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Brand loyalty for mobile devices from the perspective of Vietnamese culture: antecedents and moderating effects of age

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Abstract

This study examines the correlations between brand personality, identity, perceived quality, and loyalty, as well as the moderating effect of age. The paper uses structural equation modeling and survey methodologies to present the findings. The data were collected from 228 Vietnamese respondents for the primary analysis. The research results show that brand personality, identification, and perceived quality positively affect brand loyalty. Age also negatively moderates the relationship between brand personality and brand loyalty, and positively moderates the relationship between perceived quality and brand loyalty; however, it does not moderate brand identification-loyalty connections. Additionally, brand loyalty is influenced by brand personality, identification, and perceived quality. Age moderates these relationships. The findings on the moderating effects of age are pioneering academically, especially in Vietnam. This study offers practical recommendations to address branding and marketing issues in business management. Based on moderating effects, managers and businesspeople can create marketing and branding campaigns that target the right age groups for each antecedent.

Keywords: Brand loyalty, Mobile devices, Brand personality, Brand identification, Perceived quality

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1. Introduction

Over the past few decades, brand loyalty has been a central concern for organizations seeking to build a solid consumer base. Repeated purchases and recommendations offer a continuous revenue stream to businesses. Therefore, understanding what motivates client loyalty is essential for the financial viability of a business. If a firm wants clients to bring additional business and advocate for the company, it must demonstrate that it cares about its customers and rewards them for their loyalty (Nasir, 2015).

Brand loyalty is “the tendency to consistently choose a single brand from among multiple brands in the same product category and to continue purchasing that brand” (Erciş *et al.*, 2012). Brand loyalty is the belief that customers would actively advocate for a company’s products and exhibit loyal behavior. The literature indicates that brand-loyal customers purchase more products and refer them to others (Chou, 2013). If consumers are dissatisfied with a brand, they will likely switch brands and lodge complaints regarding the product and retailer. Brand loyalty is alternatively described as attitude loyalty, which is a customer’s commitment to a brand based on a value associated with the brand and how well the brand is performing compared to its competitors (O’Malley, 1998).

Significant technological advancements over the past few decades have made the mobile device business a demanding and competitive market (Gerpott *et al.*, 2001; Kim and Yoon, 2004). The Fourth Industrial Revolution has caused mobile brand companies to disregard brand loyalty, thereby losing customers to competitors (Kelan and Lehnert, 2009). To obtain loyal customers, mobile brand companies must place greater emphasis on customer pleasure. In doing so, they establish a foundation for brand-loyal core consumers, enabling the company to increase its market share and extend its market lifetime (Van der Westhuizen and Singh, 2018).

Another aspect related to the antecedent effects on brand loyalty is location culture. Cultural components determine customer behavior. Accordingly, Vietnamese culture has traits distinct from those of Western nations, which dominate the academic marketing sector. Vietnamese culture is categorized among the Eastern Asian groups influenced by Confucianism and Buddhism, characterized as collectivistic civilizations. Collectivistic cultures favor products that encourage group membership and loyalty, whereas individualistic cultures prefer brands that support independence and provide individual satisfaction (Roth, 1995). Additionally, collectivist civilizations value consensus, which makes people loyal to a brand (Robinson, 1996). It has been demonstrated that collectivistic consumers exhibit more brand loyalty than individualistic consumers (Yoo, 2009). This is because they tend to rely more on their in-group when making purchasing decisions and value the opinions of others more than their own (Liao and Wang, 2009). Due to the perceived costs involved in such activities, they are less likely to act opportunistically in their self-interest than individualists (Doney *et al.*, 1998). They hold group-based attitudes and ideas and emphasize collective individual concerns (Hofstede, 1984; Singh, 1990). Therefore, it is substantially more difficult for them to abandon a central brand than for individualists when dissatisfied with it. These characteristics should

be analyzed and inputted into the arguments to connect the specific cultural traits of Vietnam to the determinants of brand loyalty in Vietnam, differentiating this study from the others and contributing to the academic world.

Thus, this study aims to analyze brand loyalty and its determining factors, namely perceived quality, brand identification, and brand personality, within the context of Vietnam's mobile device sector. The mobile device sector was chosen because it has become a daily requirement owing to the rapid evolution of technology; therefore, this study assists producers in comprehending customer purchasing patterns by investigating the characteristics of brand loyalty in Vietnam's mobile device business, including mobile phones, tablets, and laptops.

The current literature has shown research gaps based on the cultural differences between Vietnam and other nations, which this study can fill. Hence, this study tests the effects of antecedents on brand loyalty in Vietnam and the moderating effects of age on the above relationships.

The remainder of this study is structured as follows. Section 2 presents the literature review and hypothesis development. Section 3 presents the data collection and analytical methods. Sections 4 and 5 present and discuss the results. Finally, section 6 concludes the study and proposes recommendations.

2. Literature review and hypothesis development

2.1 The impact of perceived quality on brand loyalty

Long-established in branding literature, good perceived quality fosters repeat purchases and brand loyalty (Aaker, 1996; Keller, 1993). Zeithaml (1988) argued that perceived quality precedes perceived value, while Aaker (1996) indicated that it is a more accurate predictor of repurchase intention. Jacoby *et al.* (1971) claimed that the higher the perceived quality of a brand, the greater the consumers' perceptions of the brand's differentiation from the competing set and the greater the possibility of brand loyalty. When consumers consider a good quality brand, they are likely to sense its overall value, which motivates them to repurchase it (Netemeyer *et al.*, 2004). In addition, Aaker (1991) noted that perceived quality creates a motive to purchase customers, supporting the difference in a particular brand's service. As a result, businesses will set a high price, helping channel members become interested and expand the brand. Moreover, according to Chaudhuri (2002), perceived quality might influence consumer wants, which are influenced by perceived performance and beliefs. Perceived quality is a significant factor in brand loyalty (Biedenbach and Marell, 2009). Yee and Sidek (2009) contended that product quality is the most important factor in achieving brand loyalty. Jing *et al.* (2014) emphasized that if a firm desires a high level of customer loyalty, it must prioritize customer retention. Therefore, businesses must allocate marketing spending focusing on perceived quality to produce high-quality products. According to Pappu *et al.* (2005), consumer perceptions of product quality are related to brand loyalty. The greater their brand loyalty, the more probable they will regard the brand as superior quality. Lee *et*

al. (2007) suggested that perceived brand quality can significantly contribute to explaining brand loyalty.

Buyers base part of their decision on the product's desirability for mobile devices. Consequently, mobile device manufacturers must persuade consumers that their brand is superior. Mobile brand companies must ensure that consumers view them as distinct, technologically advanced, consumer-centric, fashionable, and able to offer the best products. Failure to do so will likely lower their product's perceived worth, unlike rivals (Van der Westhuizen and Singh, 2018). The above argument leads to the following hypothesis:

H1: There is a positive impact of perceived quality on brand loyalty.

2.2 The impact of brand personality on brand loyalty

Using personality qualities in brand positioning significantly boosts consumer preference, trust, loyalty, and buying intent (Akin, 2011). A strong brand personality also provides an advantage over competitors by influencing consumers' decisions (Sung and Kim, 2010). Practitioners and academics view brand personality, one of the most challenging and intricate aspects of brand creation, as a strategic tool for brand management. Developing a powerful brand involves designing and implementing an authentic and effective brand personality (Keller, 2003).

Good, distinctive, and unique brand characteristics may have a beneficial effect on brand loyalty. When brand and customer personalities are compatible, consumers are naturally drawn to purchase that brand (Akin, 2011). Millions of consumers rely on their choice of mobile brand for their emotional worth. They may disregard a product's monetary value to develop a personal relationship with the brand based on a memorable and high-quality user experience (Van der Westhuizen and Singh, 2018). Companies manufacturing mobile devices must facilitate this experience because brand loyalty is formed when consumers establish emotional value. In most cases, emotional-value buyers are technologically savvy (Bruks *et al.*, 2000). The above argument leads to the following hypothesis:

H2: There is a positive impact of brand personality on brand loyalty.

2.3 The impact of brand identification on brand loyalty

Social identity may influence people's perception, comprehension, and appraisal of situations and events. Greater customer identification can improve customer results, such as brand loyalty, by facilitating product or brand recognition. According to Bhattacharya and Sen (2003), customers construct their social identities by connecting with brands that reflect and reinforce themselves. Previous research indicated that brand identification influences customers' positive brand evaluations (Ahearne *et al.*, 2005). The customer-brand relationship suggests that consumers participate in pro-brand behavior because they identify with the focus brand (Kuenzel and Halliday, 2010).

As Belk (1988) stated, "We are what we have... what we buy, possess, and consume defines us to others and ourselves". Thus, brands can represent, transmit, and inform desirable

consumer identities (Lam *et al.*, 2010). Additionally, brand identification positively affects brand loyalty (He *et al.*, 2012). According to Kuenzel and Halliday (2010), when customers associate themselves with a well-known brand, positive brand identification is formed, which causes them to connect with and commit to well-known companies to boost their self-esteem. Greater consumer loyalty can be achieved by increasing customer identification with brands (Libai *et al.*, 2010).

Concurrently, social value occurs when buyers rely on their buying decisions on the prospective social status a product may provide them (Ha and John, 2010; Van der Westhuizen and Singh, 2018). Consumers typically observe global and market trends and imitate them to conform to social norms (Ha and John, 2010). Generally, consumers purchase a company's items if its brand is the leader of the current fashion trends. However, suppose the brand is not a market leader and is viewed as having lower value or worse quality. In that case, people will not want to purchase the brand, resulting in decreased sales and profit margins with severe repercussions for the company (Ha and John, 2010). For consumers to purchase mobile brands based on these principles, mobile brand companies must conduct considerable research and development on their goods to control their social worth and mold consumer attitudes (Brakus *et al.*, 2009). Affected by global trends, Vietnamese customers have similar patterns when they want to follow the leading products in the market, such as their peers and relatives. The above argument leads to the following hypothesis:

H3: There is a positive impact of brand identification on brand loyalty.

2.4 Age as a moderator of the relationships between the antecedents and brand loyalty

Customer age moderates the relationship between satisfaction and loyalty (Baumann *et al.*, 2005). Some studies indicate that older customers have greater brand loyalty than younger customers when purchasing (Homburg and Giering, 2001). By contrast, one study showed that senior consumers, like younger customers, attempt to transition between brands to experience the qualities of other brands (Moos, 2004). When making a subsequent purchase, older customers are more likely to consider their previous brand than younger customers (Lapersonne *et al.*, 1995). Another series of studies revealed that middle-aged consumers are devoted more to specific brands (McGoldrick and Andre, 1997). Thus, age has a crucial moderating influence on consumer loyalty predictors.

Individualism/collectivism has garnered the most attention from a cultural standpoint among the four cultural dimensions (Triandis, 1995) when examining customer behavior, especially in the context of Asian Confucian-based countries such as China, which are primarily collectivistic in character (Hofstede and Bond, 1988). Collectivism is the tendency of individuals to regard themselves as interdependent with other members of society. Collectivists are often more concerned with the effects of their behavior on members of the same social group, exhibit conformity, and demonstrate a readiness to sacrifice individual interests for the good of the group (Nakata and Sivakumar, 2001). Additionally, collectivism encourages the development of long-term buyer-seller ties, which in turn promotes the development of

loyalty behavior (Yoo, 2009). In general, affected by East Asian culture, older Vietnamese still adhere to the traditional ways of consumption, valuing the long-term and pragmatist ideals in consumption. However, the effects of globalization through film, music, social media, and the Internet have altered the consumption patterns of younger people in Vietnam. For these reasons, age moderates the association between predictor variables and brand loyalty for mobile devices in Vietnam.

2.4.1 The moderating effect of age on the relationship between perceived quality and brand loyalty

Age-related changes in consumer behavior result from physical and cognitive aging and accumulated life experiences (Moschis, 1994). Customers gain experience, familiarity, and knowledge regarding the products and services they purchase and consume as they age (Darley and Smith, 1995). Prior experience may result in more complex expectations and impressions of service interaction (O'Neill and Palmer, 2003). On the other hand, less experienced customers may be unable to distinguish between key qualities (Ganesan *et al.*, 2008). It has been demonstrated that Vietnamese culture is marked by pragmatism and a long-term perspective, particularly among older generations, with more product experience and higher skills in evaluating product quality. Older generations are more concerned with the functionality of products and services than with their appearance or marketing messages, especially for durable and physically functional products like mobile devices. Based on prior studies, the following hypothesis is suggested:

H4: Age positively moderates the relationship between perceived quality and brand loyalty.

2.4.2 The moderating effect of age on the relationship between brand personality and brand loyalty

As individuals prefer to consider their goods as an extension of “themselves”, brand personality helps consumers to identify with and express their personalities through the brand (Azoulay and Kapferer, 2003). Brand personality serves a symbolic or self-expression role, and symbolic meaning and emotional connections facilitate the development and maintenance of significant consumer-brand interactions (Sung and Kim, 2010). In the case of Vietnamese culture, however, some characteristics require deeper understanding. As older generations are more solid, strategic, and realistic than younger generations and attempt to keep their emotions in check, older generations are more emotionally controlled. In this instance, brand personality represents the extroverted and direct feelings that older generations disregard when assessing brand loyalty. Therefore, the following hypothesis is developed:

H5: Age negatively moderates the relationship between brand personality and brand loyalty.

2.4.3 The moderating effect of age on the relationship between brand identification and brand loyalty

According to Marticotte *et al.* (2016), positive client views of a brand indicate robust brand identification. According to social identity theory (Halliday and Kuenzel, 2008; Kuenzel and

Halliday, 2008), solid brand identification refers to a brand and its clients with similar identities. Many consumers use brands to express their identities and enhance their personality. The degree of brand identification indicates the extent to which a brand represents and reinforces its identity (Kim *et al.*, 2001). As demonstrated by previous research and conclusions drawn from the cultural characteristics of Vietnam, older generations pay no attention to virtual images or quick attention-grabbing. Instead, they rely on past purchasing and usage experiences and are less likely to identify a brand with their identity. Younger generations, on the other hand, seek to broaden their identity by emphasizing the brand’s characteristics and distinctive components similar to those of their Western counterparts. Consequently, older generations will not use brand identification to determine brand loyalty. Based on this investigation, the following hypothesis is suggested:

H6: Age negatively moderates the relationship between brand identification and brand loyalty.

The research model is proposed based on previous studies and arguments, as shown in Figure 1.

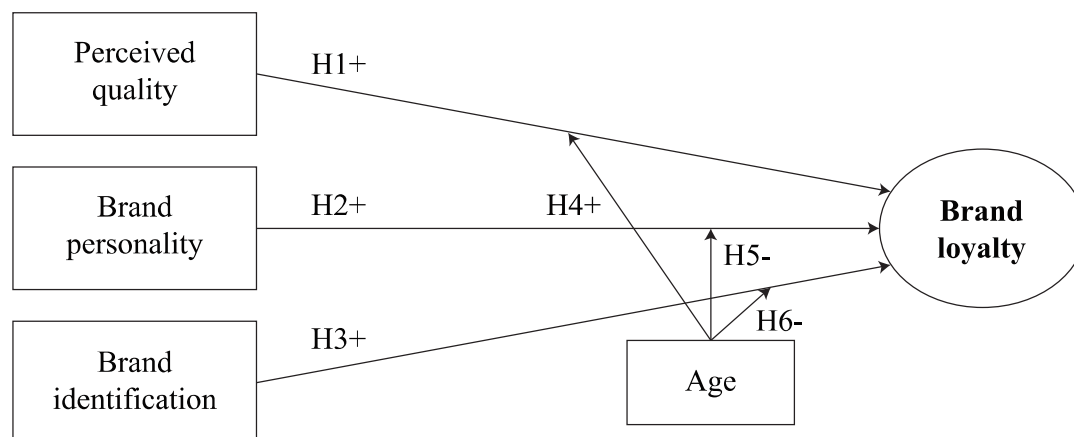


Figure 1. Research model

Source: Authors’ suggestion

3. Research methods

3.1 Data collection

The questionnaire was sent to respondents in Vietnam in 2020 to gather data on consumer behavior toward mobile devices, including laptops, mobile handsets, and tablets. Vietnam was chosen because it is dedicated to digital transformation and is among the best performers in the developing world. According to Do Ventures, the fast rise of the middle class and Internet users is highly regarded in Vietnam (Ly, 2021). Vietnam now ranks third in terms of Internet users, third in mobile penetration, and second in average mobile Internet connection speed in Southeast Asia.

A total of 228 responses were collected from June to December 2020. The “10-times rule” method is the most popular minimum sample size estimation method in partial least squares structural equation modeling (PLS-SEM), both in the field of information systems (Chin *et al.*, 2020; Urbach and Ahlemann, 2010; Bayaga and Kyobe, 2022) and other areas (Hair *et al.*, 2011; Peng and Lai, 2012). With 228 responses, the sample satisfied the criteria for the minimum number of responses required to run the SEM.

3.2 Measurement scale

3.2.1 Brand personality (PRS)

The study adapted the items developed by Aaker (1997), who identified five dimensions: sincerity (SNC), excitement (EXC), competence (CMP), sophistication (SPH), and ruggedness, including fifteen “facets”. Aaker pioneered the development of measurement items for the construct of brand personality, which have been employed in several studies. In the research, due to the opposite meaning of sophistication (with the measurement of the upper class, good-looking, glamorous, charming, feminine, and smooth) to the sense of ruggedness (with the measurement of outdoorsy, masculine, western, challenging, and rugged), if the respondents have a high score in this aspect, they will have low scores in others. Therefore, one of these two can be removed, which is sufficient to measure only one. Responses were followed on a 7-point Likert-scale format (1 - strongly disagree, 7 - strongly agree).

3.2.2 Brand identification (IDN)

The study used the six-item scale of brand identification (IDN) developed by Mael and Ashforth (1992). Responses were followed on a 7-point Likert-scale format (1 - strongly disagree, 7 - strongly agree). Mael and Ashforth pioneered the development of measurement items for the construct of brand personality, and these items have been employed in several studies. Thus, it is reasonable to adopt these item scales.

3.2.3 Perceived quality (QUA)

The research adapted items developed by Garvin (1987). The Garvin framework is among the most popular methods for measuring perceived quality. He proposed a well-known framework for thinking about product quality based on eight dimensions: performance (PRP), features, reliability (RLI), conformance (CNF), durability (DUR), serviceability (SRV), aesthetics (AST), and perceived quality. In this research, due to the general meanings of the sub-construct of perceived quality, perceived quality covers all facets of other subconstructs, meaning that it is very general. At the same time, the sub-construct of features has characteristics similar to the sub-construct of performance, suggesting that these two sub-constructs can be used interchangeably. Thus, these two sub-constructs were removed from the survey. Responses followed on a 7-point Likert-scale format (1 - strongly disagree, 7 - strongly agree).

3.2.4 Customers' loyalty (LOY)

The research adapted to the items developed by Bobâlcă *et al.* (2012) on customers' loyalty. Responses followed on a 7-point Likert-scale format (1 - strongly disagree, 7 - strongly agree).

3.3 Data analysis

The study model underwent testing using partial least squares structural equation modeling (PLS-SEM), a type of structural equation modeling that utilizes latent variables and allows for route analytic modeling (Chin *et al.*, 2003). PLS is recommended by Jöreskog and Wold (1982) for theoretical research.

4. Results and discussion

4.1 Descriptive statistics

The demographic statistics of the survey participants indicated that the majority were female, with 168 individuals, followed by 51 males, and 9 were skipped. Most respondents were between 18 and 25 years old, accounting for 51%. The second most represented age group, comprising 25% of the respondents, was between 26 and 32 years. The rest of the groups continuously expanded from over 32 to 60 years, except for the age groups over 46 to under 56,5 years, which recorded no cases. As for mobile devices, an overwhelming majority of respondents, or 95%, used mobile phones, while 3% used tablets and 2% used notebooks.

4.2 First-order analysis

At each stage of scale development, each latent variable was tested for discriminant and convergent validity. Theoretically, an item has sufficient convergent validity when it measures the underlying concept for which it is designed. Using their factor loadings, the convergent validity of the items in this study was determined to support this theory. Strong convergent validity was proven by items with high loading (greater than 0.5) on their parent concept (Hair *et al.*, 2010; Schumacker and Lomax, 2012) and low cross-loading on other variables.

Table 1. The first-order factor analysis and Cronbach's Alpha

Items	Factor loadings	P-value	Cronbach's Alpha	Average variance extracted (AVE)
CMP1	0.872	0.000	0.860	0.781
CMP2	0.881	0.000		
CMP3	0.898	0.000		
EXC1	0.850	0.000	0.893	0.758
EXC2	0.867	0.000		
EXC3	0.921	0.000		
EXC4	0.841	0.000		
SNC1	0.864	0.000	0.905	0.779
SNC2	0.851	0.000		
SNC3	0.923	0.000		
SNC4	0.890	0.000		

Table 1. The first-order factor analysis and Cronbach's Alpha (*continued*)

Items	Factor loadings	P-value	Cronbach's Alpha	Average variance extracted (AVE)
SPH1	0.925	0.000	0.791	0.826
SPH2	0.893	0.000		
AST1	0.932	0.000	0.880	0.808
AST2	0.922	0.000		
AST3	0.841	0.000		
CNF1	0.895	0.000	0.795	0.829
CNF2	0.926	0.000		
DUR1	0.870	0.000	0.739	0.792
DUR2	0.910	0.000		
PRP1	0.617	0.000	0.873	0.534
PRP2	0.739	0.000		
PRP3	0.828	0.000		
PRP4	0.760	0.000		
PRP5	0.734	0.000		
PRP6	0.754	0.000		
PRP7	0.775	0.000		
PRP8	0.613	0.000		
RLI1	0.868	0.000	0.872	0.796
RLI2	0.920	0.000		
RLI3	0.888	0.000		
SRV1	0.886	0.000	0.772	0.814
SRV2	0.917	0.000		
IDN1	0.798	0.000	0.898	0.711
IDN2	0.853	0.000		
IDN3	0.879	0.000		
IDN4	0.893	0.000		
IDN5	0.789	0.000		
LOY1	0.896	0.000	0.940	0.806
LOY2	0.876	0.000		
LOY3	0.899	0.000		
LOY4	0.933	0.000		
LOY5	0.885	0.000		

Source: Authors' calculation

In addition, Schumacker and Lomax (2012) recommend evaluating the statistical significance of these loadings (p-value of 0.05) because p-values are used as validation parameters in

confirmatory factor analysis. As shown in Table 1, the p-value for each subconstruct is less than 0.000. The AVE was used to determine the construct's discriminant validity for discriminant analysis. For a concept to have strong discriminant validity, Fornell and Larcker (1981) stated that the square root of AVE must be more significant than its correlations with other notions. According to Table 2, the current analysis reveals that this requirement is met for the first-order factor structure.

Table 2. The first-order discriminant validity test

Items	CMP	EXCI	IDN	LOY	SNC	SPH	AST	CNF	DUR	PRP	REL	SRV
CMP	0.884											
EXC	0.791	0.870										
IDN	0.577	0.633	0.843									
LOY	0.589	0.599	0.649	0.898								
SNC	0.737	0.774	0.572	0.566	0.882							
SPH	0.762	0.724	0.640	0.546	0.638	0.909						
AST	0.517	0.610	0.498	0.644	0.646	0.451	0.899					
CNF	0.519	0.546	0.450	0.568	0.547	0.434	0.583	0.910				
DUR	0.390	0.447	0.336	0.433	0.492	0.363	0.577	0.445	0.890			
PRP	0.445	0.471	0.534	0.569	0.525	0.409	0.639	0.636	0.436	0.731		
REL	0.359	0.389	0.295	0.399	0.426	0.399	0.471	0.530	0.528	0.450	0.892	
SRV	0.332	0.435	0.469	0.429	0.536	0.344	0.571	0.447	0.460	0.576	0.447	0.902

Source: Authors' calculation

4.3 Second-order analysis

According to Hair *et al.* (2006), a higher-order construct should be evaluated similarly to a lower-order one. Consequently, statistical validation for validity and reliability employed at the first-order level is appropriate when assessing the second-order construct.

Table 3. The second-order factor analysis and Cronbach's Alpha

Items	Factor loadings	P-value	Cronbach's Alpha	Average variance extracted (AVE)
CMP	0.916	0.000	0.918	0.804
EXC	0.921	0.000		
SNC	0.882	0.000		
SPH	0.867	0.000		
AST	0.846	0.000	0.867	0.600
CNF	0.796	0.000		
DUR	0.721	0.000		

Table 3. The second-order factor analysis and Cronbach's Alpha (continued)

Items	Factor loadings	P-value	Cronbach's Alpha	Average variance extracted (AVE)
PRP	0.822	0.000		
REL	0.706	0.000		
SRV	0.747	0.000		
IDN1	0.799	0.000	0.898	0.711
IDN2	0.852	0.000		
IDN3	0.878	0.000		
IDN4	0.892	0.000		
IDN5	0.789	0.000		
LOY1	0.896	0.000	0.940	0.806
LOY2	0.876	0.000		
LOY3	0.898	0.000		
LOY4	0.933	0.000		
LOY5	0.885	0.000		

Source: Authors' calculation

Competence, excitement, sincerity, and sophistication are indicators of brand personality. Using SmartPLS-generated factor scores, competence, excitement, sincerity, and sophistication are evaluated as brand personality indicators. Competence, excitement, sincerity, and sophistication had substantial loadings on brand personality (above 0.5 and p-value lower than 0.001). Cronbach's Alpha of 91.8% validated the dependability of brand personality. Table 4 provides additional support for the discriminant validity of cultural intelligence, as the square root of AVE is greater than the most significant variance shared among the components.

Table 4. The second-order discriminant validity test

Items	IDN	LOY	PRS	QUA
IDN	0.843			
LOY	0.649	0.898		
PRS	0.676	0.642	0.897	
QUA	0.566	0.667	0.671	0.775

Source: Authors' calculation

Performance, reliability, conformance, durability, serviceability, and aesthetics are the indicators of perceived quality. Using factor scores for performance, reliability, conformance, durability, serviceability, and aesthetics, SmartPLS was used to construct indicators for perceived quality. Performance, reliability, conformance, durability, serviceability, and aesthetics showed significant loadings for perceived quality (above 0.5 and p-value lower than 0.001). Cronbach's Alpha was used to validate the dependability of the perceived quality.

Table 4 supports the discriminant validity of perceived quality, as the square root of AVE was greater than the maximum variance shared among the components.

4.4 Structural model

PLS-SEM was used to test the research model. Using bootstrap statistics with 500 resamples, Lohmöller (1989) determined the route importance. As Kenny and Judd (1984) recommended and subsequently implemented in PLS by Chin *et al.* (2003), the product indicator approach was used to analyze moderating relationships, in which interaction terms were generated by multiplying the predictor and moderator construct indicators.

Table 5. Fitness of the model

Dependent variables	R-squared	R-squared adjusted
LOY	0.566	0.558

Source: Authors' calculation

According to Table 5, the R-squared of customer loyalty is 56.6%. Thus, the model explains 56.6% of the variation in customer loyalty. Table 6 presents the hypothesis testing results. Hypotheses are supported with p-values of less than 0.1.

Table 6. Hypothesis testing

Hypothesis	Coefficient	P-value	Hypothesis confirmation
H1	0.356	0.000	Supported
H2	0.191	0.086	Supported
H3	0.318	0.003	Supported
H4	0.155	0.025	Supported
H5	-0.187	0.058	Supported
H6	-0.003	0.393	Unsupported

Source: Authors' calculation

5. Discussions

5.1 Perceived quality as an antecedent of brand loyalty

Considering the relationship between perceived quality and brand loyalty, several studies revealed a positive relationship between perceived quality and purchase intent (Tsiotsou, 2006). Perceived quality is the primary predictor of brand loyalty (Biedenbach and Marell, 2009). Chang and Wildt (1994) asserted that value can encourage loyalty. Customer loyalty increases if positive customer perceptions of transactions (Parasuraman and Grewal, 2000). Sirdeshmukh *et al.* (2002) contended that the value will benefit customers, but Wu *et al.* (2007) noted that the consumer's impression will either boost or diminish brand loyalty. Judith and Richard (2002) further demonstrated that high levels of perceived quality and brand loyalty influence the intent to purchase. Therefore, perceived quality and brand loyalty are positively

correlated; if perceived quality increases, so would brand loyalty. Thus, buyers will be more likely to acquire a recognizable brand (Kamins and Marks, 1991). This is especially true in the case of mobile devices, which are commercial and essential products with numerous applications and genuine uses in the digitalized plans of many nations, especially growing nations such as Vietnam. Perceived quality will imprint a positive image of the brand in customers' minds, hence retaining them, because the dependability and longevity of the items are evidence of the major benefits that buyers require for everyday products such as mobile devices.

5.2 Brand personality as an antecedent of customer brand loyalty

Consumers are more inclined to associate with brands with distinct and powerful personalities (Bhattacharya and Sen, 2003). Additionally, a previous study demonstrated that customers have an ideal self-image and seek businesses to enhance their self-esteem (Carlson *et al.*, 2009). Moreover, there is evidence that brand personality directly affects both the attitude and behavior components of brand loyalty (Buil *et al.*, 2013).

Emotional components should be highlighted to differentiate the brand. The fact that the abstract and emotive components of a brand have a more significant impact on customers' product and brand positioning than the tangible and rational components has prompted businesses to place a greater emphasis on these components (Eisend and Langer, 2007). Using personality qualities in brand positioning significantly boosts consumer preference, trust, loyalty, and buy intent (Akin, 2011). In addition, a strong brand personality provides an advantage over competitors by influencing the consumer's ultimate decision (Swaminathan *et al.*, 2009; Ramaseshan and Tsao, 2007). Practitioners and academics view brand personality, one of the most challenging and intricate aspects of brand creation, as a strategic weapon for brand management. Developing a powerful brand involves designing and implementing an authentic and effective brand personality (Keller, 2003). Mobile gadgets exhibit the features of humans because mobile device manufacturers, such as Samsung, execute marketing campaigns featuring the performances of K-pop artists who significantly impact market consumption trends. Thus, when consumers recognize human characteristics in a mobile product, they are more inclined to purchase and remain loyal.

5.3 Brand identification as an antecedent of brand loyalty

Social identity may influence individuals' perceptions, cognitions, attitudes, and judgments of issues (since they constitute the central identification component) and occurrences. Enhancing customer identification with a brand can increase consumer loyalty (Libai *et al.*, 2010). Empirical research demonstrates the effect of customer brand identification on measures of consumer brand loyalty (Kuenzel and Halliday, 2010). Theoretical arguments substantiate the favorable impacts of customer brand identification on brand loyalty.

Although mobile devices are commercial products, they are also elegant and stylish, allowing users to express their individuality. Customers will purchase iPhones with various functions and appearances, but they do not use all the functions or maintain the same

appearance for an extended period. Instead, they will switch to the new versions without using the latest versions' functions. They repurchase devices because their peers, like friends or relatives, also repurchase them. Or they buy new versions to demonstrate their status and image. This argument links brand identification to brand loyalty for mobile devices.

5.4 The moderating effects of age

According to Wakefield and Baker (1998), age should not only be considered a predictor of happiness and loyalty but also a moderator. Various ideas explain the moderating effect of age on the relationship between satisfaction and loyalty (Lambert-Pandraud *et al.*, 2005). According to information processing, older consumers are less inclined to seek new knowledge (Moskovitch, 1982) and rely more on heuristic or schema-based types of processing (Wilkes, 1992; Yoon, 1997). Therefore, the study anticipates that older consumers will rely on fewer choice variables when developing loyalty to a brand. By contrast, younger consumers may seek out alternative information that may influence their loyalty.

The results corroborate age-dependent changes in the effects of the primary antecedents on brand loyalty. It demonstrates that the impact of brand personality and perceived quality on brand loyalty are age-sensitive but in opposing directions. Age strengthens the connection between perceived quality and brand loyalty but diminishes the connection between brand personality and brand loyalty. It demonstrates the current market trends when the younger generations are impacted by globalization trends such as pop music, film, and foreign fashion. Therefore, they wish to display their self-expressions, pictures, and appearances, whereas the older generations are more concerned with practical applications such as quality.

However, the effect of brand identification on brand loyalty is independent of age differences. It suggests that both younger and older generations have the same perspective on brand loyalty when considering brand identification. Although brand personality is less significant to older generations regarding brand loyalty, they still view brand identification as a crucial reference, just as younger generations do. It demonstrates that all generations require the brand to link themselves to brand images and identities.

6. Conclusions

According to the literature on relationship marketing, organizations with a loyal client base experience good business performance and increase revenue growth, customer share, and customer commitment. Satisfied customers continue to conduct business with the company, and their faith in the company grows with time. Customers' commitment and spending improve when their trust in a company builds over time because they prefer to conduct business with organizations with whom they have established positive relationships. They are unwilling to take chances. In addition, loyal consumers are more likely to spread positive word-of-mouth about the firm and encourage others to do business with it. Loyal clients thus become referral sources (Buttle, 2009). Our research contributes to the current understanding of antecedents of brand loyalty and the moderating effect of age. Accordingly, brand personality, brand identification, and perceived quality have been demonstrated to be the antecedents of brand

loyalty in influencing customers' brand loyalty. Age is also confirmed to be the moderating variable for the correlations between brand personality and perceived brand quality and brand loyalty but not for the relationship between brand identification and brand loyalty. Our findings regarding these moderating effects of age are among the first from an academic standpoint, particularly in Vietnam.

The research results also offer some implications for branding and marketing-related business management matters. Using the moderating effects of each antecedent as a guide, managers and businesspeople can develop marketing and branding initiatives and target appropriate age groups. The conclusions of this study imply that businesses trading on mobile devices should perform promotional activities to demonstrate their company's personality, brand identification, and perceived quality. First, the corporation should humanize the brand through campaigns such as music events with renowned people or sporting events to promote the brand personality and assist customers in recognizing the brand as a person, relative, or friend. Second, they should tailor the brand's message to each customer and enhance its attractiveness so that customers will associate the brand with their image and identity and attach emotions and interactions to it. Third, the company can boost the brand's perceived quality by sharing tales about the sustainability and durability of its products through media such as YouTube and Facebook. In addition to the products, the corporation can promote the brand's quality via professional services, thereby increasing customers' perceptions of the brand's quality.

Based on the research findings, an organization should emphasize the brand's personality traits to attract younger customers. By contrast, if a company wishes to attract customers from older generations, it should underline quality, as elderly customers value it greatly. Age is not a factor that can improve or weaken the effect of brand identification on brand loyalty; therefore, companies can target both generations by using brand promotion methods.

In most cases, antecedents of brand loyalty have a significant influence on brand loyalty. It appears general and universal; however, the study has several limitations that may necessitate additional investigation in other countries. Age has a moderating influence. Vietnamese culture is distinguished from Western culture by its long-term orientation and collectivism. Parallel to the emergence of globalization and Internet-based marketing operations, Vietnamese consumption can be split into two groups. Older generations have a traditional perspective, as suggested by Hofstede's theory (2001). Nonetheless, the Z generation is the most affected by globalization and social media in the modern era. Thus, younger generations are more outgoing than older generations. Therefore, they are comparable to other young people worldwide. This crucial point must be carefully considered when extrapolating our research findings to other Western nations. In these countries where open-mindedness and short-term orientation characterize the culture, all age groups may have similar moderating effects on the relationships between antecedents and brand loyalty. To evaluate the moderating effects of age variables, we should undertake additional research in more diverse cultures, such as Western nations, as suggested by these limitations.

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