	t-value	P-value	Supported
H1: MM→SF	0.940***	4.663	P<0.001	Yes
H2: MM→LOY	0.201	0.918	ns	No
H3: SF→LOY	0.752**	2.750	P<0.01	Yes

Table 3 lists the path coefficient, t-values, and p-values for each hypothesis. H1 and H3 are supported with p-values less than 0.05. H2 is not supported. \*P<0.05, \*\*P<0.01, \*\*\*P<0.001, ns= not significant

To test the proposed mediation effect (i.e., hypothesis 4), the current study implemented bootstrapping procedure with replacement using 2000 subsamples on AMOS. According to Shankar and Jebarajakirthy (2019), the medication effects can be either partial or full mediation effects. Based on Cheung and Lau (2008), partial mediation exists when both indirect and direct effects are significant. However, full medication exists when the indirect effect is significant, whereas the direct effect is not. Table 4 shows that the indirect effect of marketing mix on loyalty via satisfaction is positively significant (standardized estimate = 0.706) with a 95% bootstrap confidence interval (CI.95 = 0.261, 1.721). However, the direct effect of marking mix on loyalty is not significant (standardized estimate = 0.201) with a 95% bootstrap confidence interval (CI.95 = -0.883, 0.664). Thus, satisfaction was found to serve as a full mediator of the link between marketing mix and loyalty, supporting H4.

Table 4: Result of Indirect Effect Analysis

	Estimate	p value	BC 95% Confidence Interval	
			Lower	Upper
Indirect effect				
MM→SF→LOY	0.706	0.016*	0.261	1.721
Direct effect				
MM→LOY	0.201	0.519	-0.883	0.664
Total effect				
MM→LOY	0.908	0.002**	0.848	0.953

Table 4 shows that satisfaction fully mediates the relationship between marketing mix and loyalty, with the indirect effect being significant but the direct effect not significant. BC: Bias-corrected percentile method \*P<0.05, \*\*P<0.01, \*\*\*P<0.001.

## CONCLUDING COMMENTS

The current study proposed and tested a model to assess customer loyalty in the context of retail apps. This study aims to investigate the relationships among marketing mix, customer satisfaction, and customer loyalty. A questionnaire survey was administered to collect data, which included 197 retail application users of two 7-ELEVEN convenience stores in Taiwan. Data analysis was then performed using SPSS 20 and AMOS to test the measurement and structural models. The results showed that marketing mix affects satisfaction directly. After that, satisfaction has a positive effect on loyalty, which is in congruence with prior studies (Nguyen et al., 2018). Also, this study, consistent with prior literature (Ohrabi et al., 2017; Wahab et al., 2016), found that satisfaction mediates the relationship between marketing mix and loyalty. However, marketing mix is not positively associated with loyalty, which is outside our expectations. A plausible explanation is that more than marketing mix tools are needed to gain loyalty. Though pleased with the marketing mix tools, customers must be satisfied with the goods or services received before reusing the apps. Otherwise, customers are always free to stop using the apps or even delete them when pursuing their best interests. The research contributes to the current literature in mobile retailing by employing the 4Cs marketing mix to study customer loyalty. It examined and clarified the direct and indirect relationships among marketing mix, satisfaction, and loyalty. As a result, this study extends the scope of previous research on the 4Cs marketing mix, shedding some light on the broader application of this marketing concept. In addition to the aforementioned theoretical contributions, this study provides specific recommendations to help mobile retailers better design marketing strategies and activities. For example, it is clear that marketing mix is of major importance in determining customer satisfaction. Toward this end, retailers are suggested to continue to update, maintain and enhance their apps to magnify the effects of marketing mix. Specifically, they should keep offering higher quality products at reasonable prices, making shopping easier, and providing fast and efficient customer service. Moreover, retailers should be aware that online shoppers are as demanding as those in brick-and-mortar stores even though they cannot touch the goods. Without satisfaction, they might discontinue using the apps anytime.

Finally, a few limitations are identified in the current study. First, marketing mix was treated only as a general construct encompassing four dimensions. Future research is suggested to investigate those four dimensions as separate constructs to acquire valuable insights into how each dimension affects satisfaction and loyalty individually. Second, another area for improvement is that this study only examined one retail app in Taiwan. Replicating this study across users of different retail apps, such as clothing apps, may provide further insights into customer loyalty.

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