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Article

Understanding rural Chinese consumers' behavior: Stimulus-organism-response (S-O-R) perspective on Huawei's brand loyalty in China

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MARKETING | RESEARCH ARTICLE

Understanding rural Chinese consumers' behavior: A stimulus-organism-response (S-O-R) perspective on Huawei's brand loyalty in China

Zhiyuan Yu¹, Worasak Klongthong², Jakkrit Thavorn² and Chittipa Ngamkroeckjoti³*

Abstract: This study examined the effect of familiarity with the Huawei smartphone brand as a mediator between brand involvement and brand loyalty in China and explored behavioral and attitudinal loyalty as two major components of brand loyalty. An exploratory mixed-methods design grounded in the stimulus-organismresponse (S-O-R) framework entailed two rounds interviews to build a hypothetical framework, following which 403 Chinese smartphone users were surveyed to test the hypotheses. The results of structural equation modeling (SEM) to analyze the relationship between brand involvement, brand familiarity, and brand loyalty demonstrate that brand involvement exerted a direct effect of approximately 67% on brand familiarity, which in turn had a direct effect of influencing 47% of the



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Methodologies.

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Survival during the trade war in 2020 thrive the development of smartphone technology to serve consumer's specific requirements. The industry question is which brand will be able to be superior in prolonging consumer's loyalty over others. This study examined the effect of Huawei smartphone brand familiarity as a mediator between brand involvement and brand loyalty in China and explored in-depth behavioral and attitudinal loyalty as two major components of brand loyalty based on stimulus-organismresponse (S-O-R) modeling. The results show that brand involvement had a positive and statistically significant effects on the brand familiarity and brand loyalty. Brand familiarity had a positive and statistically significant effects on the brand loyalty. Brand involvement on brand loyalty were mediated through brand loyalty. This paper highlights the value of brand familiarity that benefits a company, which can be applied to domestic markets of smartphones.

variance in brand loyalty. Both brand familiarity and brand involvement had positive and statistically significant effects on brand loyalty; however, the effect of brand familiarity was stronger than that of brand involvement, and the former mediated the relationship between the other two variables.

Subjects: Strategic Management; Marketing; Media, Information & Communication Industries

Keywords: Brand loyalty; brand involvement; brand familiarity; stimulus–organism–response model; smartphone; China

1. Introduction

Brands are strategic marketing tools used to facilitate product differentiation for customers (Kotler & Gertner, 2002). Brand equity is comprised of the three dimensions of consumer knowledge, familiarity, and associations; as such, brands accrue equity on the basis of consumers' knowledge and the consequent relations they establish with brands (Filieri et al., 2019; Tong & Hawley, 2009). Researchers have increasingly used brand equity models to examine factors affecting purchase intention in the smartphone industry, including Apple, Samsung, HTC, Nokia, and Blackberry in countries such as Indonesia (Wijaya, 2013), Korea (Park & Lee, 2012), Malaysia (Bojei & Hoo, 2012; Lay-Yee et al., 2013), Pakistan (Abid & Khattak, 2017), Portugal (Loureiro & Kaufmann, 2017), Thailand (Jing et al., 2014), and Vietnam (Wollenberg & Thuong, 2014).

Brand experience, familiarity, and trust are key to achieving brand equity and promoting business expansion and growth, and these variables have been used interchangeably to assess consumer strategy directions amid the ubiquitously turbulent changes of the smartphone industry (Muzumdar, 2015). In addition, brand loyalty, which is related to and overlaps with the aforementioned concepts, plays a significant role in enhancing brand equity. Recent research on brand loyalty has provided a theoretical basis for companies to develop appropriate promotional activities and increase consumers' brand involvement.

Brand familiarity is an important construct that explains consumer behavior as a measure of marketing and advertising effectiveness (Bapat, 2017). Familiarity is the process through which consumers gradually gain experience with a product through exposure (Alba & Hutchinson, 1987). In other words, consumers gain familiarity by becoming accustomed to and skillful at identifying a particular product or brand (Baker et al., 1986). Baker et al. (1986) described brand familiarity as the most rudimentary form of consumer knowledge. Brand familiarity reflects the brand's "share of mind," which reflects a consumer's direct and indirect experience with a brand (Mikhailitchenko et al., 2009). Brands with higher levels of familiarity often enjoy corresponding levels of liking among consumers and retailers (Chinomona & Maziriri, 2017). Many studies of brand familiarity have represented an accumulation of consumers' knowledge based on product dimensions; however, less research has explored consumers' brand experiences and feelings and how brand familiarity affects consumers' attitudes and behaviors. However, few studies have focused on brand familiarity, particularly in the smartphone industry.

Chinese technology brands have become major players in the global communications market due to their innovation and the notably improved quality and lower cost of their products (Kaska et al, 2019). Among such brands, Huawei provides information and communications technology infrastructure as well as smart devices, and it was ranked in the second position of the highly competitive global smartphone market with a 20% share in the second quarter of 2020 (Chacon & Rajawat, 2019; Team; Counterpoint, 2020). Due to the company's skyrocketing growth and brand awareness in recent years, smartphone manufacturers and users have increasingly developed an interest in Huawei's brand. Therefore, from a macro perspective, studying consumers' attitudes toward Huawei could provide a reference point for the development of domestic smartphone brands in China. From a micro perspective, studying consumers' brand attitudes toward Huawei smartphones can theoretically inform smartphone brand manufacturers understanding of consumers to better promote brand development in the dynamic environment of users' consumption concepts.

However, few studies have focused on brand familiarity, particularly in the smartphone industry. Thus, this research contributes to the international business literature by examining relationships amongst brand involvement, brand familiarity, and brand loyalty in the context of the smartphone industry. This study examined the effect of Huawei smartphone brand familiarity as a mediator between brand involvement and brand loyalty in China and explored behavioral and attitudinal loyalty as two major components of brand loyalty based on Mehrabian and Russell's (1974) stimulus-organism-response (S-O-R) theory. The resulting model conceives of brand involvement as the stimulus, whereas brand familiarity is the organism and brand loyalty constitutes the response. The core proposition begins with the input of brand involvement into the process of brand familiarity, which ultimately results in the output of loyalty response.

2. Theoretical foundation and hypotheses

2.1. Stimulus-organism-response framework

Mehrabian and Russell (1974) introduced the stimulus-organism-response (S-O-R) framework to elucidate how organisms mediate the relationship between stimulation and response through various mechanisms that incite individuals' cognitive and emotional states, which in turn drive behavioral responses (Islam & Rahman, 2017). According to the S-O-R framework, "stimuli" are environmental factors that affect an individual's cognitive and affective reactions (Eroglu et al., 2001), whereas "organisms" are internal "perceptual, physiological, feeling, and thinking activities" that intervene between external stimuli and the "final actions, reactions, or responses emitted" (Bagozzi, 1986; Bagozzi & Youjae, 1988). Finally, the "response" represents consumers' final decisions, which can manifest as approach or avoidance behaviors (Ridgway et al., 1990). Approach behaviors represent positive actions that might be directed toward a particular setting. These intermediaries translate environmental stimuli into behavioral responses that are outputs of consumer behavior (such as buying or not buying).

S-O-R theory has been widely applied in marketing contexts, including in the online services commerce industry. Jacoby and Kyner (1973) applied the framework to describe cognitive and affective systems that incorporate all previous engaged experiences to engender long-term familiarity with products/services. Eroglu et al. (2003) demonstrated that the atmospheric cues (stimuli) of online stores affect shoppers' cognitive and emotional states (organism), which then influence their shopping behavioral outcomes (responses). Wu and Li (2018) found that marketing mix (as a stimulus) in the social commerce industry has a significant effect on consumer value (as organism), which in turn positively influences customer loyalty (response). J. Kim and Lennon (2013) extended S-O-R theory to include internal (website quality) and external (reputation) sources of information as stimuli that affect purchase intention (response) through consumers' (organisms') cognition and emotion. They proposed that based on consumers' perceived and accumulated experiences, brand familiarity plays a mediating role that significantly affects the relationship between brand involvement (stimuli) and loyalty (response).



Herein, we propose a basic model based on S-O-R theory to examine how brand involvement (stimulus) affects customers' brand familiarity (organism), which in turn influences brand loyalty (response). The model is shown in Figure 1.

2.1.1. Stimulus and brand involvement

Involvement has been extensively explored in social psychological research on consumer behavior (Nurcahyo et al., 2011). Low involvement results in less directed attention superficial processing whereas high involvement is characterized by more intense focus and intensive processing (Whan C. Park & Mittal, 1985). Understanding the cognitive structures underlying consumers' feelings of involvement is particularly important for marketing firms' products/services (Srivastava & Kamdar, 2009). Based on the theory of hemispherical lateralization, Srivastava and Kamdar (2009) defined involvement as "an unobservable state of motivation, arousal, or interest which is evoked by a particular stimulus or situation and is considered to have driven properties and which influences the search process, information processing and decision making." Guthrie and Kim (2009) used involvement as an analytical tool to measure levels of brand interest as well as brands' significance to consumers. Embodying more than "importance" (Zaichowsky, 1986), "brand involvement is the consumer's perceived relevancy of a brand" (Cassandra et al., 2016).

In this study, brand involvement is defined as "the perceived relevance of individual consumers to brands based on their inherent needs, values and interests" (Peterson et al., 2015). As such, brand involvement is conceived of as an external environmental factor that serves as a stimulus that affects consumers' emotional responses to a brand/product. Yi-you (2004) found that the average consumer in China typically does not want to be among the first to try a new product, especially if it is costly and/or of foreign origin. Therefore, it is necessary for marketers to build customer involvement in their brand and cultivate brand familiarity in order to pave the way for the subsequent purchase behavior.

2.1.2. Organism and brand familiarity

Brand familiarity enhances consumers' awareness and is viewed as being synonymous with knowledge (Johnson & Russo, 1984; Lin, 2013). Brand familiarity can be defined as a measure of the level of consumers' accumulation of product-related experience, which includes advertising and media exposure and direct experience of the company's products/services and employees (Campbell & Keller, 2003; Tam, 2008; Johnson and Kellaris, 1988). Brand familiarity reflects the consumer's experience of the brand and its image (Low & Lamb, 2000). Familiarity toward a particular brand reduces consumers' perceived risk in the decision-making process and enhances their buying confidence, thereby enriching the brand's network of association and generating more favorable effects for the company (Delgado-Ballester et al., 2012).

The original S-O-R model focused upon pleasure, arousal, and dominance (PAD), which, respectively, represent the affective and cognitive states and processes that mediate the relationship between a stimulus and individuals' behavioral responses (Mehrabian & Russell, 1974). In this study, positive emotional responses reflect high familiarity with and reaction to certain brands and thereby represent the affective aspect of the organism component (Bagozzi, 1986).

As A. Chang et al. (2013) identified, brand involvement closely relates to brand identification. If a consumer's brand involvement is high, they can be assumed to be highly aware of different brand attributes and ascribe greater importance to these aspects with regard to the brand's authenticity (Fritz et al., 2017). It is likely that they will indulge in a greater level of information processing and therefore develop a well-developed familiarity with and an emotional response to certain brands (Srivastava & Kamdar, 2009). In contrast, consumers with low brand involvement will lack particular preferences, perceive similarity among different brands, identify low personal relevance with the brand (A. Chang et al., 2013), and lack detailed brand knowledge (Fritz et al., 2017). Thus, the following hypothesis is proposed: H₁—Brand involvement has a positive influence on brand familiarity.

2.1.3. Response and brand loyalty

Brand loyalty is among the most widely defined concepts in the marketing lexicon. Broadly speaking, brand loyalty is the emotional attachment that a consumer has to a brand (Kuscu & Ozcam, 2014). Olson and Jacoby (1974) defined brand loyalty as "a function of consumers' emotional responses and psychological processes to a brand and is a psychological assessment of the performance of one or more candidate brands over a period of time by a consumer or a decision-making unit, which is a non-random reaction."

Chinomona and Maziriri (2017) explained that brand loyalty represents a consumer's commitment, which makes it as an intangible asset that is reflected in the prices of products/services. According to D. A. Aaker (1991), brand loyalty reflects the likelihood that a consumer will switch to another product, particularly when the original product makes a change in price or features. Dixit et al. (2008) proposed that once Chinese consumers recognize a brand, they are likely to assume that it offers better quality and are willing to pay a premium for it. Therefore, brand loyalty offers various advantages, such as reduced marketing cost, gaining a larger number of new consumers, and greater market distinction.

In the context of this research, brand loyalty is conceived as a result of the interplay between the consumer's attitude and repeat purchase behavior (Kuikka and Laukkanen, 2012; Jacoby & Kyner, 1973; Worthington et al., 2009). This study focuses on positive emotional responses (attitudinal loyalty) and approach behaviors (behavioral loyalty) because brand owners tend to increase consumers' experience and involvement through marketing activities designed to establish their familiarity and increase their sense of identity and thereby promote repeated purchase behavior (H. J. Chang et al., 2011).

2.2. Brand loyalty

Bapat and Thanigan (2016) defined brand loyalty as the likelihood that consumers will buy a brand again and recommend it to others. As Jensen and Hansen (2006) explained, "brand loyalty increases exponentially 10 market shares, resistance to alternative competitor brands and favors positive word of mouth." Mellens et al. (1996) categorized brand loyalty into behavioral and attitudinal dimensions. Behavioral loyalty is a consumer's tendency to buy a brand again (Sancharan, 2011), which is generated after they use or have an experience with it. Attitudinal loyalty can be used to explain behavioral loyalty (Aaker, 1997), as it relates to consumers' commitment and intention toward a brand, which include a positive attitude, a preference, and a psychological commitment (Lamai et al., 2020; Mellens et al., 1996).

The advantages of using behavioral loyalty as a measurement construct include that 1) it is based on actual purchases, which are directly related to a firm's performance and existence (Klongthong et al., 2020), it is likely to be incidental, i.e., based on behavior over a period of time; and 3) it is relatively easier to collect than attitudinal data. However, the construct is limited in that it is difficult to distinguish between brand loyalty and repeat buying, which can obscure spurious loyalty. In contrast, attitudinal measures clearly highlight brand loyalty while not capturing actual purchase behavior. Attitudinal behavior is based on surveys that collect data from the decision-maker rather than the purchaser and provides insight into the motivations for consumers' choices, which are less likely to be influenced by random short-run fluctuations.

In order to ensure feasibility and accuracy, this study used both attitudinal and behavioral dimensions to examine the influence of marketing strategies and measure brand loyalty. This research focused on the proportion of consumers who intend to buy a Huawei smartphone on their next purchase occasion. This study defines attitudinal loyalty as the end-consumers' psychological commitment to repurchase Huawei smartphones, whereas behavioral loyalty represents the actual tendency to repurchase.

2.3. The relationship between brand involvement and brand loyalty

The involvement-commitment model was widely applied to product usage during the 1980s and 1990s (e.g., Iwasaki & Havitz, 1998; C. W. Park & Young, 1986). Beatty et al. (1988) verified the relationship between brand involvement, commitment, and loyalty in the competition between Coca-Cola and Pepsi. LeClerc and Little (1997), posited that the repeated purchase behavior of consumers with high brand involvement was an indicator of brand loyalty, whereas the repeated purchase behavior; however, they did not elaborate on the relationship between these constructs.

A. Chang et al. (2013) found that brand involvement is an antecedent of brand loyalty as response toward certain brands; they defined involvement as the stimuli resulting from the association between activated attitudes and self-concepts toward the product and brand. High brand involvement is accompanied by high brand promise and corresponds to high brand loyalty (A. Chang et al., 2013; LeClerc & Little, 1997), whereas low brand involvement generates less association between individuals and brands. Consumers with low involvement do not perceive differences between competitive brands and therefore do not develop positive brand associations or particular preferences.

In examining the relationship between brand involvement and brand loyalty in the context of the competitive smartphone industry, this study proposed that brand involvement is a predictor of consumers' brand loyalty.

H₂—Brand involvement has a positive influence on brand loyalty.

Familiarity may result in positive evaluations of products or services and warm and intimate connections between consumers and particular brands (Zajonc & Markus, 1982). Söderlund (2002) showed that satisfaction and behavioral intentions vary based on low and high familiarity, which in turn impacts consumers' decision-making process, as consumers with high familiarity with a certain brand have a stronger purchasing attitude and desire to repeat purchase than those with low and moderate familiarity.

Brand involvement is the premise to generate brand familiarity among consumers. As such, the degree of consumers' brand involvement may influence their behavioral and attitudinal brand loyalty through the mediating mechanism of brand familiarity. Quester and Lin Lim (2003) posited that brand involvement and brand loyalty are not universal concepts and may behave differently depending on specific consumer and product parameters. This study posits that brand familiarity is a predictor of consumers' brand loyalty, and the effect of brand involvement on brand loyalty is stronger for consumers with high and moderate familiarity than for those with low familiarity. Therefore, based on the preceding discussions, the following hypotheses are proposed:



H₃—Brand familiarity has a positive influence on brand loyalty.

H₄- The effect of brand involvement on brand loyalty will be mediated by brand familiarity.

Figure 2 presents the research framework that examines the relationships amongst brand involvement, brand familiarity, and brand loyalty.

3. Research methodology

This study applied an exploratory sequential mixed-methods designed by Creswell (2014) as a means to broadly explore and understand the practices, behaviors, and preferences of brand loyalty in the smartphone industry. Employing this approach begins by prioritizing the collection and analysis of qualitative data, following which the quantitative phase is applied to test and generalize the initial findings. Two rounds of in-depth interviews were conducted to explore consumer attitudes toward brands and their psychological processes when buying Huawei smartphones, and the resulting data were used to identify relevant variables, establish a hypothetical framework, and determine further questions to better refine consumers' attitudes toward specific brands (Zhiyuan & Ngamkroeckjoti, 2018). The qualitative results were tested with a questionnaire administered to 403 randomly selected participants who used or owned Huawei smartphones in Gansu province, China.

3.1. Qualitative study

Two rounds of interviews were conducted in parallel with reviewing relevant literature and news analysis to understand the current state of the smartphone market in China. We began with a pilot study in which we conducted 17 in-depth, semi-structured interviews. Interviewees were selected by homogenous type under the purposive sampling technique. The researcher focused on millennial Chinese students who were enrolled at universities in Gansu Province and had used or owned Huawei smartphone in the past year. As early adopters, millennials have been highlighted as the most relevant target segments in the smartphone sector (Filieri et al., 2019).

The interview questions were adapted from Filieri et al. (2019) and co-designed by two marketing executives with over 10 years of experience each with Huawei smartphones. The interview questions entailed two explorative dimensions: 1) how consumers acquire brand knowledge and develop a relationship between the brand and themselves and 2) how brand knowledge and relationships impact consumers' purchase decision-making process and how dedicated such behaviors are to the Huawei brand. Examples of interview questions include "what is the brand of smartphone that you use recently?", "Do you use Huawei smartphone? and why do you use it?", "Will you buy Huawei smartphone in the future?", and "What do you think about brand of Huawei?"

The first-round of eight interviews was conducted in September–October 2018, and the second round of nine interviews was conducted from November–December 2018. Each interview lasted approximately 30–40 minutes. Consent to interview and record was digitally obtained from interviewees prior to the interviewing sessions. Following the interviews, data were transcribed and translated into English by bilingual lecturer in English and Chinese. All interview results were collected, coded, classified, and analyzed via manual and NVivo 10. Table 1 shows the profile of the participants of two rounds of interviews.

Table 2 shows the excerpts and meanings associated with the emerging concepts acquired during interviews. It was found that consumers preferred to buy specific brands based on their own knowledge and experience using related products in addition to considering product quality, and consumers' brand familiarity depends to some extent on their knowledge of and participation in the brand's culture. High-level participation links consumers' brand knowledge with the specific culture embodied in the brand, thereby resulting in a high level of familiarity with certain brands, which in turn affects their attitudes and purchasing behaviors.

Table 1. Profile of participants in two rounds interviews						
Code	Gender	Education level	City in Gansu Province	Disposable monthly income (RMB)		
I1	М	Undergraduate	Pingliang	1,000-< 2,000		
I2	М	Undergraduate	Pingliang	1,000-< 2,000		
I3	F	Postgraduate	Lanzhou	2,000		
I4	М	Postgraduate	Pingliang	< 1,000		
I5	F	Undergraduate	Pingliang	1,000-< 2,000		
I6	F	Postgraduate	Lanzhou	< 1,000		
I7	М	Undergraduate	Lanzhou	2,000		
18	F	Postgraduate	Lanzhou	2,000		
II1	М	Postgraduate	Pingliang	< 1,000		
II2	F	Undergraduate	Pingliang	1,000-< 2,000		
II3	F	Postgraduate	Lanzhou	< 1,000		
II4	М	Undergraduate	Lanzhou	2,000		
II5	F	Undergraduate	Pingliang	1,000-< 2,000		
II6	F	Postgraduate	Lanzhou	< 1,000		
II7	F	Undergraduate	Pingliang	1,000-< 2,000		
II8	F	Postgraduate	Lanzhou	< 1,000		
II9	F	Undergraduate	Pingliang	1,000-< 2,000		

Note: Codes used in Nvivo as I = first round interview; II = second round interview; M = Male; F = Female

3.2. Quantitative study

3.2.1. Instrument

The development of measurement items was based on previous literature and the results of the qualitative study. Items designed to measure consumers' brand involvement and familiarity were adopted from De Vries and Carlson (2014) and Lin (2013), respectively. Serving as a dependent variable, brand loyalty includes the two sub-variables of behavioral and attitudinal loyalty, which were adopted from studies by Kuikka and Laukkanen (2012), Sudhahar et al. (2006), and El-Manstrly et al. (2011).

The questionnaire comprises three parts consisting of screening questions to ensure the acquisition of target respondents; items measuring brand familiarity, loyalty, and involvement; and demographic information (shown in Table 3). The brand-related items were measured on a Likert scale ranging from 1 = strongly disagree to 4 = strongly agree).

3.2.2. Data analysis

This study applied non-probability sampling through a judgment and convenience sampling procedure. The questionnaire's reliability was first pilot-tested with 50 respondents surveyed through Wenjuanxing, an online survey platform focused on questionnaire development, distribution, management, collection and analysis. Following the confirmation of reliability and validity, the questionnaire was distributed to an additional 353 respondents between 18 and 30 years of age who had used or owned a Huawei smartphone for at least a year.

Statistical Analysis System (SAS) software version 9.4 was used to perform descriptive statistical analysis and exploratory factor analysis (EFA). The latter procedure had to be performed because the data were extracted from questionnaires in a new context, namely Huawei smartphone users in Gansu Province, China. EFA was useful for discovering the number of factors influencing the variables as well as which variables could be combined into meaningful categories in the conceptual framework and explored through further analysis (Yong & Pearce, 2013). The data were further analyzed

Table 2. Participant statements and the meanings associated with the emerging concepts in two rounds of interviews				
Emerging themes and meaning	Interview excerpts			
Brand familiarity : the accumulated related experiences that consumers have with a brand (Lip. 2012)	• "I know Huawei is the top domestic brand for smartphones in China and it will become a popular product among all Chinese."			
nave with a brana (Lin, 2013).	 "I have good experience using this brand's smartphones. For me, like other students, it is a cost-effective smartphone brand." 			
	 "When I buy a smartphone, I do not like to make too many comparisons. I would prefer to choose the brand that I am most familiar with between similar products, even if some brands are of good quality, I do not buy it if I am not familiar with it." 			
	• "I prefer to use and support the domestic brands like Huawei, and it has a high quality and good performance. Huawei invests more capital in innovation and development for smartphone, so I involved in their culture of development."			
	 "I do not like to make a decision when I have to buy a smartphone, I will ask my friends to get some suggestions." 			
Brand loyalty : "a deeply held commitment to rebuy or re-patronize a preferred brand consistently in the future, despite situational influences	• "I believe that Huawei is a famous brand, and that gives me high expectations of the product because Huawei has made great achievements in communication fields such as 5 G network communication."			
and marketing efforts having the potential to cause switching behavior" (Grigoroudis & Siskos, 2009).	• "I have some experience in Huawei shops and I think Huawei is important to China's development. So, I prefer to keep choosing the Huawei brand when I need to buy smartphones."			
	• "I bought a Huawei smartphone again because I am accus- tomed to the Huawei brand and do not want to replace it. It is very convenient for me to use Huawei smartphones."			
	 "Huawei has a good domestic reputation and there is not a lot of negative news; moreover, from a cultural perspective, "Huawei" means "China's rising"—"HUA" means China and "WEI" means something that rises and becomes strong. So, I have a unique feeling toward Huawei and I trust it." 			
	 "Huawei's CEO is a very conscientious person in society and this is one of the reasons I trust Huawei. I believe Huawei is the number one smartphone brand and number one seller in China; There are also some special advertisements for Huawei that attract me to choose it." 			

using confirmatory factor analysis (CFA) to assess unidimensionality, convergent validity, discriminant validity, and composite reliability. The developed hypotheses were tested using Analysis of Moments Structure (AMOS) software version 10 to perform structural equation modeling (SEM).

4. Results

4.1. Exploratory factor analysis (EFA)

Principal component analysis (PCA) using the varimax rotation was applied to assign high item loadings to one factor and small item loadings to the remaining factor solutions (J. F. Hair et al., 2010). Items with factor loadings below 0.5 were deleted, thereby resulting in: 1) a brand loyalty construct comprising the two sub-constructs of behavioral loyalty (BEH1, BEH2, and BEH3) and attitudinal loyalty (ATT1, ATT2, and ATT3); 2) a unidimensional brand familiarity construct (FAM1, FAM2, FAM3, and FAM4); and 3) a unidimensional brand involvement construct (INV1, INV2, INV3, and INV4).

Tables 4 and 5 show the results of the varimax rotation technique conducted as recommended by Anderson and Gerbing (1988). The Kaiser-Meyer-Olkin (KMO) measurement of sampling adequacy resulted in acceptable values of 0.85 for brand loyalty, 0.81 brand familiarity, and 0.82 brand

Table 3. Con	structs and it	ems	
Variables		Items	Sources
Brand Behavioral BEH1: 10 loyalty Ioyalty BEH2: 10 future. BEH3: 10 Huawei Attitudinal ATT1: 10 smartph ATT3: 10		BEH1: I will buy Huawei next time I buy a smartphone. BEH2: I will try a new series of Huawei that is released in the future. BEH3: I will make positive comments to other people about Huawei smartphones.	Kuikka and Laukkanen (2012), Sudhahar et al. (2006),
		ATT1: I am committed to Huawei smartphones. ATT2: I would be willing to pay a higher price for a Huawei smartphone over other brands. ATT3: I believe that Huawei smartphones are the best.	and El- Manstrly et al. (2011)
Brand involvement		INV1: Huawei smartphones mean a lot to me, e.g., choosing Huawei smartphones means I support China. INV2: Huawei is important to me as a Chinese. INV3: I am interested in Huawei smartphones because I am Chinese. INV4: I am involved with Huawei culture because Huawei represents China to me.	De Vries and Carlson (2014)
Brand familiarity		FAM1: I am familiar with the operational culture of Huawei smartphones (e.g., Chinese language, logo). FAM2: I am familiar with the functions of Huawei smartphones. FAM3: I recognize Huawei as being different from other brands. FAM4: I have heard of Huawei smartphones before.	Lin (2013)

Note: BEH = Behavioral loyalty; ATT = Attitudinal loyalty; INV = Brand involvement; FAM = Brand familiarity

Table 4. Rotated factor pattern of brand loyalty		
Items	Factor 1	Factor 2
BEH1: I will choose Huawei the next time I buy a smartphone.	0.829	
BEH2: I will try a new Huawei product that is released in the future.	0.861	
BEH3: I will say positive comments to other people about Huawei smartphones.	0.685	
ATT1: I am committed to Huawei smartphones.		0.600
ATT2: I am willing to pay a higher price for Huawei smartphones over other brands.		0.876
ATT3: I believe that Huawei smartphones are the best.		0.810
Cronbach's Alpha	0.809	0.797
Kaiser-Meyer-Olkin (KMO)	0.85	0.85

Notes: Extraction method: principal component analysis; rotation method: varimax with Kaiser normalization.

involvement (McGarigal et al., 2013). Therefore, the results indicated that the research could enter the next stage of confirmatory factor analysis (CFA).

4.2. Confirmatory factor analysis (CFA)

Table 6 shows threshold values along with the results of CFA. The chi-square to degree of freedom ratio (CMIN/DF), comparative-fit index (CFI), goodness-of-fit index (GFI), and chi-square all met goodness of fit requirements (Parry, 2017).

The assessment of convergent validity determined that each indicator loaded significantly onto the constructs they were intended to represent. Table 7 shows the value of average variance extracted (AVE) and composite reliability. Composite reliability for each construct is above the recommended values of 0.70 (J.F. Hair et al., 1998), and the AVE for each construct is above the recommended value of 0.5 (Fornell & Larcker, 1981), thus confirming the model's convergent validity.

Table 5. Rotated factor pattern of brand familiarity and b	rand involvement	
Items	Factor Loading	Factor Loading
FAM1: I am familiar with the operational culture of Huawei smartphones (e.g., Chinese language, logo).	0.835	
FAM2: I am familiar with the functions of Huawei smartphones.	0.811	
FAM3: I can distinguish Huawei from other brands.	0.838	
FAM4: I have heard of Huawei smartphones before.	0.760	
INV1: Choosing Huawei smartphones means I support China.		0.900
INV2: I personally consider that Huawei is important to me as a Chinese		0.903
INV3: I am interested in Huawei smartphones because I am Chinese.		0.847
INV4: I am involved with Huawei's culture because Huawei represents China to me.		0.867
Kaiser-Meyer-Olkin	0.81	0.82
Cronbach's Alpha	0.827	0.900

Notes: Extraction method: principal component analysis; rotation method: varimax with Kaiser normalization.

Table 6. The results of confirmatory fact	or analysis a	nd threshold	value	
Measure	Brand loyalty	Brand familiarity	Brand	
involvement	Threshold			
Model Chi Square (x²)	0.554	p = 0.635	p = 0.758	p > 0.05
Chi-square/Degree of Freedom (CMIN/DF)	0.808	0.455	0.095	≤ 5.0
Comparative Fit Index (CFI)	1	1	1	≥ 0.90
Goodness of Fit (GFI)	0.997	0.999	1	≥ 0.90
Normed Fit Index (NFI)	0.996	0.998	1	≥ 0.90
Root Mean Squared Error of Approximation (RMSEA)	0.000	0.000	0.000	≤ 0.08

Table 7. Measurer	Table 7. Measurement model					
Constructs/ Sub-constructs	Items	Factor Loading	CR > .7	AVE > .5		
Behavioral loyalty	BEH1	0.768	0.892	0.735		
	BEH2	0.854				
	BEH3	0.941				
Attitudinal loyalty	ATT1	0.782	0.759	0.514		
	ATT2	0.627				
	ATT3	0.733				
Brand familiarity	FAM1	0.782	0.828	0.548		
	FAM2	0.734				
	FAM3	0.785				
	FAM4	0.651				
Brand involvement	INV1	0.898	0.896	0.686		
	INV2	0.906				
	INV3	0.730				
	INV4	0.764				

Table 8. Results of structural model testing					
Measure	Results	Recommended Level			
Model Chi Square (x ²)	p = 0.094	> 0.05; Non-significant			
Chi-square/Degree of Freedom (CMIN/DF)	2.811	1-5			
Comparative Fit Index (CFI)	0.998	≥ 0.9			
Goodness of Fit (GFI)	0.997	≥ 0.9			
Normed Fit Index (NFI)	0.996	≥ 0.9			
Root Mean Squared Error of Approximation (RMSEA)	0.067	≤ 0.08			

Table 9. Explained variance	
Variables	R ²
Brand Involvement → Brand loyalty	0.640
Brand Involvement → Brand familiarity	0.450
Brand familiarity → Behavioral loyalty	0.550
Brand familiarity → Attitudinal loyalty	0.815

4.3. Structural equation modeling (SEM)

A structural model was evaluated against six central criteria in AMOS version 10 (Parry, 2017), and all six indicators were acceptable (Table 8). The chi-square test result was not statistically significant χ^2 (N = 403) = 2.811, p = 0.094, which indicates that the model fit the data at the 0.05 significance level, and the model yielded acceptable fits for all indices. The value of the chi-square /degrees of freedom (CMIN/DF) ratio was 2.811, which is within the bounds of acceptable values (1–5). GFI was 0.997, NFI was 0.996, and CFI was 0.998; all of these results are above the target value of 0.95. RMSEA was 0.067, which is less than the critical value of 0.08. Thus, there is internal consistency for both endogenous and exogenous variables.

As shown in Table 9, the square multiple correlation (R²) explains 64% of the variance in brand loyalty and 45% of variance in brand familiarity, which demonstrates moderate explanatory power (Chin, 1998). The results indicate that brand participation promotes consumers' repeated purchase behavior (behavioral loyalty) and strong commitment and intention toward a brand, including attitudinal loyalty in the forms of positive attitude, preference, and psychological commitment (Mellens et al., 1996).

An examination of the model's path coefficients and *p*-values showed that all hypothesized relationships were statistically significant (Table 10). Brand involvement was a significant predictor of brand familiarity ($\beta = 0.669$, p < 0.001) with a large effect size (Lewis, 2006), therefore demonstrating that brand familiarity was influenced by the direct effect of brand involvement, which accounted for approximately 66.9% of the variance in brand familiarity. Brand involvement was also a significant predictor of brand loyalty ($\beta = 0.403$, p < 0.001) with a large effect size (Lewis, 2006), therefore indicating that brand loyalty was influenced by the direct effect of brand involvement, which accounted for approximately 40.3% of the variance in brand loyalty. Finally, brand familiarity was a significant predictor of brand loyalty ($\beta = 0.471$, p < 0.001), and the path coefficient again indicated a large effect size (Lewis, 2006). As such, brand loyalty was influenced by the direct effect of brand familiarity, which accounted for approximately 47.4% of the variance in brand loyalty.

The results show that brand involvement has positive and statistically significant effects on brand familiarity (H_1) and brand loyalty (H_2), and brand familiarity has positive and statistically significant effect on the brand loyalty (H_3). Finally, the SEM results express the path coefficients

Table 10. Path coeffic	ients for the structural model					
	Relationship	Я	S.E.	C.R.	₽.	Results of hypotheses
H _{1a} Br	and involvement → Brand familiarity	.669	.036	18.025	< 0.001	Supported
H _{2a} Br	and involvement → Brand loyalty	.403	.048	8.166	< 0.001	Supported
H _{3a} Br	and familiarity → Brand loyalty	.474	.051	9.432	< 0.001	Supported

Figure 3. Structural equation model results.

*** p < 0.001. Numbers above the paths represent standardized path coefficients. The thick solid line represents the path coefficients indicated in the structural model analysis. The numbers in the top right corner of brand loyalty are the squared multiple correlations, i.e., the R²s in the regression.



Table 11. Mediatio	on test results			
Hypothesis	Direct Effect	Indirect Effect	Bias-corrected confidence intervals	Results on hypotheses
Brand involvement → Brand familiarity → Brand loyalty (H ₄)	0.403*** (p = 0.000)	0.317*** (p = 0.000)	90%	Supported

***p < 0.001.

between the variables and demonstrate that the effect of brand familiarity on brand loyalty is stronger than that of brand involvement (Figure 3).

4.4. Mediation test

We further tested whether brand familiarity performed a mediating role on the relationship between brand involvement and brand loyalty (H₄). This study applied the bootstrapping procedure suggested by Filieri et al. (2019), using 5,000 subsamples and bias-corrected confidence intervals at the 90% confidence level. As shown in Table 11, the indirect effect on the path of brand involvement and brand loyalty was significant at the 99% confidence interval, therefore indicating that the relationship between brand involvement and brand loyalty was mediated through brand familiarity and supporting H₄.

5. Discussion

Limited research has explored the relationship between brand familiarity, brand involvement, and brand loyalty in the smartphone industry. This study contributes to the literature by examining the interaction among these variables and revealing that brand familiarity mediates the relationship between brand involvement and brand loyalty. The findings highlight the important role of brand familiarity in brand research in the context of Huawei smartphones.

The finding that brand involvement has a strong positive effect on brand loyalty is consistent with similar studies that have indicated that consumer involvement positively influences service brand satisfaction and brand loyalty (S. H. Kim & Lee, 2017; Hochgraefe et al., 2012). Quester and Lin Lim's (2003) study indicated that high involvement is a precondition to loyalty, whereby the cognitive definition of brand loyalty represents commitment and involvement with the brand. Their results are consistent with this study's finding that accumulated brand involvement will positively effect on brand loyalty.

However, this study found that brand familiarity has a stronger impact on brand loyalty than brand involvement, which can be understood if we view brand involvement as an individual's perceived relevance of a brand based on his/her inherent needs, values, and interests (Peterson et al., 2015), in contrast to brand familiarity, which reflects the brand's "share of mind," which reflects a consumer's direct and indirect experience with a brand (Mikhailitchenko et al., 2009). Furthermore, we found that brand familiarity predicts brand involvement, which has not been tested in previous studies, thereby advancing the literature on the effects of brand familiarity.

This study's findings also highlight the mediation effect of brand familiarity on brand loyalty. The effects of brand involvement on brand loyalty were mediated through brand familiarity, which can be explained by understanding that the purchase of a product occurs after consumers make an overall evaluation of the brand or the product based on his/her own experiences. Bapat (2017) proposed that brand familiarity impacts consumers' sensory, emotional, behavioral, and relational brand experience, thereby engendering favorable conditions for brand loyalty. Thus, consumers make purchasing decisions based on brand perceptions and self-generated involvement. The results of this study suggest that it will be easier to foster consumers' loyalty toward those brands with which they are already familiar. In the context of this study, a key factor contributing to familiarity and loyalty is that smartphones are generally locked into specific operating systems, which makes it difficult to switch to another brand due to the amount of time and effort needed to learn a new operating system (Filieri et al., 2019).

This study offers empirical evidence that may contribute to the literature by expanding researchers' understanding of the role of brand familiarity as a contributor to loyalty. Prior research has examined the antecedents of brand loyalty, including perceived quality, brand trust, and attitudes (S. H. Kim & Lee, 2017). However, the role of brand familiarity in generating brand loyalty in the smartphone industry has received much less attention. To our knowledge, this is the first study to investigate how brand familiarity influences the process of brand loyalty formation in the smartphone industry.

The personal meeds, values, and interests that influence brand involvement include whether the brand meets consumers' consumption goals. Consumer involvement is very similar to product involvement, which refers to "the interest a consumer finds in a product class" (S. H. Kim & Lee, 2017). This research demonstrates the importance of brand involvement on smartphone consumers' behavioral and attitudinal brand loyalty, a finding that is consistent with empirical results obtained by S. H. Kim and Lee (2017) in the context of the coffee shop industry, which similarly suggests that consumer brand involvement can positively influence brand satisfaction and loyalty.

In addition to the above-elucidated theoretical contributions, this study also has some practical implications for marketing. Triggering consumers' brand familiarity is critical to enhance brand loyalty in a market characterized by severe competition (S. H. Kim & Lee, 2017). Managers should assess the impact of changes in brand familiarity on brand loyalty and focus on how to establish strong links between consumers and brands to accumulate and increase consumer experience and foster a positive impression.

An important implication of our research is that managers should pay attention to integrating brand involvement into various marketing strategies to prolong the positive relationship between brands and consumers. The results of this study align with those of Quester and Lin Lim (2003), who found that the relationship between brand or product involvement and brand loyalty involves various degrees of consumer involvement, which leave stronger or weaker impressions and thereby produce different levels of familiarity. S. H. Kim and Lee (2017) similarly proposed that to promote positive consumer responses, the purchasing and using process should facilitate consumer involvement as a means to establish a relationship between corporate culture and consumer perception, thereby enhancing the fit between consumers and brand, self-concept, and service value perceptions. Developing such relationships enhances brand loyalty (Lin, 2013).

Brand managers should consider the influence of brand involvement on brand loyalty when devising brand development strategies because purchasing decisions strongly depend on consumers' involvement in the course of its purchasing (Nurcahyo et al., 2011). A high level of brand familiarity facilitates the purchase decision process and increases consumers' confidence in their purchases (Tam, 2008). Although advertising and public relations can be used to improve familiarity, direct experience is the most influential source of familiarity. Accordingly, companies should strive to enhance consumers' direct experiences by improving their brand involvement, which will in turn lead to higher brand familiarity. Marketers can actively offer incentives such as a free trials, coupons, or after-purchase services or deals—such as free or discounted accessories or add-ons—to stimulate consumption and consumer involvement so that they make a personal connection with the brand, thereby enhancing their loyalty and increasing the likelihood of future purchases. Managers can also foster brand loyalty by implementing promotional or educational activities such as contests or events where consumers can freely participate with and get involved with the brand, which can supplement more typical familiarization strategies such as advertising and after-sales services.

6. Conclusions

This study explored the potential effect of brand familiarity as a mediator between brand involvement and brand loyalty based on stimulus-organism-response theory. The findings indicate that brand involvement has a positive and statistically significant effect on brand familiarity and brand loyalty, and the latter two variables in turn have positive and statistically significant effects on behavioral and attitudinal brand loyalty. However, the effect of brand familiarity was stronger than that of brand involvement, and the former was shown to mediate the relationship between the other two variables. As such, this paper highlights the value of brand familiarity to companies, particularly in the context of domestic smartphone markets. Engendering higher brand involvement may add value to a company's brand by enhancing the mediation effect of brand familiarity between brand involvement and brand loyalty. The study also provides a theoretical basis for companies to develop appropriate brand promotion activities to increase consumers' brand involvement. As such, this research links theory and practice that can inform strategies to enhance brand loyalty through brand familiarity and brand involvement.

This study has several limitations. Firstly, the research focused on Chinese consumers' perceptions of Huawei. Future research could assess other smartphone brands or evaluate perceptions of Huawei in other countries. Researchers can explore differences in relationships between brand involvement, brand familiarity, and brand loyalty among various smartphone brands, such as second leadership brands, (fast-) follower brands, functional brands and prestige brands (Bapat & Thanigan, 2016). Similar approaches can also be applied to other industries and product-types.

Secondly, this research mainly collected data through convenience and judgment sampling. The main respondents were millennial Huawei smartphone owners in Gansu Province, China. Further research could focus on a larger sample size in other cities, and cross-tabulation among age groups could be considered to identify new services to meet consumers' demands. Researchers could conduct comparative studies of consumers in different regions.

Thirdly, future findings could be affected by the dynamism of the smartphone market. For instance, Huawei's overseas market began receiving negative consumer reviews as the Sino-US trade war intensified in 2019. Future research can evaluate the brand loyalty of consumers in overseas markets and compare it with the domestic market to provide companies with more specific and meaningful points of reference.

Finally, the market environment is rapidly changing with the advent of the 5G - 6G era. Therefore, additional variables should be considered in future studies of consumer brand loyalty. Future research could investigate the impacts of other independent variables such as consumers' psychological responses (Hsu et al., 2018), brand communities (Coelho et al., 2019), brand

association (Jin et al., 2019), brand experience, and self-brand connection (Van der Westhuizen, 2018). The investigation of those dimensions is likely to generate higher interest among practitioners and researchers in the future.

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