ISSN 2409-2665
Journal of Logistics, Informatics and Service Science
Vol. 12 (2025) No. 2, pp. 167-184
DOI:10.33168/JLISS.2025.0211

The Influence of Online Marketing Mix on Brand Loyalty with Consumer Involvement as Mediator: A Smartphone Industry in China

Kexue Yan*, Thanakon Ratchatakulpat, Anong Taiwan

Faculty of Business Administration, Rajamangala University of Technology Phra Nakhon, Thailand,10300

kexue-y@rmutp.ac.th (Corresponding author)

Abstract. The rapid expansion of the smartphone market in China has positioned it as a global leader, driving innovation in online marketing strategies. This study investigates the impact of the on-line marketing mix on consumer involvements and brand loyalty, specifically within the Chinese smartphone market. Using data from 456 smartphone users collected via an online survey, The correlations were analyzed using structural equation modeling. The findings show that the internet marketing mix considerably improves brand loyalty, both indirectly and directly, by positively influencing consumer involvement. Furthermore, consumer involvement plays a crucial mediating role in strengthening the relationship between marketing strategies and brand loyalty. These findings emphasize the critical role of personalization and privacy in digital marketing, illustrating their impact on enhancing consumer engagement. Furthermore, the study underscores the importance of strategically designed online marketing campaigns that integrate emotional and psychological considerations to cultivate long-term brand loyalty. By employing targeted marketing strategies, minimizing perceived risks, and enhancing symbolic and experiential brand value, Chinese smartphone companies can effectively strengthen consumer relationships. The insights from this research provide practical recommendations for optimizing digital marketing efforts to increase customer retention and competitive advantage in the evolving market landscape.

Keywords: Online Marketing Mix,6Ps, Consumer Involvement(engagement), Brand Loyalty

1. Introduction

1.1 Problem Description and Study Significance

As the core of marketing theory, the marketing mix has been running through the evolution of the business environment. Since Neil Borden proposed the concept in the 1950s and McCarthy defined the 4P model (product, price, place, promotion), companies have relied on this theory to meet market needs(Borden, 1964). However, with the advent of the digital age, the traditional 4P mix faces new challenges. The rise of online business, especially the popularity of e-commerce and social media, has forced companies to re-examine the controllable factors in the marketing mix(Kalyanam & McIntyre, 2002). The online shopping environment provides users with a more convenient manner to shop, and consumer behavior patterns have also changed accordingly. For example, in the modern shopping process, consumers are increasingly relying on search engines to obtain product information and use social software to share shopping experiences, which greatly strengthens the function of internet marketing (Adam, 2002).

Meanwhile, in the process of online shopping, consumer involvement has become an important factor affecting brand loyalty (Gommans et al., 2001). Traditional marketing channels deepen consumers' dependence on brands through offline experience, while in the online environment, consumers strengthen their connection with brands through digital interaction. Especially in China's smartphone market, where competition is fierce, how to increase consumer involvement through online marketing and thus enhance brand loyalty has become a critical strategy for companies to enhance competitive advantage (Reichheld et al., 2010). Studies have shown that brand loyalty can significantly improve a company's profitability, because loyal consumers are not only willing to pay a premium for the brand, but also make repeated purchases, thereby reducing the company's marketing costs (Moisescu & Allen, 2010).

Although the existing literature has discussed the association in online marketing and shopping behavior in depth, the interactive mechanism among customer engagement, brand loyalty, and the internet marketing mix, especially in the specific role of the Chinese smartphone market, needs further exploration. The present research aims to explore how the online marketing mix affects brand loyalty through consumer involvement, with a special focus on the highly digital and competitive market of Chinese branded mobile phones. Through a structured questionnaire survey, data analysis will reveal the correlation between between customer engagement, brand loyalty, and the internet marketing mix, and provide theoretical basis and practical guidance for related companies to optimize marketing strategies.

1.2. Objectives of the study

1) To study the role of the online marketing mix in the smartphone industry in China. This study defines the online marketing mix as an extension of the traditional 4P framework (Product, Price, Place, and Promotion) by integrating two additional dimensions—Privacy and Personalization—which are critical in the digital marketing landscape. The research will analyze how these six components are applied in smartphone marketing strategies and their effectiveness in engaging consumers.

2) To investigate the concept of consumer involvement in online marketing and its role as a mediating factor between the online marketing mix and brand loyalty. Consumer involvement refers to the cognitive, emotional, and behavioral engagement of consumers with smartphone brands through digital platforms, including website interactions, social media engagement, content marketing, and online customer support. This study will assess how varying levels of consumer involvement influence brand perception and long-term customer commitment.

3) To investigate the impact of online marketing mix methods on brand loyalty in China's smartphone market. In this context, brand loyalty is defined as consumers' recurrent purchases, brand preference, and advocacy. The study will employ indicators like Net Promoter Score (NPS), customer

retention rate, and brand advocacy to evaluate the efficiency of digital marketing initiatives in encouraging consumer loyalty.

4) To explore the marketing dynamics of the highly competitive Chinese smartphone industry and identify the key factors that shape consumer behavior in the online marketplace. This includes an analysis of technological advancements, evolving consumer preferences, and competitive strategies among smartphone brands. By investigating these aspects, the study aims to provide insights into how online marketing techniques drive consumer engagement, influence purchasing decisions, and contribute to brand success in China's digital economy.

1.3. Benefits of the Study

To investigate the impact of online marketing mix methods on brand loyalty in China's smartphone market. In this context, brand loyalty is defined as consumers' recurrent purchases, brand preference, and advocacy. The study will employ indicators like Net Promoter Score (NPS), customer retention rate, and brand advocacy to evaluate the efficiency of digital marketing initiatives in encouraging consumer loyalty.

The findings of this study will give organizations with critical market insights and strategic advice, allowing them to adapt and fine-tune their marketing strategies in response to changing market dynamics and specific consumer needs. According to eCommerce Merchandising (2024), organizations that use accurate and successful online marketing methods can differentiate themselves in a highly competitive field, improve market share, and boost brand value.

2. Literature Review

2.1. Core Concepts and Theoretical Foundations

With the rapid development of the Internet, internet marketing has become an important tool for businesses to promote their products. The online marketing mix (such as social media marketing, email marketing, etc.) interacts with consumers through multiple channels, greatly changing the relationship between brands and consumers(Yan, 2024). In China, the smartphone market is highly competitive. Local brands represented by Huawei, Xiaomi, OPPO, etc. not only have to face the challenges of the local market but also must deal with strong competition from international brands. Therefore, improving brand loyalty through effective online marketing methods has become the focus of companies.

2.2. Online Marketing Mix (OMM)

Based on the association in online marketing mix and purchasing behavior, online marketing is a promosing marketing channel. In the digital age, the way consumers learn about products and services before and after shopping is also undergoing tremendous changes. Nowadays, most people pursue convenience and speed. In addition to communication activities, a lot of time is spent on computers and smartphones. Moreover, people also use search engines to find product information and use social software to share and transmit product information. In addition, the single traditional channel marketing method is insufficient. This has made the size of online marketing growing rapidly, which is in line with the research results of Adam (2002) on the network usage model in different marketing strategies. Since the advent of the 4P theory, many marketing mix theories have been derived. In the digital age, the online shopping process has unique characteristics. Researchers have proposed the 6P marketing theory based on the characteristics of online shopping. The privacy and personalization that people care about in the shopping process are combined with the traditional 4P theory to analyze the marketing process. Lawrence et al. suggested adding two more Ps to the traditional 4P combination, which was incorporated into the 6P marketing mix concept(Lawrence et al., 2000).

According to Wongnichakhun's theory, the online marketing mix is a noval marketing mix consisting of 6 Ps, including product, price, place, promotion, privacy and personalized service(Wongnichakhun, 2007). All factors of that mix are related. Traditional 4P+2P (privacy and

Personalization) is a new combination model in the online marketing atmosphere.

Product. In the context of digitization, a product can be described as the entire set of benefits that a consumer receives in return (Yudelson, 1999). The Internet's interactivity and connectedness have given rise to a novel product concept: the "virtual product" (Pastore et al., 2004). Because of its ease of getting information online and ability to transform experiential items into search-oriented products, the Internet plays an important role in the purchasing process of "search-oriented" products (Klein, 1998).

Price. Price was redefined as the financial cost, time and effort that users invest in acquiring a product(Yudelson, 1999). In general, the main advantage of the Internet is that it reduces information inequality and allows consumers to compare different prices, thus gaining greater transparency (Bhatt , 2001). This process helps to reduce the cost of time and effort that consumers invest in finding the best deal(Dominici, 2009).

Place. place is everything that is done to make the transaction process smooth (Yudelson, 1999). The primary function of the Internet in business is not merely the ability to sell online, but to build association with users(Bhatt, 2001)

Promotion. It means all information transmitted in parties (Yudelson, 1999). In the online environment, consumer interaction is a many-to-many paradigm. Many researchers have proposed that Promotion can be Communications mix(Staudt & Taylor, 1965) and an integrated marketing communications (Nichols & Woods, 1997) Due to the multimedia nature of web communications. its information content is higher. Establishing a purchasing relationship with customers is the goal of online communication, not merely product promotion.

Privacy. Protecting customer privacy is a core business ethic. Companies should adhere to data privacy policies to ensure customer information is secure and not leaked, allowing customers to access and manage their data at any time(Dominici, 2009). Sellers must establish and rigorously follow clear privacy policies.

Personalization.The internet allows businesses to offer tailored services based on customers' personal information. Sales teams should analyze consumer behavior to provide personalized recommendations and meet customer needs, such as sending holiday cards or suggesting products based on individual interests(Salimee et al., 2022). The theoretical structure diagram is shown in Figure 1.

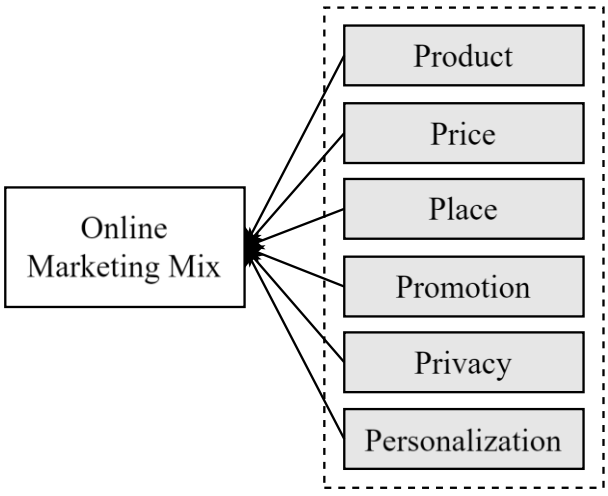

Fig. 1: The Theory of Online Marketing Mix

2.3. Consumer Involvement (CI)

Online shopping is considered one of the fastest forms of commerce (Demangeot et al., 2015). In the traditional marketing process, consumers go to the store to check the goods before buying. When shopping online, customers do not have to go to the store but can make choices. Although online shopping also has certain drawbacks, such as safety, shipping costs, counterfeit products, etc., the advantages of online shopping are obvious, such as saving time and energy, and making it more convenient to compare product prices; The time for purchasing goods is basically not constrained. At present, the number of online shopping users is constantly increasing, and many consumers also collect product information through the internet for leisure and entertainment. This also reflects a fact that the online shopping environment has a significant impact on the overall relationship between the two parties in the transaction(Hollebeek et al., 2014).

Zaichkowsky laid the foundation for the field of consumer involvement(Zaichkowsky, 1985). Zaichkowsky explored the impact of product importance and interest on consumer involvement. This study provided a theoretical basis for subsequent research and inspired further discussions on influencing factors such as risk and pleasure. Laurent & Kapferer developed the famous "Consumer Involvement Profile" (CIP) model, which points out the five core items: interest, sign value, pleasure, perceived risk, and importance of purchase decisions(Laurent & Kapferer, 1985). Their research shows how these factors jointly affect consumers' brand involvement levels. Therefore, consumer involvement is affected by multiple factors, which together determine the depth of consumer involvement and behavioral responses in different situations. These studies provide a rich theoretical basis to determine the relationship between consumer involvement and core marketing issues such as brand loyalty and risk perception. The theoretical structure diagram is shown in Figure 2.

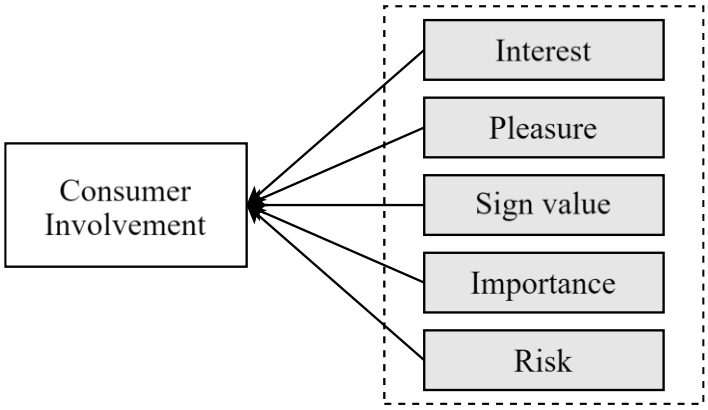

Fig. 2: The Theory of Consumer Involvement

2.4. Brand Loyalty (BR)

As consumers play an increasingly crucial part of internet buying, if online retailers understand the factors that influence online shopping, they can use suitable strategies to convert potential buyers into actual buyers(Adam, 2002). Therefore, the role of brand loyalty when consumers shop online is worth studying.

Brand loyalty represent the frequent purchase of a brand by customers(Subagyo, 2019). It is described as customers' favorable perception of a brand, the intention of users to buy the same brand now and in future is very strong. If customers do not or do not go through the purchase process first, true loyalty cannot be formed. Brand loyalty may cause the brand commitment, which is the emotional closeness of consumers to the product(Susanti et al., 2020). One way to maintain users is to construct a good relationship with them, because long-term loyal customers will not easily change the brands, while short-term loyal users will churn faster when appeared better options(Jiang et al., 2011).

Brand Loyalty in Online Shopping A consumer is regarded as brand loyal when he believes that a particular brand offers him the desired quality level and therefore repeatedly purchases that particular brand consciously or subconsciously(Jacoby, 1978). Since consumers cannot touch and feel the products online, they should be very careful when buying items online. One solution is to win the confidence of consumers through brand loyalty. In contrast, consumers can easily compare prices across stores/brands when shopping online(Farquhar, 1989). It may reduce the influence of brand loyalty on purchase decisions in an online purchasing environment. Therefore, it is beneficial to study the impact of it on online shopping.

The measurement dimensions of brand loyalty are composed of multiple aspects. M. Punniyamoorthy et al. studied the brand loyalty of English newspapers and constructed an 8-dimensional brand loyalty analysis model(Mohan Raj, 2007) (Net Promoter Score, Repeat Purchase Behavior, Emotional Attachment, Price Sensitivity, Brand Trust, Commitment, Social Media Involvement, Customer Satisfaction).

This study aimed to evaluate the association in OMM and CI and BR, and the mediating role of consumer involvement. By testing smartphone consumers, the relationship between them is found. This study proposes the following model as an indicator of brand loyalty. The reason for choosing smartphones as the research object is that smartphones are not cheap and are durable goods. Consumers will do a lot of research before and after purchase and have high involvement. According to the theory that high involvement will increase brand loyalty, it is suitable for analyzing brand loyalty. This study uses this model to study the measurement of smartphone brand loyalty, Figure 3.

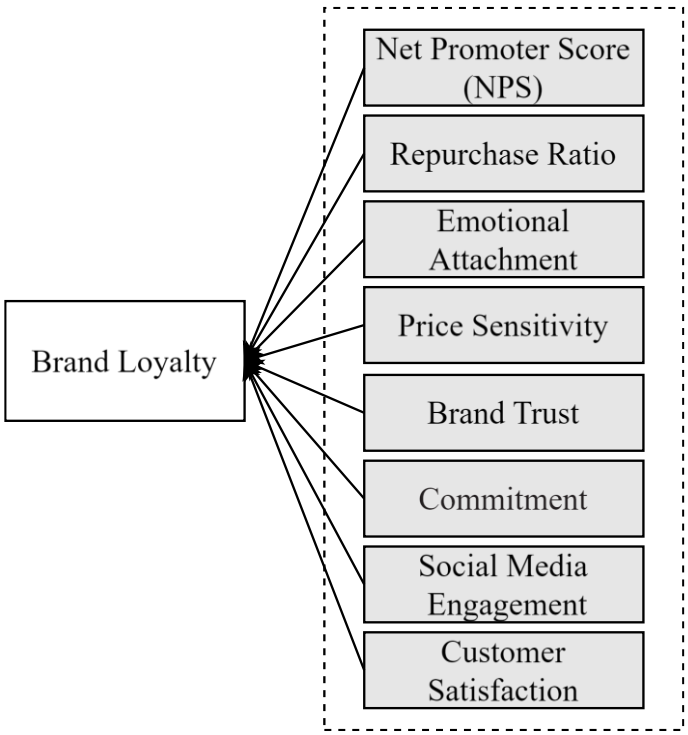

Fig. 3: The Theory of Brand Loyalty

2.5. Conceptual Framework

In the digital business environment and that mix, consumer involvement has gradually become an important factor affecting brand loyalty. Through online marketing, companies can establish deeper interactions with consumers, prompting consumers to have positive emotional and behavioral involvement in the brand. Existing researches reported that high level of consumer involvement can

significantly improve consumers' brand loyalty(Hollebeek, 2011). Brodie et al. explored the different dimensions of consumer involvement and found that positive consumer involvement promotes consumer loyalty to the brand(Borden, 1964). Vivek et al. also proposed that consumers' active participation (such as interacting with the brand, participating in the brand community, etc.) is a key factor in promoting brand loyalty(Vivek et al., 2012). Consumers' emotional and cognitive involvement helps to form stronger brand loyalty, especially in industries that are highly dependent on online interactions, such as the smartphone industry.

A new marketing mix: A lot of studies and investigations were motivated by the need to develop a novel operational marketing model that can go beyond the 4Ps and define marketing more clearly. A radical reconceptualization of the conventional 4Ps marketing. The traditional 4Ps marketing mix model is internally oriented, lacks customer orientation and focused on the association with the customer(Constantinides, 2006). Nowadays, a new oriented model needed to be constructed that included the network system perspective. The new marketing model needs to be more customer-oriented, incorporating the privacy and personalization factors that are evident in the network environment, Figure 4. This new model, together with the theory of brand loyalty formation in the network environment, forms a new theoretical framework(Schultz, 2001).

2.6. Theoretical framework

According to the literature analysis result, the following theories and conceptual research framework are put out in light of the literature and theory, as illustrated in the figure:

.

H1: The online marketing mix influences consumer involvement.

H2: Consumer involvement positively influences brand loyalty.

H3: The online marketing mix positively influences brand loyalty.

H4: Consumer involvement mediates the relationship between the online marketing mix and brand loyalty.

According to the hypothesis, the structural equation model (SEM) was constructed as follows:

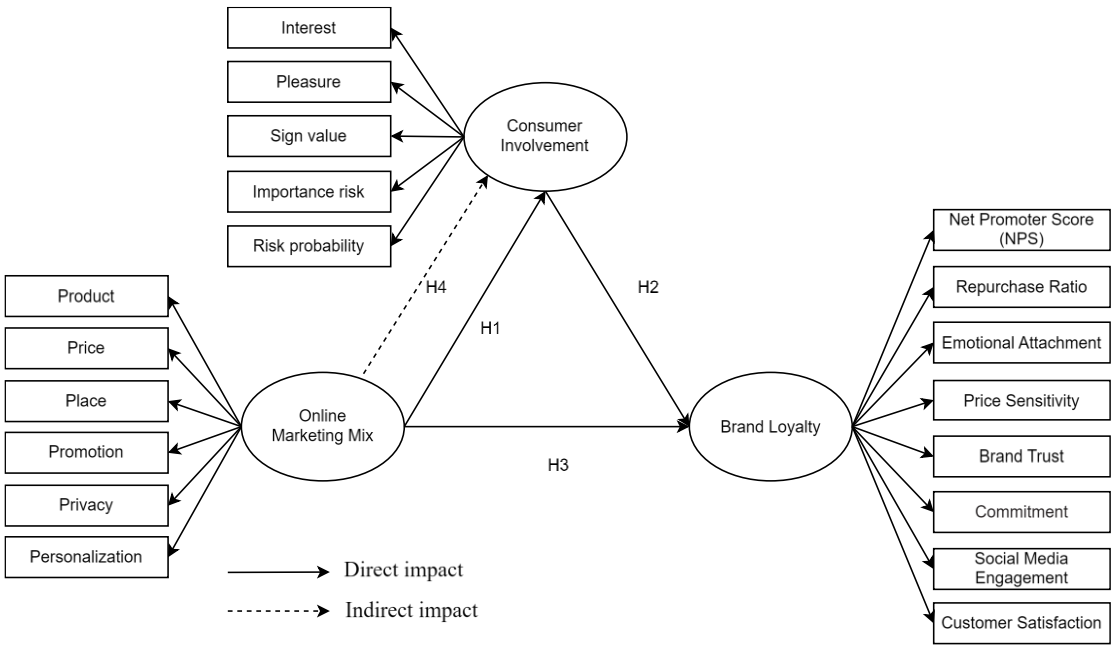

Fig. 4: Research theoretical framework

3.Methodology

3.1. Research design

This study employs a survey methodology to examine the attitudes and behaviors of Chinese mobile phone users prior to and following the acquisition and utilization of mobile phones, aiming to assess the impact of internet marketing on brand loyalty and the mediating effect of customer involvement. The questionnaire includes five parts:

Part 1 is user personal information, including gender, age, occupation, income and other information, which aims to understand the basic situation and background of the visitors.

Part 2 is the basic situation of users' mobile phone purchase and use of smartphones, including basic information such as mobile phone brand, purchase time, and purchase method.

The third to fifth parts are scale questions, which are online marketing mix, brand loyalty tests, respectively, to measure consumers' attitudes and behaviors towards purchasing and using Chinese brand smartphones, and to analyze the association in these variables.

A five-point Likert scale (ranging from “very inconsistent” to “very consistent”) was applied to evaluate the respondents’ measurements of the three variables.

The online marketing mix scale is divided into 6 dimensions: Product, Price, Place, Promotion, Privacy and Personalization. There are 18 questions in total. The consumer involvement scale is divided into 5 dimensions: Interest, Pleasure, Sign value, Importance risk and Risk probability. There are 15 questions in total. The brand loyalty scale is divided into 8 dimensions: Net Promoter Score (NPS), Repurchase Ratio, Emotional Attachment, Price Sensitivity, Brand Trust, Commitment, Social Media Engagement and Customer Satisfaction. There are 24 questions in total. It aims to measure various aspects of each dimension of the variable. These scales are all mature scales from other literatures and have been appropriately adjusted according to the test content of this study. Hence, a pilot test was performed before the formal test. The questionnaire passed the validity tests before the formal test. The formal test was conducted by collecting questionnaires online through Questionnaire Star. SPSS and AMOS software were used as data processing tools.

3.2. Data collection

In this study, the research scope encompasses all mobile phone users in China. To account for regional differences in economic levels, social customs, cultural concepts, and to ensure that the findings are broadly applicable and representative, multiple regions across China were selected as the main areas for the survey. These regions include East, North, South, Central, Southwest, Northwest China.

These regions were chosen because they embody the key characteristics of various geographic locations, cultural backgrounds within the country. East China is highly urbanized with a developed economy, and its residents tend to have modern consumption habits and lifestyles. North China, centered around the capital Beijing, wields significant political and cultural influence. South China, being at the forefront of China, is highly internationalized. Central China has a relatively concentrated population with mid-level economic and cultural development. Southwest and Northwest China are more remote, with distinct ethnic cultures and unique lifestyles. By conducting a sampling survey in these diverse regions, we aim to reflect not only the overall smartphone usage across the country but also regional variations.

According to relevant statistical data, the quantity of smartphone users in China has reached 713.651 million in 2023, covering the majority of the population aged 15 to 64, with a total population of 962.8 million in this age group. As such, this survey focuses on smartphone users within this demographic to make sure the representativeness of the data. By analyzing mobile phone users from multiple regions and backgrounds, this study aims to offer a more comprehensive grasp of the behavioral characteristics and usage trends of Chinese mobile phone users.

Drawing from existing academic studies, the sampling parameters for this survey—a 95% confidence level, ±5% margin of error—are appropriate for performing an online questionnaire revolving around smartphone users' participation and brand loyalty. In this study, the researchers fully considered the size of the research sample based on Hair's theory on sample size(Hair, 2010). The sample number is approximately 400 participants, ensuring a diverse and representative group according to the outlined criteria. With these conditions in place, the sample size is expected to yield reliable perceptions into the consumption preferences of a broad range of mobile phone consumers.

4.Data analysis and Results

4.1. Statistical analysis of sample data

The data for this research was collected utilizing WJX, a Chinese online survey platform. The questionnaire link was disseminated among classmates and friends via social media, and their influence was used to assist in completing and sharing the questionnaire. The respondents primarily consisted of corporate employees, educators, scientific researchers, and students. In this poll, 500 questionnaires were gathered via WJX. Following the exclusion of 44 invalid questions exhibiting consistent response patterns and evident discrepancies between prior and subsequent answers, a total of 456 valid questionnaires were obtained, resulting in a valid questionnaire rate of 91.2%. The questionnaire comprises 49 scaled items. The total number of valid questionnaires is 456, satisfying the criterion that it exceeds five times the number of measuring scale items. The questionnaire is divided into five parts: personal information, smartphone product information, online marketing mix, customers participation, brand loyalty and, and the questionnaire items utilize the Likert 5-level scale. The assessment items of all variables in the questionnaire are mature scales proven by previous practices. SPSS and AMOS were used as data analysis tools to conduct reliability tests, validity tests, model fit test, regression analysis, and mediation effect test respectively, the demographic overview is shown in Table 1.

Table 1: Demographic Overview

Sample characteristics	Classification	Frequency	Percent	Cumulative Percent
gender	male	223	48.9	48.9
	female	233	51.1	100
age	18~24	93	20.4	20.4
	25~29	110	24.1	44.5
	30~44	155	34	78.5
	45~59	57	12.5	91
	Over 60 years old	41	9	100
occupation	Students	74	16.2	16.2
	Government agency/institution employees	80	17.5	33.8
	Enterprise employees	96	21.1	54.8
	Private business owners	78	17.1	71.9
	Freelancers	66	14.5	86.4
	Others	62	13.6	100
region	North China	74	16.2	16.2
	South China	72	15.8	49.8
	East China	81	17.8	34
	Northwest China	75	16.4	82.5
	Southwest China	80	17.5	100
	Central China	74	16.2	66
monthly income (USD)	Below 500	93	20.4	20.4
	500-720	53	11.6	32
	720-1430	289	63.4	95.4
	More than 1430	21	4.6	100

4.2. Reliability analysis

According to Table 2, the Cronbach's α coefficient of the questionnaire as a whole and the measured variables exceeding 0.8, which suggests that the consistency and reliability between the scale items are high, and the next step of validity analysis can be carried out.

Table 2: Reliability analysis

	Item-Total Statistics	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha
Online Marketing Mix	OMM1	0.885	0.954	0.962
	OMM2	0.877	0.955	
	OMM3	0.873	0.956	
	OMM4	0.889	0.954	
	OMM5	0.873	0.956	
	OMM6	0.878	0.955	
Consumer Involvement	CI1	0.856	0.939	0.95
	CI2	0.857	0.939	
	CI3	0.88	0.935	
	CI4	0.853	0.939	
	CI5	0.86	0.938	
Brand Loyalty	BL1	0.845	0.949	0.956
	BL2	0.836	0.95	
	BL3	0.841	0.95	
	BL4	0.831	0.95	
	BL5	0.837	0.95	
	BL6	0.812	0.951	
	BL7	0.817	0.951	
	BL8	0.846	0.949	
Total reliability				0.984

4.3. Validity analysis

This study evaluated the suitability of data for factor analysis using KMO test and Bartlett's sphericity test, as presented in Table 3. The analysis revealed excellent sampling adequacy across all constructs: Online Marketing Mix demonstrated a KMO value of 0.943 with Bartlett's test yielding $\chi^2 = 3029.666$ ($df = 15$, $p < 0.001$); Consumer Involvement showed a KMO of 0.915 accompanied by Bartlett's $\chi^2 = 2200.477$ ($df = 10$, $p < 0.001$); and Brand Loyalty attained the highest KMO value of 0.963 with Bartlett's $\chi^2 = 3361.592$ ($df = 28$, $p < 0.001$). Consistent with Kaiser's (1974) threshold criteria (KMO > 0.60 and significant Bartlett's test at $p < 0.05$), these results collectively confirm the data's appropriateness for factor analytic procedures.

Table 3: KMO and Bartlett's Test

	KMO	Chi-Square	df	Sig.
Online Marketing Mix	0.943	3029.666	15	0.000
Consumer Involvement	0.915	2200.477	10	0.000
Brand Loyalty	0.963	3361.592	28	0.000

4.4. Confirmatory factor analysis (CFA)

This research utilizes AMOS software to perform confirmatory factor analysis on the three variables of online marketing mix (OMM), consumer involvement (CI), and brand loyalty (BL) to examine the distinguishability of each variable. Secondly, the following seven indicators are chosen to explore the fitting effect of the model, as displayed in Table 4. The values of all indexes in the model are within the

recommended value range,suggesting that the constructed factor measurement model is good and can be tested in the next step. The model path diagram is displayed in Figure 5.

4.5. Construct validity

Table 4: Confirmatory factor analysis goodness of fit table

Fit parameters	X^2/df	RMSEA	GFI	AGFI	CFI	IFI	TLI
value	2.251	0.052	0.925	0.904	0.969	0.969	0.964
standard	<3	<0.08	>0.9	>0.9	>0.9	>0.9	>0.9

From the above table, we can see that the value of X^2/df is 2.251, not exceeding 3, and the fit is ideal: RMSEA is 0.052, which is less than 0.05, and the outcome is well-fitted: GFI is 0.925, which is greater than 0.9, and the outcome is well-fitted: AGFI is 0.904, not exceeding 0.9, and the outcome is well-fitted: CFI is 0.969, exceeding 0.9, and the outcome is well-fitted: IFI is 0.969, exceeding 0.9, and the outcome is well-fitted: TLI is 0.964, exceeding 0.9, and the outcome is well-fitted: Overall, the models of online marketing mix, customers participation, and brand loyalty are well-fitted. As shown in Figure 5.

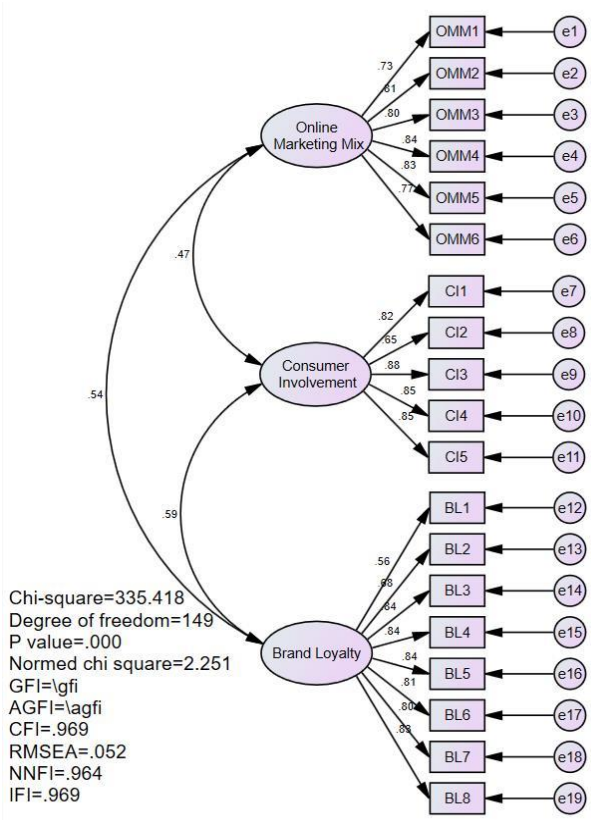

Fig. 5: CFA test model

4.6. Convergent validity

According to the path analysis, we can see that:

Table 5: Factor Loading

	Path		Estimate	AVE	CR
OMM1	<---	OMM	0.728	0.632	0.911
OMM2	<---	OMM	0.808		
OMM3	<---	OMM	0.801		
OMM4	<---	OMM	0.837		
OMM5	<---	OMM	0.825		
OMM6	<---	OMM	0.766		
CI1	<---	CI	0.824	0.665	0.908
CI2	<---	CI	0.65		
CI3	<---	CI	0.883		
CI4	<---	CI	0.847		
CI5	<---	CI	0.852		
BL1	<---	BL	0.56	0.609	0.925
BL2	<---	BL	0.676		
BL3	<---	BL	0.837		
BL4	<---	BL	0.839		
BL5	<---	BL	0.845		
BL6	<---	BL	0.808		
BL7	<---	BL	0.798		
BL8	<---	BL	0.834		

The value of combined reliability CR is acceptable when it is above 0.7 (Hair, 1997), and the standard value of AVE is acceptable when it is greater than 0.5 (Fornell & Larcker, 1981)

Combining the above table 5 for analysis, it is not difficult to find that the factor parameters of the latent variables corresponding to the three factors all exceed 0.7, indicating that these latent variables have high representativeness in different dimensions. At the same time, it was calculated that the AVE values of these latent variables all exceeded 0.5, and the corresponding combination reliability CR was greater than 0.8. The conclusion drawn from this is that the convergence validity is good.

4.7. Discriminant validity

Table 6: Discriminate validity

	OMM	CI	BL
OMM	0.632		
CI	0.039***	0.665	
BL	0.031***	0.034***	0.609
AVE Square root	0.795	0.815	0.780

Notes: ****P<0.001*

There is an obvious association between online marketing mix, consumer involvement, and brand loyalty ($p<0.01$) as shown in Table 6 above. In addition, after calculation, the absolute values of the correlation coefficients did not exceed 0.5, indicating that latent variables will influence each other. The final conclusion drawn is that discrimination of scale data is completely effective.

5. Structural Model and Hypothesis Verification

5.1. Structural Equation Modeling

After the confirmatory factor analysis, the hypothesis of this research was further tested with

Bollen-Stine Bootstrap for the structural model. The verification outcomes are displayed in Figure 6. The model fit is quite good, with chi-square value of 245.643, freedom degree of 147, chi-square to degrees of freedom ratio of 1.671, GFI of 0.945, AGFI of 0.928, CFI of 0.983, NNFI of 0.981, IFI of 0.983, and RMSEA of 0.038. All indicators are within the standards specified by SEM (Jackson, 2009). Therefore, the structural model of this study has a good fit.

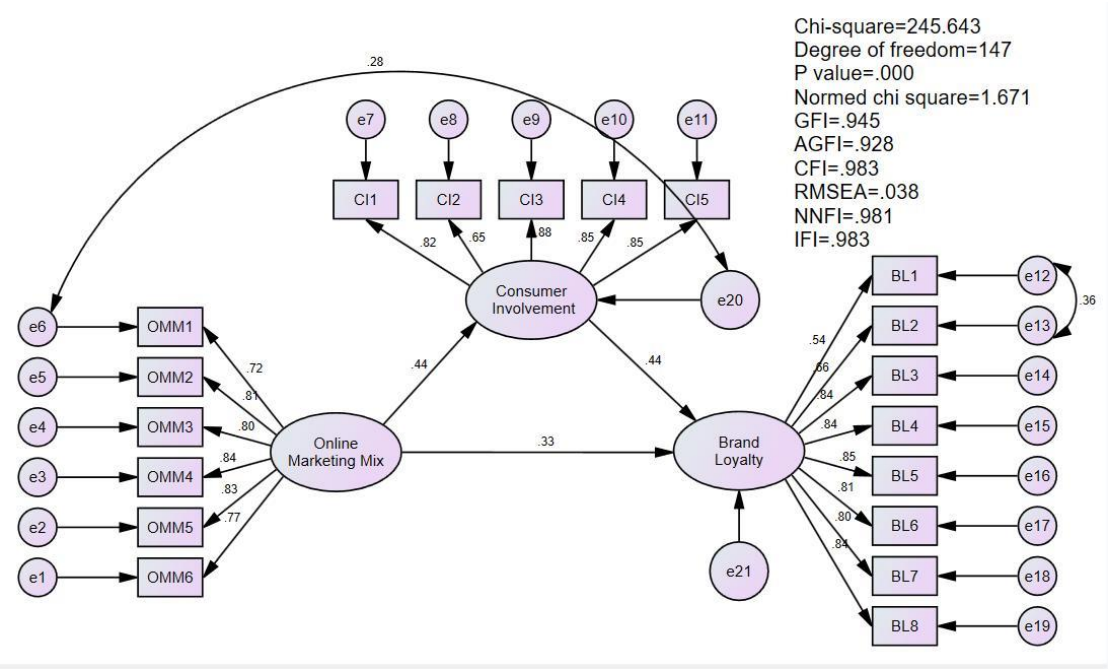

Fig. 6: Mediation Effect Detection Model

5.2. Regression analysis

The hypotheses put forward in this research were estimated using the bootstrap sampling method. The standardized path coefficients reached the significance standard. The online marketing combination has a beneficial and significant predictive power for consumer involvement, with a standardized path parameter of 0.444, $p<0.05$, indicating a significantly positive relationship. The online marketing mix also has a beneficial and significant predictive power for brand loyalty, with a standardized path parameter of 0.333, $p<0.05$, indicating a significantly positive relationship. and consumer participation also has a beneficial and obvious predictive power for brand loyalty, with a standardized path parameter of 0.437, $p<0.05$, indicating a significantly positive relationship. Therefore, all the hypotheses of this study are established, and the standardized regression coefficients and significance are shown in Table7.

Table 7: Path analysis

Y		X	Standard Estimate	S.E.	C.R.	P	Hypothesis
CI	<---	OMM	.444	.057	8.549	***	Established
BL	<---	OMM	.333	.038	6.209	***	Established
BL	<---	CI	.437	.038	7.58	***	Established

Notes: ****P<0.001*

5.3. Mediation effect analysis

Table 8: Mediation effect test table

Parameter	Effect type	Standardized Effects	Lower	Upper	P
BL<---OMM	Total Effects	.526	.409	.636	**
BL<---OMM	Direct Effect	.333	.197	.468	**
BL<---OMM	Indirect Effect	.194	.129	.273	**

***Notes**: **P<0.01*

To further explore the mediating relationship between consumer participation in the online marketing mix and brand loyalty, Bootstrapping is utilized to calculate the confidence intervals of the overall influence, indirect impact, and direct impact. According to Table 8, the confidence interval of the total influence of the online marketing combination on brand loyalty does not contain zero, which means that the total influence is obvious; the confidence interval range of the indirect effect does not contain zero, which means that the indirect impact is obvious; the confidence interval range of the directinfluence is obvious, which means that the direct influence is obvious.

Since both the indirect impact and the direct effect are significant, it shows that customers participation has a mediating influence on the overall model. In other words, the online marketing mix can directly affect brand loyalty and can also improve brand loyalty through consumer involvement.

6. Conclusion

The study empirically examines how the online marketing mix influences consumer involvement and brand loyalty in China's smartphone market. Using structural equation modeling (SEM) and mediation analysis on 456 valid responses, the findings confirm key hypotheses and offer insights into consumer behavior.

Results indicate that the online marketing mix positively impacts consumer involvement ($\beta = 0.44$, $p < 0.05$), with personalization and privacy protection playing crucial roles. Consumer involvement, in turn, significantly enhances brand loyalty ($\beta = 0.44$, $p < 0.05$), driven by emotional engagement and social identity. The direct effect of the online marketing mix on brand loyalty ($\beta = 0.33$, $p < 0.05$) highlights the importance of product quality, competitive pricing, and effective promotions, though price promotions were less influential.

Mediation analysis confirms that consumer involvement significantly bridges online marketing strategies and brand loyalty (indirect effect = 0.39). This suggests that marketing efforts are most effective when they first engage consumers emotionally and psychologically before fostering long-term loyalty.

Key factors driving engagement include personalization and promotion, which enhance interest and pleasure, leading to stronger social media engagement and emotional attachment. Privacy protection reduces perceived risk, increasing repurchase likelihood and trust. Product quality and fair pricing are the most critical determinants of satisfaction and brand commitment.

Promotion and personalization were found to have the strongest positive impact on consumer interest and pleasure, increasing the overall engagement of consumers with the brand. On the other hand, privacy concerns were associated with a reduction in perceived risk probability and importance of risk for consumers, suggesting that brands that prioritize data privacy can alleviate consumer concerns about potential risks.

Interest and sign value were found to significantly enhance emotional attachment and social media engagement, indicating that consumers who find the brand engaging and symbolically valuable are more likely to remain loyal. Additionally, a lower perception of risk probability positively affected repurchase ratio and brand trust, showing that reduced risk perception increases a consumer's likelihood of repurchasing and trusting the brand.

Overall, the study underscores the importance of consumer involvement as a mediating mechanism in the online marketing mix–brand loyalty relationship. Firms should focus on personalized marketing, privacy assurance, and value-driven strategies to maximize consumer engagement and brand loyalty in the competitive smartphone market.

7. Recommendations

7.1 Expanding the Marketing Mix and Strengthening Digital Strategies

The traditional 4P marketing mix is no longer sufficient for digital markets and should be expanded to a 6P framework, incorporating privacy protection and personalization as key elements. Brands must ensure transparent data policies while offering customized recommendations to enhance consumer trust and engagement. Additionally, interactive marketing techniques such as gamification and immersive experiences should be leveraged to increase consumer involvement and make brand interactions more engaging.

7.2 Targeted Marketing to Enhance Brand Loyalty

Consumer involvement is a key driver of brand loyalty, and companies should develop targeted strategies based on different loyalty dimensions (e.g., emotional attachment, repurchase intention, and brand trust). For example, product quality and competitive pricing can enhance satisfaction, while social media engagement can strengthen emotional connections. Emotional branding and cultural storytelling help enhance the symbolic value of a brand. Additionally, leveraging KOLs and lifestyle-driven marketing can create a strong sense of brand identity among target audiences.

7.3 Cultural Localization for Market Adaptation

The study highlights that Chinese consumers are primarily driven by pleasure and symbolic value, unlike Western markets, which focus more on risk reduction. Therefore, brands should adopt localized marketing strategies that align with cultural preferences and psychological needs. Utilizing big data and AI-driven personalization, companies can optimize recommendations to better suit local consumers. By integrating these approaches, brands can increase consumer engagement, foster brand loyalty, and gain a competitive edge in China’s highly dynamic smartphone market.

References

Adam, S. (2002). A model of Web use in direct and online marketing strategy. *Electronic Markets*, *12*(4), 262–269.

Bhatt, G. D., & Emdad, A. F. (2001). An analysis of the virtual value chain in electronic commerce. *Logistics Information Management*, *14*(1/2), 78–85.

Borden, N. H. (1964). The concept of the marketing mix. *Journal of Advertising Research*, *4*(2), 2–7.

Constantinides, E. (2006). The marketing mix revisited: Towards the 21st century marketing. *Journal of Marketing Management*, *22*(3–4), 407–438.

Demangeot, C., Broderick, A. J., & Craig, C. S. (2015). Multicultural marketplaces: New territory for international marketing and consumer research. *International Marketing Review*, *32*(2), 118–140.

Dominici, G. (2009). From Marketing Mix to e-Marketing Mix: A literature overview and classification. *International Journal of Business and Management*, *4*(9), p17. https://doi.org/10.5539/ijbm.v4n9p17

Farquhar, P. H. (1989). Managing brand equity. *Marketing Research*, *1*(3).

Gommans, G., Van Dongen, A., van der Schors, T., Gommans, E., Visser, J., Clarijs, W. W., de Waard, J., Van de Bos, J., & Boer, R. (2001). Further optimisation of 99m Tc-Nanocoll sentinel node localisation in carcinoma of the breast by improved labelling. *European Journal of Nuclear Medicine*, *28*, 1450–1455.

Hair, R. E., J. F., Black, W. C., Babin, B. J., &. Anderson. (2010). Multivariate Data Analysis: A Global Perspective (7th ed.). *New Jersey: Pearson Prentice Hall.*

Hollebeek, L. D. (2011). Demystifying customer brand engagement: Exploring the loyalty nexus. *Journal of Marketing Management*, *27*(7–8), 785–807.

Hollebeek, L. D., Glynn, M. S., & Brodie, R. J. (2014). Consumer brand engagement in social media: Conceptualization, scale development and validation. *Journal of Interactive Marketing*, *28*(2), 149–165.

Jacoby, J. (1978). Brand loyalty: Measurement and management. *John Willey and Sons*.

Jiang, L., Jiang, N., & Liu, S. (2011). Consumer perceptions of e-service convenience: An exploratory study. *Procedia Environmental Sciences*, *11*, 406–410.

Kalyanam, K., & McIntyre, S. (2002). The e-marketing mix: A contribution of the e-tailing wars. *Journal of the Academy of Marketing Science*, *30*(4), 487–499.

Klein, L. R. (1998). Evaluating the potential of interactive media through a new lens: Search versus experience goods. *Journal of Business Research*, *41*(3), 195–203.

Laurent, G., & Kapferer, J.-N. (1985). Measuring Consumer Involvement Profiles. *Journal of Marketing Research*, *22*(1), 41. https://doi.org/10.2307/3151549

Lawrence, G. W., Kehoe, W. R., Rieger, O. Y., Walters, W. H., & Kenney, A. R. (2000). *Risk Management of Digital Information: A File Format Investigation.* ERIC.

Moisescu, O. I., & Allen, B. (2010). The relationship between the dimensions of brand loyalty. An empirical investigation among romanian urban consumers. *Management & Marketing*, *5*(4).

Nichols, William G., & Woods, M. B. (1997). Marketing: Relationships, quality, value. *New York: Worth*.

Pastore, A., Vernuccio, M., & others. (2004). Marketing, innovazione e tecnologie digitali. Una lettura

in ottica sistemica. In *Marketing, innovazione e tecnologie digitali* (pp. 1–365). Cedam.

Punniyamoorthy, M., & Prasanna Mohan Raj, M. (2007). An empirical model for brand loyalty measurement. *Journal of Targeting, Measurement and Analysis for Marketing*, *15*(4), 222–233. https://doi.org/10.1057/palgrave.jt.5750044

Reichheld, J. P., Riondet, C., Delorme, V., Vignols, F., & Meyer, Y. (2010). Thioredoxins and glutaredoxins in development. *Plant Science*, *178*(5), 420–423.

Salimee, H., Srisornkompon, P., & Srisuchart, N. (2022). *A study of the marketing mix factors affecting purchasing decisions of processed beef products through online channels of the population in bangkok*.

Schultz, D. E. (2001). Marketers: Bid farewell to strategy based on old 4Ps. *Marketing News*, *35*(2), 7.

Staudt, Thomas A., & Taylor, D. A. (1965). A managerial introduction to marketing. *Englewood Cliffs, NJ: Prentice Hall.*

Subagyo, H. (2019). *The effect of destination brand awareness on destination brand loyalty through brand image, perceived brand quality, brand value and brand satisfaction in banyuwangi city as a tourism objective* [PhD Thesis]. Untag 1945 Surabaya.

Susanti, V., Sumarwan, U., Simanjuntak, M., & Yusuf, E. Z. (2020). The rational factors of perceived quality and perceived value as the drivers of customer satisfaction and brand loyalty. *BISNIS & BIROKRASI: Jurnal Ilmu Administrasi Dan Organisasi*, *26*(3), 4.

Vivek, S. D., Beatty, S. E., & Morgan, R. M. (2012). Customer engagement: Exploring customer relationships beyond purchase. *Journal of Marketing Theory and Practice*, *20*(2), 122–146.

Wongnichakhun, W. (2007). *Principles of marketing*. Bangkok: Tanatat Printing.

Yan, K. (2024). The Application of Social Media in Digital Marketing. *Financial Economics Insights*, *1*(1), 25–33. https://doi.org/10.70088/45da7c55

Yudelson, J. (1999). Adapting Mccarthy's Four P's for the Twenty-First Century. *Journal of Marketing Education*, *21*(1), 60–67. https://doi.org/10.1177/0273475399211008

Zaichkowsky, J. L. (1985). *Measuring the Involvement Construct*.