

The role of aesthetic, cultural, utilitarian and branding factors in young Chinese consumers' repurchase intention of smartphone brands

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Abstract

Despite the exponential growth of smartphone consumption, to date, very few studies have investigated the factors that influence consumers' repurchase intention of smartphone brands. China has become the world's largest consumer markets for smartphones, therefore understanding young Chinese consumers' repurchase intention in the smartphone market is of crucial importance to smartphone companies. A preliminary qualitative study based on 30 face-to-face interviews has led to the development of a new conceptual framework including aesthetic (design appeal), functional (perceived quality), brand value (brand popularity), social (subjective norm) and cultural influences (*mianzi*). The newly developed framework has been tested through partial least squares structural equation modeling with a sample of 321 young Chinese smartphone users. The results show that young Chinese customer's smartphone repurchase intention is mainly determined by *mianzi*, perceived quality, brand popularity, and design appeal. Furthermore, findings also highlight that subjective norm, perceived quality and design appeal affect Chinese people's *mianzi*.

Keywords: smartphone brands; young Chinese consumers; Chinese culture; *mianzi*; continuance intention.

1. Introduction

In the twenty-first century, smartphones appear to be viewed as a necessity for the majority of consumers across all dimensions of age, gender or education level (Persaud & Azhar, 2012). In the last few years, smartphone penetration keeps growing and in many countries time spent using smartphones now exceeds web usage on computers (Nielsen, 2014). Smartphones have become an integral part of the everyday life of many consumers both in developed and emerging countries. China's smartphone user base is already the largest in the world by far (totaling 521.7 million in 2014) and this figure is set to grow further (e-Marketer, 2014). Smartphones have become a life companion for many consumers who use them each day to perform a wide arrange of activities, such as checking emails, chatting with friends, browsing the internet, managing businesses, purchasing products and booking services, and so forth.

Despite the exponential growth of smartphone technology and its rapid adoption by vast numbers of consumers, to date, there is a paucity of research on the factors that influence consumer's decision regarding smartphones (Kim, Chun, & Lee, 2014; Koo, Chung, & Kim, 2015). Existing theories adopted for explaining consumer behavior in relation to high-technology products such as smartphones mainly focus on consumer decisions to adopt those products. Examples of these theories include the Technology Acceptance Model (TAM) (Davis, 1989), the Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975), the Theory of Planned Behavior (TPB) (Ajzen, 1991), or the Innovation Diffusion Theory (IDT) (Rogers, 1995). These theories have been used to explain why consumers decide to adopt (purchase) a new technology (i.e. smartphone) instead of an existing one (i.e. mobile phone) (e.g. Joo & Sang, 2013; Kim et al., 2014; Park & Chen, 2007); however, research on continuance intention is still scant. The continuance or repurchase intention model explains usage behavior or continued use after the initial adoption of a technology (Bhattacharjee, 2001).

Smartphone technology seems to have reached a maturity level and the global smartphone market, which was once dominated by Samsung and Apple, is nowadays becoming populated by several competing Chinese brands offering similar smartphone models, such as Huawei, Xiaomi, Oppo, and ZTE. Thus at this stage of the market development it would be interesting to understand the factors driving consumers' intention to continue using the same smartphone brand. Additionally, research has demonstrated that technologies may not be only used to fulfil practical needs such as make a call or surf the internet, but also to satisfy hedonic needs (Melewar, Lim, & Petruzzellis, 2010) or to signal affiliation and timely technology adoption (Kim et al., 2014). Thus, consumer decisions regarding new technology may not only be driven by utilitarian and product considerations as prescribed by technology adoption models, but also hedonic factors such as design appeal of a smartphone, or factors such as the capacity of a brand to signal affiliation to specific groups.

The aim of the present study, therefore, is to address this gap in the literature by developing and testing a new conceptual framework which will be effective in explaining the factors that directly influence consumer repurchase intention of smartphone brands. Thus, this paper contributes to continuance intention theory of high-technology products in China with a focus on smartphone brands.

In view of the lack of research on this topic and the need to develop a new theoretical framework to explain consumer repurchase intention of smartphone brands, we employed a preliminary study using qualitative interviews with young Chinese consumers. The emerging framework was tested using Partial Least Square (PLS) with a sample of 321 young Chinese consumers.

There are several reasons to focus on the Chinese market and on young Chinese consumers: the Chinese market is the world's largest smartphone consumer market, in China there are already 500 million smartphone users and this number is expected to rise to 700

million in 2018 (e-Marketer, 2014). Understanding young consumers repurchase intention of smartphone is particularly important as they are considered as early adopters of mobile technology (Leung & Wei, 1999; Vishwanath & Goldhaber, 2003) and as such they are known to act as opinion leaders, which help trigger a critical mass of users of a technology (Rogers, 1995).

The study has important implications for smartphone companies' brand and R&D managers in that it offers important insights as to how to develop and market high-tech products such as smartphones in China and increase consumer's repurchase intentions.

The paper is structured as follows: the following section critically evaluates the theories used to investigate consumer's adoption of a smartphone. Next, the paper reviews the extant literature on continuance intention. Following this, we discuss the results of the preliminary study, which inform the hypothesis development. We then discussed the methods adopted for the main study, and then present the findings together with our analysis and discussion of the findings. Finally, we discuss the theoretical and practical implications of the study and future research directions are proposed while the limitations of the study are also recognized.

2. Literature review

2.1 Smartphones and technology adoption theories

A smartphone is more than a simple mobile phone in that it can also send and receive emails, connect to the internet and offer additional features such as a camera and substantial data storage capacity (Pitt, Parent, Junglas, Chan, & Spyropoulou, 2011). Smartphones are also able to process tactile information in the form of touch screens, are equipped with positioning systems such as GPS, and have created the market for downloadable mobile applications (Pitt et al., 2011). Overall, smartphones integrate mobile and computing technologies so that consumers can check and send emails, browse the internet, write documents, purchase products and services, engage in social media activities and much more.

Research has started to analyze several phenomena in the mobile phone industry such as the determinants of loyalty towards mobile communications service providers (Lai, Griffin, & Babin, 2009), the antecedents of consumer purchase intentions for mobile value-added services (Wang & Li, 2012), and consumer attitudes towards and acceptance of mobile advertising (Gao, Rohm, Sultan, & Pagani, 2013; Jun & Lee, 2007). Specifically, Lai et al. (2009) revealed that the major loyalty factors among Chinese customers of a telecommunications firm are service quality, value, image, satisfaction; Wang and Li (2012) identified that mobile services personalization, identifiability, and perceived enjoyment are the major antecedents of purchase intentions for mobile value-added services. With regards to mobile advertising, Gao et al. (2013) showed that individual characteristics, namely innovativeness (positive relationship), risk avoidance (negative relationship), and personal attachment (marginally significant, positive relationship) influence customer attitude towards and acceptance of mobile advertising; while Jun and Lee (2007) indicated that mobility, convenience and multimedia service were positively related to attitudes toward mobile advertising.

Existing theories for explaining consumer behavior with high technology products mainly focus on consumer motivations to adopt a new technology. Examples of these theories include the TAM (Davis, 1989), the TRA (Fishbein & Ajzen, 1975), the TPB (Ajzen, 1991), or the IDT (Rogers, 1995). These theories have been used extensively by scholars to predict consumer technology adoption behavior even in the context of smartphones (e.g. Chen, Yen, & Chen, 2009; Joo & Sang, 2013; Kim et al., 2014; Park & Chen, 2007). For instance, Park and Chen (2007) integrate IDT and TAM to explain the determinants of smartphone adoption by medical doctors and nurses, similarly Chen, Yen, & Chen (2009) use the same framework to investigate employee adoption of smartphones in a delivery service company, highlighting the importance of factors like self-efficacy and perceived ease of use on behavioral intention to use the technology. Joo and Sang (2013) also use TAM to measure the impact of factors such as perceived ease of use and usefulness (and their antecedents) on Korean consumers' intentions to use a smartphone.

TAM has been widely adopted to explain new technologies adoption through the influence of key factors such as ease of use and usefulness. However, Kim et al. (2014) research on smartphone adoption behavior among American college students found that perceived usefulness and perceived ease of use, namely the two pillars of TAM, did not predict smartphone adoption.

2.2 Continuance/repurchase intention theory

Continuance intention theory explains continued use or repurchase behavior after the initial adoption of a technology (Bhattacharjee, 2001). Continuance intention and repurchase intentions refer to the same concept (Bhattacharjee, 2001; Limayem, Hirt, & Cheung, 2007). Bhattacharjee (2001) introduced the Model of Information Systems (IS) Continuance by adapting Expectation Confirmation Theory (ECT) from marketing to the IS field to explain

post-adoption behavior. The model assumes that the success of IS depends on continued use rather than first-time use and that existing acceptance models provide a limited explanation of, and may sometimes contradict, observed continuance behavior (Bhattacharjee, 2001). It is argued that after initial use, cognitive beliefs such as individual perceptions of system usefulness and satisfaction with it may change, leading to repeated behaviors or discontinued usage (Bhattacharjee, 2001; Koo et al., 2015; Limayem et al., 2007). The original ECT consisted of expectation, performance, confirmation, satisfaction, and repurchase intention. These decisions are presumed to involve two inputs: expectations of benefits from future usage, such as the *usefulness* of the IT in task performance, and summative judgments of the outcomes of prior usage, namely the *user satisfaction* construct (Bhattacharjee, 2001).

Recently, the notion of continuance intention has gained increasing attention in a variety of research settings such as online banking (Bhattacharjee, 2001; Vatanasombut, Igbaria, Stylianou, & Rodgers, 2008), e-learning (Chiu, Chiu, & Chang, 2007; Lee, 2010; Roca & Gagné, 2008), blogging (Lu & Lee, 2012; Shiau & Luo, 2013; Tang, Tang, & Chiang, 2014), website (Chen & Lin, 2015; Lin, Wu, & Tsai, 2005), mobile commerce (Chong, 2013; Gao, Waechter, & Bai, 2015), online communities (Chou, Min, Chang, & Lin, 2010), social networking websites (Kim, 2011; Oliveira, Huertas, & Lin, 2016), self-service technologies (Chen, Chen, & Chen, 2009; Lin & Filieri, 2015), and many more (see Literature Review in Table 1). This literature has neglected the cultural context that might have an influence on continuance intention. Moreover, there are very few studies on consumer's intention to repurchase a smartphone brand. Most of existing models have been tested on services, social media or digital technologies and very few studies have focused on goods such as smartphones.

In addition, scholars have also analyzed consumer behavior with mobile phones and found that many consumers were unaware of the properties and services the new models in

the market contain (Karjaluoto et al., 2005). Indeed, consumers underlying motives for purchasing mobile phones relate to brand awareness and positive brand associations (Melewar et al., 2010). It is possible to infer that various factors, and not necessarily product-driven ones, may be important to explain consumer decision to repurchase a smartphone nowadays. For instance, smartphones may not be only used to fulfil practical needs such as make a call or surf the internet rather also to signal affiliation and timely technology adoption (Kim et al., 2014). Thus, the IS continuance intention model leaves out some of the hedonic aspects of technology products such as product design (appearance), or social factors such as reference groups' pressure, which may provide a more comprehensive explanation of why consumers choose to repurchase a specific smartphone brand over the alternatives available in the marketplace (Bhattacharjee, 2001).

Furthermore, very little is known about young Chinese consumers' behavior with Smartphone brands. In this context, cultural factors might play a relevant role in consumer behavior. Therefore, this study has adopted a qualitative approach to unveil the variety of factors that are more important to young Chinese consumers' purchase of smartphone brands.

Table 1. A review of the literature on factors affecting continuance intention

Author	Technology	Factors affecting continuance intention
(Bhattacharjee, 2001)	Online banking	Satisfaction Perceived Usefulness
(Lin et al., 2005)	Website	Playfulness Satisfaction Perceived Usefulness
(Chiu, Hsu, Sun, Lin, & Sun, 2005)	e-learning	Satisfaction
(Roca, Chiu, & Martínez, 2006)	e-learning	Satisfaction
(Limayem et al., 2007)	World Wide Web	Frequency of past behaviour Comprehensiveness of usage Habit
(Liao, Chen, & Yen, 2007)	e-service	Satisfaction Perceived usefulness Subjective norm Perceived behavioural control
(Chiu et al., 2007)	e-Learning	Satisfaction Procedural Fairness
(Roca & Gagné, 2008)	e-Learning	Perceived Usefulness Perceived Ease of Use Perceived Playfulness
(Vatanasombut et al., 2008)	Online banking	Trust Relationship commitment
(Chen, Chen, & Chen, 2009)	Self-service technology	Satisfaction Subjective norm Perceived behavioral control Optimism
(Lee, 2010)	e-Learning	Satisfaction Perceived Usefulness Subjective Norm Perceived Behavior Control Attitude Concentration
(Chou et al., 2010)	Online Communities	Performance Expectancy Perceived Identity Verification Satisfaction
(Fang & Chiu, 2010)	Online communities of practice	Altruism Conscientiousness
(Kim, 2011)	Social Networking Services	Perceived Usefulness Perceived Enjoyment Interpersonal Influence Media Influence
(Lin, 2011)	e-Learning	Attitude Satisfaction
(Al-Maghrabi, Dennis, & Vaux Halliday, 2011)	Online shopping	Perceived usefulness Enjoyment Subjective norms
(Venkatesh, Chan, & Thong, 2012)	e-government technologies	Attitude Perceived Usefulness Effort Expectancy Trust
(Zhou, Fang, Vogel, Jin, & Zhang, 2012)	Social Virtual World Services	Satisfaction Affective Commitment Calculated Commitment (negative)
(Wang et al., 2012)	Instant Messaging	Perceived Usefulness

(Chen et al., 2012)	Web 2.0	Satisfaction Satisfaction e-Word-of-mouth Subjective Norm Self-Image Critical Mass
(Chang & Zhu, 2012)	Social networking sites	Perceived bridging social capital Satisfaction
(Wang, Harris, & Patterson, 2013)	Self-service technology	Satisfaction Habit Self-efficacy
(Chong, 2013)	Mobile Commerce	Perceived Ease of Use Perceived Usefulness Satisfaction Perceived Enjoyment Trust Perceived Cost
(Shiau & Luo, 2013)	Blogging	Perceived Enjoyment Satisfaction User Involvement
(Tang et al., 2014)	Blogging	Satisfaction Perceived Usefulness Experiential Learning
(Basak & Calisir, 2015)	Facebook	Attitude Satisfaction
(Mouakket, 2015)	Facebook	Satisfaction Perceived usefulness Enjoyment Subjective norms Habit (mediator between satisfaction and continuance intention)
(Lehto & Oinas-Kukkonen, 2015)	Behaviour change support systems	Perceived credibility Perceived social support Perceived effectiveness
(Gao, Waechter, & Bai, 2015)	Mobile purchase	Trust Flow Satisfaction
(Oliveira, Huertas, & Lin, 2016)	Facebook	Subjective norm Social identity Entertainment Maintaining interpersonal interconnectivity

3. Preliminary study

3.1. Methodology

There is a paucity of research on the factors that affect consumer's continuance intention of a particular smartphone brand over alternatives available. Since the aim of this preliminary study is to build a new theoretical framework to explain consumers' repurchase intention of smartphone brands, a qualitative methodology based on in-depth interviews was preliminary chosen as the most appropriate approach (Glaser & Strauss, 1967). The in-depth interview method was adopted as it can yield a deeper understanding of the participants' own perceptions, opinions, and feelings about brand choice and repurchase intentions.

The sampling technique was based on a convenience, purposive sample and participants owning a smartphone were recruited among Chinese students in a University in the United Kingdom. A total of 30 face-to-face interviews were conducted within a period of six months, mainly in Mandarin and Cantonese. The total number of interviews was judged as sufficient for reaching theoretical saturation as additional interviews were adding no new insights (Strauss & Corbin, 1998).

The interview protocol adopted was semi-structured and questions ranged from general questions asking participants to give a personal historic overview of their usage and ownership of mobile and smartphone brands over the years (e.g. usage of the smartphone models owned as well as the meanings they associated to the brand); to more specific questions referring to the intentions to repurchase the same smartphone brand. Interviews lasted between 40 to 55 minutes and were recorded digitally and later transcribed and translated into English. The translation was sampled and checked independently by a native Chinese speaker with professional qualifications in English language.

Codes were partly generated from consumer behavior and technology adoption theory and open and axial coding techniques were adopted (Strauss and Corbin, 1998). In order to

check the *validity* and *reliability* of the themes and sub-themes obtained, the researchers contacted three PhD students and two academics who did not participate in the interviews whether different coders would code the same data the same way. Some changes were subsequently made to help achieve an agreed interpretation of findings.

3.2. Results

The data analysis of interviews shows that factors explaining repurchase intentions included: aesthetic factors such as design appeal; utilitarian product-related factors such as perceived product quality; socio-cultural factors such as subjective norm and *mianzi* considerations; brand-related factors such as brand popularity (interviewees' quotes are displayed in Appendix 1). The data analysis also highlights the central role of 'mianzi' or 'face' (cultural factor) in the emerging theoretical framework. In China, people follow the teachings of Confucius (*Kung Fu Tze*), an ancient Chinese philosopher, whose influence spread out of China to other East Asian countries (Fang, 1999). One of the notions deriving from Confucianism is the notion of 'face' or 'mianzi', which implies maintaining one's public dignity and standing (Lee, 1991) or consciousness of glory and shame; meanwhile, it represents the individual's reputation and social position in others' eyes (Hu, 1944). *Mianzi* is associated with feelings of pride, glory and dignity. On the one hand, Chinese consumers try to maintain their reputation (face) in front of significant others. On the other hand, when their social poise is attacked or teased, Chinese people try to defend or save face (Bao, Zhou, & Su, 2003).

From interviews, it appears that young Chinese consumers aspire to own smartphone brands that may enhance their *mianzi* and at the same time reduce the risk of losing face in front of others. Below we discuss in detail each of these constructs and the hypothesized relationships.

4. Main Study

4.1. Hypothesis development

4.1.1. Design appeal

Design is an increasingly important criterion in relation to the functional features of smartphones (Luchs & Swan, 2011). Bloch (1995, p. 16) defines product design from a formal point of view as “a number of elements chosen and blended into a whole by the design team to achieve a particular sensory effect.” The design features are defined as the collection of human interface elements that the users see, hear, touch, or operate (Han, Yun, Kim, & Kwahk, 2000). Visual attributes attract customers and lead them to inspect a product more closely and consider a purchase (Seva & Helander, 2009). Product form represents several elements such as shape, color, materials, ornamentation, and texture that designers combine to enable users to interact with the product and ease its use (Bloch, 1995; Lewalski, 1988).

From interviews we understood that a smartphone is viewed as a luxurious fashion item, almost like a Prada or a Gucci purse, and thus consumers want to keep up with the changes in the design to appear as fashionable. A ‘good looking’ smartphone is also considered by young Chinese consumers as symbolic of their being very fashion conscious and of their keeping up with the technological changes. A stylish smartphone is an object that enables young Chinese consumers to distinguish themselves from other people and increase their *mianzi* in front of others. Thus, we can hypothesize:

H1a. There is a significant positive relationship between design appeal and *mianzi*.

Based on the interview findings, smartphone design is particularly important among young Chinese consumers repurchase decisions of smartphones. Regarding aesthetics, there is agreement about the fact that an ‘ugly’, ‘unappealing’ smartphone was believed to be

symbolic of a lack of style. As participants explained even though different people have different aesthetic standards, the design of next smartphone models should be appealing, charming and attractive to be considered by young Chinese consumers for purchase. Research suggests that some product attributes can cause intense emotional experience (Seva, Duh, & Helander, 2007). The role of design aesthetics has been mainly investigated in the online context with websites (e.g. Cyr, Head, & Ivanov, 2006), but no research has been undertaken to investigate the role design aesthetics in repurchase intentions of high-technology goods such as smartphones. In this study we argue that young Chinese consumers will consider repurchasing smartphone brands that keep innovating their design and style, rather they will discontinue to use brands that lose their aesthetic appeal. Therefore, we hypothesize that:

H1b. There is a significant positive relationship between design appeal and repurchase intention.

4.1.2. Perceived product quality

Perceived quality is generally defined as the customer's judgment of the overall excellence, esteem, or superiority of a brand (with respect to its intended purposes) relative to alternative brand(s) (Netemeyer et al., 2004; Zeithaml, 1988). Interviewees clearly articulate this concept stating that the perceived quality of a smartphone brand in relation to its durability, dependability, reliability, performance, and the like, affect their feelings of vanity, pride and glory. A high quality, expensive smartphone can instill a sense of pride in contrast to a low quality, cheap smartphone, which may cause a loss of face. Moreover, high quality products are often expensive products (Rao & Monroe, 1989), and the premium price of a

smartphone can also have a positive influence on its capacity to improve the *mianzi* of its customers. Therefore we hypothesize:

H2a. There is a significant positive relationship between perceived quality and *mianzi*.

Additionally, perceived product quality is expected to also influence consumer repurchase intention. In marketing literature, scholars have found support for the direct influence of perceived product quality on purchase intentions (Parasuraman & Grewal, 2000; Tsiotsou, 2006). However, less is known about the links between perceived product quality and repurchase intentions. In this study, we argue that consumers that have already purchased, and then experienced, a smartphone brand they can judge its level of quality in terms of its durability, functionality, reliability, and performance. Based on previous usage experience, if the smartphone brand is perceived to be of high quality, young Chinese consumers will repurchase it, otherwise they may switch to another brand. Thus, we hypothesize:

H2b. There is a significant positive relationship between perceived quality and repurchase intention.

4.1.3. Brand popularity

Through interviews we were able to identify a new concept referring to brand value, namely brand popularity. In marketing literature brand popularity refers to a brand's share of users (Raj, 1985). This concept applies to brands with a large number of customers and it is typically measured in terms of its market share or consumer share (Raj, 1985). The construct of brand popularity has received relatively little attention in marketing literature (Dean, 1999)

with studies documenting the influence of popularity on short-term market shares and marketing effectiveness (Kim, 1995; Kim & Chung, 1997), number of loyal customers and sales (Raj, 1985).

However, the meaning associated to brand popularity emerging from the preliminary study is different from the concept of market share used in marketing. Brand popularity here refers to a consumer assessment of the level of diffusion or popularity of a brand in the society where the consumer lives. This facet of brand popularity does not refer to any financial data or market share data, but rather it refers to the consumer perception of the brand in terms of how widespread that brand is in society. In this study we argue that the popularity of a brand is particularly important to young Chinese consumers who seem to prefer popular brands because they are considered as safe as they preserve from face loss. Thus, we hypothesize:

H3a. There is a significant positive relationship between brand popularity and *mianzi*.

Young Chinese consumers tend to favor popular brands, namely those brands that are widespread in society. According to interviewees the more a brand is popular, the more people want to buy it. The social desirability to possess a smartphone brand model that more and more people are buying may exercise some sort of normative pressure on individuals to conform. For instance, if a new smartphone brand or model is popular, many more consumers will want to buy the same model through a mechanism of imitation. On the other side, some brands may lose their popularity over time. Two examples are Nokia and Motorola, two smartphone brands that were once leading operators in the mobile market but that with the time they have lost their popularity and appeal. When a brand starts to lose its popularity it also becomes less attractive to consumers who will consider switching to other, more popular

smartphone brands. Accordingly, young Chinese consumers will repurchase brands that maintain their popularity and prestige in society, while they will discontinue using brands that have lost their popularity. Thus, the level of popularity of a brand may affect consumer's repurchase decision.

H3b. There is a positive relationship between brand popularity and repurchase intention.

4.1.4. Subjective norm

In the information search process, consumers search for information about the product that they intend buying. They can search internally from memory if they have had previous experiences with a brand (or product) or they may use external sources such as they ask family and friends for advice, they read magazines or watch advertisements, or look for independent customer reviews. Subjective norm is defined as the degree to which individuals believe that people who are important to them think they should perform the behavior in question (Fishbein & Ajzen, 1975). Family and friends constitute a reference group for the potential customer, namely groups that serve as frame of reference for individuals in their purchase or consumption decisions (Schiffman & Kanuk, 1997).

Findings from interviews highlight that family and friends are particularly important reference groups for Chinese consumers. This is not surprising as Chinese people tend to value group decisions, order, and security in their behaviors, thus seeking affiliation with groups they are interested in joining. Individuals from collectivist cultures are characterized by an interdependent self-concept (Markus & Kitayama, 1994), which emphasizes group goals and appreciation of commonalities with others.

In line with this view, owning the same smartphone model as their friend enhances consumers' social inclusion and facilitates socialization and interpersonal relationships (e.g. more arguments to discuss), which help them enhance *mianzi*. On the contrary, not possessing the same type of smartphone brand may lead to exclusion and isolation. Thus, we hypothesize as follows:

H4a. There is a significant and positive relationship between subjective norm and *mianzi*.

Our interview data also shows that friends and family are indeed a primary source of influence on Chinese consumers' smartphone repurchase intention. Traditional Chinese culture rests on kinship and family bonds (Yau, 1988) and Chinese people strongly rely on word-of-mouth communication to obtain credible product information since they have the perception that only 'bad' products or services need advertising (Gong, Li, & Li, 2004). Subjective norms have been found to influence consumer's purchase decisions (e.g. Bearden & Etzel, 1982) and continuance intention for a number of technologies (e.g. Lee, 2010; Liao et al., 2007; Chen et al., 2012). Thus, drawing on this literature and on the finding from interviews, we argue that young Chinese consumer will be more likely to repurchase a smartphone brand that is recommended or used by their friends and family members. Therefore, we hypothesize:

H4b. There is a significant and positive relationship between subjective norm and repurchase intentions.

4.1.5. Gaining Mianzi and saving face

The findings of the preliminary study indicate that buying a specific smartphone brand can enhance Chinese consumers' *mianzi*. The word '*mianzi*' or 'face' denotes an individuals'

social position or prestige gained by successfully performing one or more specific social roles that are well recognized by others (Hu, 1944). *Mianzi* stands for “the kind of prestige that is emphasized ...a reputation achieved through getting on in life, through success and ostentation” (Hu, 1944). Enhancing *mianzi* is associated with feelings of pride, glory, and prestige, while losing face in Chinese culture means feeling inferior towards others (Ho, 1976).

Based on interview findings, the meanings associated to a specific smartphone brand can be transferred to the person that owns that smartphone brand. A low quality, unpopular, outdated smartphone brand or model that is not recommended or owned by friends or family members will be perceived as cheap, and for people with high face consciousness being perceived as ‘cheap’ is a serious derogation of personal integrity (Gao, 1998).

Based on the different experiences of interviewees, a smartphone brand can enhance from the one side feelings of embarrassment and humiliation and on the other side feelings of pride, glory, and dignity. We argue that young Chinese smartphone users would not consider purchasing an unpopular and outdated smartphone brand, that may cause them social harm (lose *mianzi*), but rather they will consider repurchasing a smartphone brand that would help them maintain or increase their *mianzi*. Therefore, we hypothesize:

H5. There is a significant and positive relationship between *mianzi* and repurchase intentions.

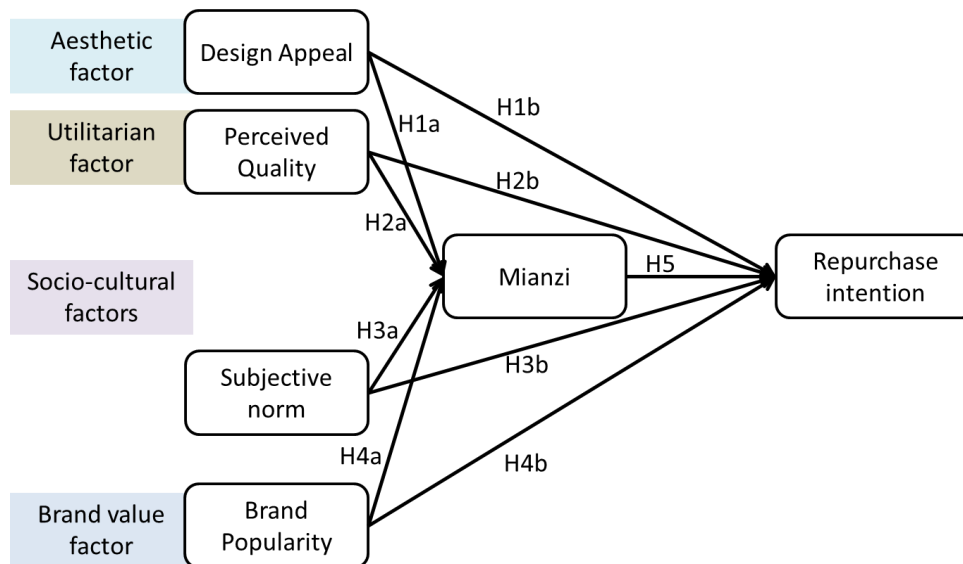


Figure 2. Theoretical model and hypothesized relationships.

5. Main Study's Methodology

5.1 Sample selection and research instrument

This study targets Chinese young university students owning a smartphone. The rationale for focusing on young consumers of smartphone lies in the fact that university students are considered as early adopters of mobile phones (Leung & Wei, 1999; Vishwanath & Goldhaber, 2003) and the importance of young people as a target group in the mobile phone industry is widely acknowledged. Nokia, for instance, first tested new innovations such as the digital camera among young customers (Wilska, 2003). We choose to focus on China because it is the biggest country for smartphone sales and expected growth (e-Marketer, 2014) and no study has investigated Chinese consumers' repurchase intention of smartphone brands. Thus, a prerequisite to participate to the survey was to be in the age-range 18-25.

Following the backward translation method, the questionnaire was created in English and then translated into Chinese (Mandarin) by a Chinese native speaker with English proficiency. Subsequently, the questionnaire was retranslated in English by another bilingual Chinese speaker. No differences were found between the first and the last version of the questionnaire.

5.2 Measures, pilot test, scale development

The questionnaire was preceded by an introduction that explained the purpose of the study and ensured the confidentiality of the responses provided. The first question asked "what is your current smartphone brand?". This question was followed by this statement: "The following questions refer to this smartphone brand". The main questionnaire contained the key constructs of the study and it ended with socio-demographic questions. The main

questionnaire has adopted a 7 point Likert scale, where 1 indicates strongly disagree, 4 indicates neither agree nor disagree, and 7 indicates strongly agree.

Constructs from existing studies were adopted wherever possible. Subjective norm and perceived quality were measured with items used by Bearden, Netemeyer, and Teel (1989) (6 items) and Yoo and Donthu (2001) (4 items) respectively. Repurchase intention was adapted from Dodds, Monroe, & Grewal (1991) (4 items).

However, the following new scales were developed as a result of interview findings: *mianzi* (6 items), brand popularity (4 items), and design appeal (6 items). Churchill (1979) suggests using qualitative methods to develop new scales; accordingly, 30 face-to-face interviews with young Chinese consumers of smartphone were conducted as mentioned in the preliminary study section. The items were subsequently tested with experts, namely two experienced academics with PhDs in marketing and information systems who had knowledge of the literature but not of the purpose of the study.

The questionnaire was pilot tested with a sample of 117 respondents, including Chinese undergraduate and postgraduate students. This pilot test was particularly important to refine the new scales that were developed for this study. As a result of the pilot test some items were rephrased and others were dropped.

Following the pilot study, the data was tested for reliability as well as convergent and discriminant validity, testing Cronbach alpha, item to total correlations, exploratory factor analysis using Varimax rotation, as recommended by Anderson and Gerbing (1988). The exploratory factor analysis removed items that had factor loadings below 0.50, high cross loadings above 0.40 and commonalities lower than 0.30. Cronbach's alpha values for the scales developed which loaded below the threshold of 0.70 were also removed (Bagozzi & Yi, 1988). In total, 2 items were removed.

5.3 Data collection and profile of respondents

An online questionnaire was created and hosted on the professional online survey website Sojump (www.sojump.com), which is very popular in China. The link to the questionnaire hyperlink was sent to smartphone users through some popular smartphone online forums such as cnmo.com, which is the largest smartphone forum in China, imobile.com.cn, which is the largest smartphone website in China, gfan.com, which is the largest Android smartphone online forum in China, and weiphone.com, which is the largest iOS online forum in China. However, one of the researchers further posted the questionnaire on some Chinese social networks, such as Renren and Wechat. No incentive or reward was associated with any data collection technique adopted in this study, which increases the reliability of the data. After a period of one month a total of 357 questionnaires were collected, however 36 questionnaires were removed from the dataset because not being filled properly or due to missing data.

Table 2 provides information about the profile of the respondents. In the sample of 321 cases, all respondents were comprised between 18 and 25 years old and 64% are female while 36% were males and mostly in higher education. Their family monthly incomes were well spread across different income levels.

Table 2. Profile of respondents

Profile category		Count	Percentage (%)
Gender	Male	116	36.1
	Female	205	63.9
Age	18-25	321	100
Education	Up to secondary school	9	2.8
	University first degree	294	91.6
	Post-Graduate degree	18	5.6
Monthly income (CNY)	Up to 2,000	13	4.0
	2,001 – 4,000	60	18.7
	4,001 – 7,000	87	27.1
	7,001 – 10,000	69	21.5
	Over 10,000	92	28.7

5.4 Data analysis

The means and standard deviation of the items measuring the constructs used in this study are shown in Table 3. We employed the partial least squares structural equation modelling (PLS-SEM) to estimate the model with the empirical data, using the SmartPLS 2.0 (Beta) M3 software application (Ringle, Wende, & Will, 2005). PLS-SEM is a suitable technique for prediction-oriented research (Henseler, Ringle, & Sinkovics, 2009), because its objective is to maximize the explained variance of the dependent constructs (Hair, Ringle, & Sarstedt, 2011). PLS-SEM has the advantage of not holding the distributional assumption of normality, making less demand on measurement scales, being able to work with much smaller as well as much larger samples (Hair et al., 2011).

Table 3. Construct measures, Mean, SD, standardized factor loadings, reliability and validity

measures

Construct	Item	Mean	SD	Factor loadings	Reliability and validity
<i>Mianzi</i> (new scale)	This smartphone enables me to gain <i>mianzi</i>	4.85	1.620	0.923	CR = 0.967
	This smartphone brand increases my <i>mianzi</i> in front of others	4.73	1.626	0.929	AVE = 0.830
	This smartphone brand fulfills my need of pride	4.43	1.708	0.939	Cronbach's α = 0.958
	This smartphone brand enables me to get easily accepted in social groups	4.65	1.695	0.912	
	This smartphone brand can help me to show to others that I am special	4.35	1.734	0.885	
	I can feel proud of myself if I own this smartphone brand	4.28	1.792	0.875	
Design Appeal (new scale)	The design of this smartphone brand is stylish	5.48	1.317	0.797	CR = 0.926
	The design of this smartphone brand is neat	5.32	1.370	0.847	AVE = 0.675
	This smartphone brand looks robust	4.98	1.492	0.754	Cronbach's α = 0.901
	The design of this smartphone brand is charming	4.54	1.587	0.818	
	The design of this smartphone brand is attractive	4.64	1.604	0.848	
	Overall, the design of my smartphone brand is beautiful	5.42	1.351	0.861	
Subjective norm (Bearden et al., 1989)	I often consult other people (my friends) to help choose the best alternative available from a product class	4.23	1.901	0.821	CR = 0.933
	If I want to be like my friend, I often try to buy the same brands that they buy	4.21	1.904	0.850	AVE = 0.699
	It is important that my friends like the products and brands I buy	3.94	1.944	0.863	Cronbach's α = 0.914
	To make sure I buy the right product or brand I often observe what my friends are buying and using.	4.40	1.828	0.854	
	If I have little experience with a product, I often ask my friends about the product	5.22	1.562	0.747	
	When buying products, I generally purchase those brands that I think my friends will approve of	4.38	1.866	0.875	
Brand popularity (new scale)	This smartphone brand is a popular one in my country	5.83	1.324	0.960	AVE = 0.864
	This smartphone brand is very well known	6.01	1.243	0.956	CR = 0.962
	Many people in China buy this smartphone brand	5.92	1.338	0.964	Cronbach's α = 0.947
	Most of my friends own this smartphone brand	5.92	1.389	0.966	
Perceived quality (Yoo & Donthu, 2001)	The likely quality of this smartphone brand would be extremely high	5.54	1.581	0.927	CR = 0.944
	The likelihood that this smartphone brand would be functional is very high	5.76	1.381	0.905	AVE = 0.808
	The likelihood that this smartphone brand is reliable is very high	5.46	1.472	0.959	Cronbach's α = 0.918
	This smartphone brand would seem to be durable	5.27	1.610	0.926	
Repurchase intention (Dodds et al.,	If I were going to purchase a smartphone, I would consider buying this brand again.	5.47	1.400	0.924	CR = 0.980
	If I were shopping for a smartphone brand, the likelihood I would purchase the same smartphone	5.41	1.445	0.920	AVE = 0.925

1991)	brand is high.				Cronbach's α = 0.973
	My willingness to buy this smartphone brand again would be high if I were shopping for a smartphone.	5.44	1.401	0.901	
	The probability I would consider buying this smartphone brand again is high.	5.39	1.448	0.847	

Note: all factor loadings were significant at $p < 0.001$

6. Results

6.1 Evaluation of the measurement model

To evaluate the reliability and validity of each construct, it is necessary to conduct four sets of tests: internal consistency reliability, item reliability, convergent validity and discriminant validity (Hair et al., 2011). According to Hair et al. (2011), for the establishment of internal consistency reliability, values composite reliability (CR) must be greater than 0.7. The results shown in Table 3 indicate that the constructs in this study attained CR values greater than 0.926, demonstrating good internal consistency. For item reliability, an individual item must exhibit significant standardized loadings above 0.7 ($p < .001$) (Bagozzi & Yi, 1988). The lowest item loading is 0.747 (Table 3) thus above the recommended threshold of 0.70 (Hair, Ringle, & Sarstedt, 2011). Following Hair et al. (2011), to confirm convergent validity, the average variance extracted (AVE) of a construct must be over 0.5. The results show that the AVE values of the constructs in this study are between 0.675 (design appeal) and 0.962 (brand popularity) (Table 3), confirming their convergent validity.

For adequate discriminant validity, the Fornell-Larcker criterion requires the square root of each construct's AVE to be greater than its correlation with each of the remaining constructs (Fornell & Larcker, 1981). As shown in Table 4, our results meet this requirement. Thus, the discriminant validity of each construct can be confirmed.

Table 4. Latent construct correlations and square root of AVEs

	1	2	3	4	5	6
1 <i>Mianzi</i>	0.911					
2 Product design	0.678	0.822				
3 Subjective norm	0.622	0.506	0.836			
4 Repurchase intention	0.611	0.669	0.326	0.962		
5 Brand popularity	0.456	0.551	0.334	0.546	0.930	
6 Perceived quality	0.572	0.685	0.340	0.692	0.617	0.899

Notes: Boldface numbers on the diagonal are the square root of the average variances extracted (AVE).

6.2 Evaluation of the structural model

Following the recommendations by Henseler et al. (2009), we examined the coefficient of determination (R^2) to assess the predictive power of the model for the dependent constructs. The criterion recommended for this test varies. Hair et al. (2011) state that the R^2 value of 0.75, 0.50, or 0.25 can be described as substantial, moderate, or weak, respectively; Chin (1998) suggests the relevant points as 0.67 (substantial), 0.33 (moderate) and 0.19 (weak). Our data results show that the values of R^2 for the two endogenous constructs in this study, are 0.587 (for *mianzi*) and 0.590 (for repurchase intention) respectively, which are close to the substantial level, based on Chin's criterion. Thus, the model has a good predictive power.

Following the procedure suggested by Hair et al. (2011), we applied the nonparametric bootstrap analysis of 5,000 subsamples and 321 cases (the sample size of this study) to obtain the *t-values* for testing the significance of path coefficients. Table 5 displays the structural model test results.

Table 5. Structural model results

		<i>Mianzi</i>		Repurchase intention				
				Direct effect			Total effect	
		β	T		β	t	β	t
Design appeal	H1a	0.340	5.837**	H1b	0.257	3.995**	0.350	5.683**
Perceived quality	H2a	0.199	3.454**	H2b	0.330	4.301**		
Brand popularity	H3a	0.020	0.392	H3b	0.119	1.972*		
Subjective norm	H4a	0.375	8.215**	H4b	-0.125	2.476*	-0.023	0.487
<i>Mianzi</i>		--	--	H5	0.271	3.894**		

Notes: * $p < 0.05$, ** $p < 0.01$.

With the exception of H3a (brand popularity $\rightarrow$ *mianzi*) and H4b (subjective norm $\rightarrow$ repurchase intention), all the remaining hypotheses were supported. Findings show that design appeal has positive effect on *mianzi* ($\beta = 0.340$, $p < 0.01$) and repurchase intention ($\beta = 0.257$, $p < 0.01$), supporting H1a and H1b. The effects of perceived quality on *mianzi* and repurchase intention are also significant ($\beta = 0.199$ and 0.330 respectively, $ps < 0.01$), supporting H2a and H2b. While brand popularity has an insignificant effect on *mianzi* ($\beta = 0.020$, $p > 0.10$; thus, H3a was not supported), it has a minor effect on repurchase intention ($\beta = 0.119$, $p < 0.05$), supporting H3b. Subjective norm has a positive effect on *mianzi* ($\beta = 0.375$, $p < 0.01$), supporting H4a, but it has a minor, negative effect on repurchase intention ($\beta = -0.125$, $p < 0.05$), which is in the opposite direction of what we hypothesized, hence H4b was not supported. Nevertheless, the total effect from subjective norm to repurchase intention was not significant ($\beta = -0.023$, $p > 0.10$). Finally, *mianzi* was significantly related to repurchase intention ($\beta = 0.271$, $p < 0.01$), hence H5 was supported.

As the effect of design appeal on repurchase intention is smaller than that on *mianzi*, and *mianzi* has a significant effect on repurchase intention, we examined whether *mianzi* performs a partial mediating role between design appeal and repurchase intention. The total effect of product on repurchase intention was 0.350 and significant ($p < 0.01$), confirming the partial mediation effect of *mianzi* (effect size = 0.10 , Baron & Kenny, 1986).

7 Discussion

7.1 Theoretical implications

Despite the importance for technology firms to understand what drives consumer repurchase intention of branded technology products, particularly in the world's largest smartphone market of China, little empirical work has addressed this issue. Our qualitative approach based on in-depth interviews with young Chinese consumers of smartphones in our preliminary study enabled us to uncover the various factors explaining repurchase intentions of smartphone including: *aesthetic factors*, such as design appeal; *brand-related constructs*, such as brand popularity; *social factors*, such as subjective norm; *cultural factors* such as *mianzi* considerations; and *utilitarian factors*, such as perceived product quality.

Our main study tested the framework emerging from these findings and confirmed that perceived quality, design appeal, *mianzi*, and brand popularity significantly influence smartphone brand repurchase intention. Interestingly, we found that *mianzi* also performs partial mediation between design appeal and repurchase intention. Factors that influence *mianzi* are subjective norm, design appeal, and perceived quality.

7.1.1 Design Appeal

This study tested for the first time the influence of design appeal of a product on consumers' *mianzi* and repurchase intentions and has developed and tested a new scale to measure design appeal, which has demonstrated high reliability (Cronbach's $\alpha = 0.901$). Design appeal of smartphone was found to exert an influence on both a consumer's *mianzi* and repurchase intentions. These findings underline the importance of hedonic aspects of technologies, which can be particularly important in individuals' perception of how others will see them and consequently on their repurchase decisions. Thus, technologies such as smartphones are not only purchased for their usefulness or functional value as suggested by

technology-based adoption models (e.g. TAM) and by the IS Continuance model (Bhattacharjee, 2001), but rather increasingly for their aesthetic value, which is able to communicate various meanings to other people (e.g. people's trendiness and social position). Thus, if a smartphone brand keeps updating and innovating its style and design, young Chinese consumer will consider repurchasing the same smartphone brand.

7.1.2 *Perceived quality*

The perceived quality of a smartphone brand was found to significantly influence both *mianzi* and repurchase intentions. Thus, a product that is considered to be of superior quality is often expensive, which ultimately can contribute to foster respect, prestige and social status recognition. A smartphone brand that is considered as durable, functional, reliable, and robust will also influence consumers' repurchase intentions. This result can be explained by the fact that in the current society smartphones are used daily to perform multiple, important tasks and therefore they must be of excellent quality to enable individuals to perform such a multitude of tasks efficiently and effectively. This finding integrates previous studies in the marketing literature who found a direct link between product quality and purchase intentions in different product categories (e.g. Tsotsou, 2006).

7.1.3 *Brand popularity*

This study has developed and tested a new scale to measure brand popularity. The scale achieved a high level of reliability (Cronbach's $\alpha = 0.947$). In marketing literature brand popularity refers to a brand's share of users (Raj, 1985). However, in this study brand popularity indicates the consumer's perception that a brand is well-known and used by many people in a specific country or place. Surprisingly, we did not find evidence of the impact of brand popularity on *mianzi*, indicating that brand popularity's impact on repurchase intention

is direct without the mediation of *mianzi*. Interviews can help us interpret this finding. In fact, in some interviews, participants stated that a brand or smartphone model that is too widespread in society may not enhance an individuals' *mianzi*. In fact, a smartphone brand that is used (and thus is affordable) by too many people and it is widespread across different social classes, may lose its exclusivity and will not enable individuals to enhance their *mianzi*.

Although brand popularity does not affect *mianzi*, it does have a weak influence on consumers' repurchase intentions. This result means that although a smartphone that is too popular may not be good, young Chinese consumers would not probably consider repurchasing an unpopular brand or a brand is losing its popularity. Thus, a brand must keep a certain level of popularity in society to convince people to buy newer smartphone models of that brand.

7.1.4 Subjective norm

The findings show that subjective norm significantly affects *mianzi*. In the Chinese society the social pressure to conform to the group forces consumers to make some decisions that do not necessarily reflect an individuals' private opinion. In fact, the acquisition of a smartphone brand that is also adopted by 'important others' (family and friends in the Chinese context), will stimulate feelings of pride, reputation and facilitate social inclusion. Although interviews strongly confirmed the role of friends and family as 'recommenders', the main study's findings reveal a different reality. If we consider that both subjective norm and brand popularity did not significantly influence repurchase intentions we may assume that young Chinese consumers are becoming more individualistic, thus they will probably weight higher their own needs and preferences instead of following only the reference group. Indeed, it has been observed that the younger generations tend to be highly influenced by Western values including individualism (Qiu, 2011). Another explanation could be that

interpersonal influences might be moderated in the repurchase decision stage by the fact that consumers already know about the different smartphone brands, about their main strengths and functionalities, their operating system and so on. Thus, in the repurchase decision consumers may not seek much advice from friends and family. In addition, interviews confirmed that online consumer reviews are becoming increasingly popular among young Chinese consumers, who use them to make informed decision without necessarily asking for advice to their friends.

7.1.5 *Mianzi*

While previous studies have mainly focused on the role of Hofstede's cultural dimensions (Hofstede, 1980) (i.e. power distance, individualism vs. collectivism, uncertainty avoidance; and masculinity vs. femininity), this study has introduced the concept of *mianzi* and has investigated the influence of *mianzi* on repurchase intentions. The study has developed and tested a new scale to measure *mianzi*, which has shown high reliability (Cronbach's $\alpha = 0.958$) and could be adopted in future studies. The findings highlight the central role that *mianzi* plays in consumer repurchase decision of smartphone brands. In young Chinese consumers' mind some smartphone brands are considered as status symbols and owning them may enhance people's *mianzi*. Accordingly, a smartphone is an artifact that helps distinguish people's social personalities and even affect their feelings and self-esteem. Consumers will consider repurchasing smartphone brands that made them feel good in front of others and will avoid those brands that can cause them to lose *mianzi*. Thus, a specific smartphone brand is then not only repurchased for what its functionalities can do for them; but more importantly for its capability to enhance an individual's social status, position, and reputation and to avoid face losses. This result indicates that a smartphone has become a very important accessory in people's life, a real extension of people's self. Thus, for a young consumer a smartphone has

symbolic functions in that it can help communicate his 'social' identity; therefore young Chinese consumers are very careful to select brands that can enhance their *mianzi* while avoiding those brands that can potentially make them lose *mianzi* in front of others.

7.2 Managerial Implications

Considering that the smartphone market in China has reached saturation (Gartner, 2015), the results of this study are valuable to smartphone manufacturers to understand the factors that will affect consumer's decision once they will have to replace their own or buy a new smartphone model. The results found in this study can thus be valuable to R&D people and marketing managers in order to develop and market smartphone products that fit young Chinese consumers' needs.

This study has unveiled the key importance of aesthetic (design appeal), socio-cultural (*mianzi*), utilitarian (perceived product quality), and brand value (brand popularity) factors as influencers of young Chinese consumers' repurchase intentions. Based on the findings of this study, smartphone companies should put a strong emphasis on the design of a smartphone, and on the meanings associated with a brand (e.g. quality, prestige and reputation of the brand, and the like). Thus, young Chinese consumers are increasingly searching for more exclusive smartphone brands that can help them gain *mianzi* and feel respected in society. Additionally, a smartphone brand is considered in a similar manner to a fashion item, therefore we recommend smartphone manufacturers to experiment with more innovative and fashionable designs. An effective marketing strategy would be, for example, to partner with popular fashion designers, celebrities, or fashion brands to develop unique smartphone designs inspired by a collection, a fashion theme, or a celebrity.

The study has proved that young Chinese consumers would repurchase smartphone brands that are of high quality and popular and desired in society. It appears that the younger generation is becoming more quality conscious and is willing to pay premiums for higher-end

products compared to older generations. To keep high levels of popularity and quality, existing smartphone companies must keep up with the change and must frequently introduce innovative features, accessories, models, which will make them popular.

The importance ascribed to the capacity of a brand to enhance *mianzi* can explain why sales and market share of Apple's smartphone products, a brand that has luxury connotations, continued to rise and dominate the high-end of the smartphone sector in China (Spence, 2015). Our results show that expensive, aspirational smartphone brands, which cannot be afforded by everyone, seem to be capable to increase one person's *mianzi*. Accordingly, Apple has done extremely well in positioning its iPhone models as aspirational, justifying the high price tag through an air of exclusivity. Thus, we believe that smartphone brands that are perceived as aspirational and luxurious should keep the price of their top products high. The result of our study explains why the sales of Apple's iPhone 5C have lagged behind the iPhone 5S and iPhone 5 since its introduction in China (Resinger, 2014). In this sense, the Apple strategy to develop a cheaper version of the iPhone 5 (iPhone 5c) did not pay off among Chinese consumers, as it contrasts with the aspirational image of Apple's smartphone.

7.3 Limitations and future research

This study has tested a new model to predict young Chinese consumer's repurchase intention of smartphone brands. To generalize the results of this study the model should be tested in other countries, preferably non-collectivistic countries. However, if researchers decide to do so, they should adapt the model to the cultural context and include cultural-specific variables. For instance, a concept like *mianzi* is unique to Chinese culture. In other cultures other indigenous concepts may explain consumer repurchase intentions of smartphone brands. For instance, in individualist countries constructs like need for uniqueness could be a more significant predictor of repurchase intentions because in these countries the 'individual' rather than to the group is more important to consumers (Hofstede,

1980). Moreover, the proposed model could be adopted to predict continuance intention of other types of technological products that, like smartphones, are conspicuously consumed. For instance, our model could be useful to predict repurchase intentions of technological products like wearable technologies, smart watches and the like.

However, the limitations of this study cannot be ignored. Firstly, most of the participants in this study owned popular smartphone brands, such as Apple, Samsung, and Xiaomi. People owning a less popular smartphone brand might use a different set of criteria when they have to choose among different smartphone brands. Secondly, the sample of this study was almost predominantly composed by young consumers (18-25); however, other age groups may adopt different criteria when they have to decide whether to repurchase the same smartphone brand or not. For instance, the usefulness and ease of use of the phone might be more important criteria in adult consumers' repurchase decisions. Accordingly, future studies could add these factors and assess their potential influence on smartphone repurchase intentions comparing users in different age-groups and educational levels. Finally, as the lifecycle of smartphone has been increasingly shortening and this poses serious threat on the environment, future research could investigate how ecological concerns might affect consumers' repurchase intentions in Western and Eastern countries.

References

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211.
- Al-Maghrabi, T., Dennis, C., & Vaux Halliday, S. (2011). Antecedents of continuance intentions towards e-shopping: the case of Saudi Arabia. *Journal of Enterprise Information Management*, 24(1), 85-111.
- Anderson, J. C., & Gerbing, D. W. (1988). Structural Equation Modeling in Practice: A Review and Recommended Two Step Approach. *Psychological Bulletin*, 103(3), 411-423.
- Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, 16(1), 74-94.
- Bao, Y., Zhou, K. Z., & Su, C. (2003). Face consciousness and risk aversion: do they affect consumer decision-making? *Psychology & Marketing*, 20(8), 733-755.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173-1182.
- Basak, E., & Calisir, F. (2015). An empirical study on factors affecting continuance intention of using Facebook. *Computers in Human Behavior*, 48, 181-189.
- Bearden, W. O., & Etzel, M. J. (1982). Reference Group Influence on Product and Brand Purchase Decisions. *Journal of Consumer Research*, 9(2), 183-194.
- Bearden, W. O., Netemeyer, R. G., & Teel, J. E. (1989). Measurement of consumer susceptibility to interpersonal influence. *Journal of Consumer Research*, 15(4), 473-481.
- Bhattacharjee, A. (2001). Understanding information systems continuance: an expectation-confirmation model. *MIS Quarterly*, 25(3), 351-370.
- Bloch, P. H. (1995). Seeking the ideal form: product design and consumer response. *Journal of Marketing*, 59(3), 16-29.
- Chang, Y. P., & Zhu, D. H. (2012). The role of perceived social capital and flow experience in building users' continuance intention to social networking sites in China. *Computers in Human Behavior*, 28(3), 995-1001.
- Chen, J. V., Yen, D. C., & Chen, K. (2009). The acceptance and diffusion of the innovative smart phone use: A case study of a delivery service company in logistics. *Information & Management*, 46(4), 241-248.
- Chen, S.-C., Chen, H.-H., & Chen, M.-F. (2009). Determinants of satisfaction and continuance intention towards self-service technologies. *Industrial Management & Data Systems*, 109(9), 1248-1263.
- Chen, S.-C., Yen, D. C., & Hwang, M. I. (2012). Factors influencing the continuance intention to the usage of Web 2.0: An empirical study. *Computers in Human Behavior*, 28(3), 933-941.
- Chen, Y., & Lin, Z. (2015). Fashionability vis-à-vis rationality: investigating factors driving users' e-tourism website stickiness. *Current Issues in Tourism*, 1-17.
- Chin, W. W. (1998). The partial least squares approach to structural equation modeling. *Modern Methods for Business Research*, 295(2), 295-336.
- Chiu, C.-M., Chiu, C.-S., & Chang, H.-C. (2007). Examining the integrated influence of fairness and quality on learners' satisfaction and Web-based learning continuance intention. *Information Systems Journal*, 17(3), 271-287.
- Chiu, C.-M., Hsu, M.-H., Sun, S.-Y., Lin, T.-C., & Sun, P.-C. (2005). Usability, quality, value and e-learning continuance decisions. *Computers & Education*, 45(4), 399-416.

- Chong, A. Y.-L. (2013). Predicting m-commerce adoption determinants: A neural network approach. *Expert Systems with Applications*, 40(2), 523-530.
- Chou, S.-W., Min, H.-T., Chang, Y.-C., & Lin, C.-T. (2010). Understanding continuance intention of knowledge creation using extended expectation-confirmation theory: an empirical study of Taiwan and China online communities. *Behaviour & Information Technology*, 29(6), 557-570.
- Churchill, G. A. (1979). A paradigm for developing better measures of marketing constructs. *Journal of Marketing Research*, 16(1), 64-73.
- Cyr, D., Head, M., & Ivanov, A. (2006). Design aesthetics leading to m-loyalty in mobile commerce. *Information & Management*, 43(8), 950-963.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340.
- Dean, D. H. (1999). Brand endorsement, popularity, and event sponsorship as advertising cues affecting consumer pre-purchase attitudes. *Journal of Advertising*, 28(3), 1-12.
- Dodds, W. B., Monroe, K. B., & Grewal, D. (1991). Effects of price, brand, and store information on buyers' product evaluations. *Journal of Marketing Research*, 28(3), 307-319.
- e-Marketer (2014). 2 Billion Consumers Worldwide to Get Smart(phones) by 2016, December 11, 2014. Available at: <http://www.emarketer.com/Article/2-Billion-Consumers-Worldwide-Smartphones-by-2016/1011694>.
- Fang, T. (1999). *Chinese business negotiating style*: Sage.
- Fang, Y.-H., & Chiu, C.-M. (2010). In justice we trust: Exploring knowledge-sharing continuance intentions in virtual communities of practice. *Computers in Human Behavior*, 26(2), 235-246.
- Fishbein, M., & Ajzen, I. (1975). *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research*. Reading, MA: Addison-Wesley.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39-50.
- Gao, G. (1998). An initial analysis of the effects of face and concern for other in Chinese interpersonal communication. *International Journal of Intercultural Relations*, 22(4), 467-482.
- Gao, L., Waechter, K. A., & Bai, X. (2015). Understanding consumers' continuance intention towards mobile purchase: A theoretical framework and empirical study—A case of China. *Computers in Human Behavior*, 53, 249-262.
- Gao, T. T., Rohm, A. J., Sultan, F., & Pagani, M. (2013). Consumers un-tethered: A three-market empirical study of consumers' mobile marketing acceptance. *Journal of Business Research*, 66(12), 2536-2544.
- Gartner (2015). Gartner Says Worldwide Smartphone Sales Recorded Slowest Growth Rate Since 2013. Egham, UK, August 20, 2015. Available at: <http://www.gartner.com/newsroom/id/3115517>.
- Glaser, B., & Strauss, A. (1967). *The discovery grounded theory: strategies for qualitative inquiry*. Chicago: Aldin.
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *The Journal of Marketing Theory and Practice*, 19(2), 139-152.
- Han, S. H., Yun, M. H., Kim, K.-J., & Kwahk, J. (2000). Evaluation of product usability: development and validation of usability dimensions and design elements based on empirical models. *International Journal of Industrial Ergonomics*, 26(4), 477-488.
- Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path modeling in international marketing. In R. R. Sinkovics & P. N. Ghauri (Eds.),

- Advances in International Marketing* (Vol. 20, pp. 277-319). Bingley, UK: Emerald Group.
- Ho, D. Y.-f. (1976). On the Concept of Face. *American Journal of Sociology*, 81(4), 867-884.
- Hofstede, G. (1980). *Culture's consequences: International differences in work-related values* (Vol. 5). London: Sage
- Hu, H. C. (1944). The Chinese concepts of "face". *American anthropologist*, 46(1), 45-64.
- Joo, J., & Sang, Y. (2013). Exploring Koreans' smartphone usage: An integrated model of the technology acceptance model and uses and gratifications theory. *Computers in Human Behavior*, 29(6), 2512-2518.
- Jun, J. W., & Lee, S. (2007). Mobile media use and its impact on consumer attitudes toward mobile advertising. *International Journal of Mobile Marketing*, 2(1), 50-58.
- Karjaluoto, H., Karvonen, J., Kesti, M., Koivumäki, T., Manninen, M., Pakola, J., Ristola, A. and Salo, J. (2005). Factors affecting consumer choice of mobile phones: Two studies from Finland, *Journal of Euromarketing*, 14(3), 59-81.
- Kim, B. (2011). Understanding Antecedents of Continuance Intention in Social-Networking Services. *CyberPsychology, Behavior & Social Networking*, 14(4), 199-205.
- Kim, C. K. (1995). Brand popularity and country image in global competition: managerial implications. *Journal of Product & Brand Management*, 4(5), 21-33.
- Kim, C. K., & Chung, J. Y. (1997). Brand popularity, country image and market share: an empirical study. *Journal of International Business Studies*, 28(2), 361-386.
- Kim, D., Chun, H., & Lee, H. (2014). Determining the factors that influence college students' adoption of smartphones. *Journal of the Association for information Science and Technology*, 65(3), 578-588.
- Koo, C., Chung, N., & Kim, H.-W. (2015). Examining explorative and exploitative uses of smartphones: a user competence perspective. *Information Technology & People*, 28(1), 133-162.
- Lai, F., Griffin, M., & Babin, B. J. (2009). How quality, value, image, and satisfaction create loyalty at a Chinese telecom. *Journal of Business Research*, 62(10), 980-986.
- Lee, C. (1991). Modifying an American Consumer Behavior Model for Consumers in Confucian Culture. *Journal of International Consumer Marketing*, 3(1), 27-50.
- Lee, M.-C. (2010). Explaining and predicting users' continuance intention toward e-learning: An extension of the expectation–confirmation model. *Computers & Education*, 54(2), 506-516.
- Lehto, T., & Oinas-Kukkonen, H. (2015). Explaining and predicting perceived effectiveness and use continuance intention of a behaviour change support system for weight loss. *Behaviour & Information Technology*, 34(2), 176-189.
- Leung, L., & Wei, R. A. N. (1999). Who are the Mobile Phone Have-Nots?: Influences and Consequences. *New Media & Society*, 1(2), 209-226.
- Lewalski, Z. M. (1988). *Product Esthetics: An Interpretation for Designers*. Carson City, NV: Design & Development Engineering Press.
- Liao, C., Chen, J.-L., & Yen, D. C. (2007). Theory of planning behavior (TPB) and customer satisfaction in the continued use of e-service: An integrated model. *Computers in Human Behavior*, 23(6), 2804-2822.
- Limayem, M., Hirt, S. G., & Cheung, C. M. (2007). How habit limits the predictive power of intention: the case of information systems continuance. *MIS Quarterly*, 31(4), 705-737.
- Lin, C. S., Wu, S., & Tsai, R. J. (2005). Integrating perceived playfulness into expectation-confirmation model for web portal context. *Information & management*, 42(5), 683-693.

- Lin, K.-M. (2011). e-Learning continuance intention: Moderating effects of user e-learning experience. *Computers & Education*, 56(2), 515-526.
- Lin, Z., & Filieri, R. (2015). Airline passengers' continuance intention towards online check-in services: The role of personal innovativeness and subjective knowledge. *Transportation Research Part E: Logistics and Transportation Review*, 81, 158-168.
- Lu, H.-P., & Lee, M.-R. (2012). Experience differences and continuance intention of blog sharing. *Behaviour & Information Technology*, 31(11), 1081-1095.
- Luchs, M., & Swan, K. S. (2011). Perspective: The Emergence of Product Design as a Field of Marketing Inquiry. *Journal of Product Innovation Management*, 28(3), 327-345.
- Markus, H. R., & Kitayama, S. (1994). A collective fear of the collective: Implications for selves and theories of selves. *Personality and Social Psychology Bulletin*, 20(5), 568-579.
- Melewar, T., Lim, L. L., & Petruzzellis, L. (2010). Mobile phone choice: technology versus marketing. The brand effect in the Italian market. *European Journal of Marketing*, 44(5), 610-634.
- Mouakket, S. (2015). Factors influencing continuance intention to use social network sites: The Facebook case. *Computers in Human Behavior*, 53, 102-110.
- Nielsen (2014). How smartphones are changing consumers' daily routines around the globe. Mobile, 02-24-2014. available at: <http://www.nielsen.com/us/en/insights/news/2014/how-smartphones-are-changing-consumers-daily-routines-around-the-globe.html>.
- Netemeyer, R. G., Krishnan, B., Pullig, C., Wang, G., Yagci, M., Dean, D., . . . Wirth, F. (2004). Developing and validating measures of facets of customer-based brand equity. *Journal of Business Research*, 57(2), 209-224.
- Oliveira, M. J. d., Huertas, M. K. Z., & Lin, Z. (2016). Factors driving young users' engagement with Facebook: Evidence from Brazil. *Computers in Human Behavior*, 54, 54-61.
- Parasuraman, A., & Grewal, D. (2000). The impact of technology on the quality-value-loyalty chain: a research agenda. *Journal of the Academy of Marketing Science*, 28(1), 168-174.
- Park, Y., & Chen, J. V. (2007). Acceptance and adoption of the innovative use of smartphone. *Industrial Management & Data Systems*, 107(9), 1349-1365.
- Persaud, A., & Azhar, I. (2012). Innovative mobile marketing via smartphones: are consumers ready? *Marketing Intelligence & Planning*, 30(4), 418-443.
- Pitt, L. F., Parent, M., Junglas, I., Chan, A., & Spyropoulou, S. (2011). Integrating the smartphone into a sound environmental information systems strategy: Principles, practices and a research agenda. *The Journal of Strategic Information Systems*, 20(1), 27-37.
- Qiu, Y. (2011). Understanding Chinese Consumers, 1 July 2011, *China Business Review*, available at: <http://www.chinabusinessreview.com/understanding-chinese-consumers/>.
- Raj, S. (1985). Striking a balance between brand "popularity" and brand loyalty. *Journal of Marketing*, 49(1), 53-59.
- Rao, A. R., & Monroe, K. B. (1989). The effect of price, brand name, and store name on buyers' perceptions of product quality: An integrative review. *Journal of Marketing Research*, 26(3), 351-357.
- Ringle, C. M., Wende, S., & Will, A. (2005). SmartPLS 2.0 (M3). Retrieved 20 July, 2014, from <http://www.smartpls.de>
- Roca, J. C., Chiu, C.-M., & Martínez, F. J. (2006). Understanding e-learning continuance intention: An extension of the Technology Acceptance Model. *International Journal of Human-Computer Studies*, 64(8), 683-696.

- Roca, J. C., & Gagné, M. (2008). Understanding e-learning continuance intention in the workplace: A self-determination theory perspective. *Computers in Human Behavior*, 24(4), 1585-1604.
- Rogers, E. M. (1995). *Diffusion of Innovations*. New York: Free Press.
- Schiffman, L. G., & Kanuk, L. L. (1997). *Consumer Behaviour*. Englewood Cliffs, NJ. : Prentice - Hall.
- Seva, R. R., Duh, H. B.-L., & Helander, M. G. (2007). The marketing implications of affective product design. *Applied Ergonomics*, 38(6), 723-731.
- Seva, R. R., & Helander, M. G. (2009). The influence of cellular phone attributes on users' affective experiences: A cultural comparison. *International Journal of Industrial Ergonomics*, 39(2), 341-346.
- Shiau, W.-L., & Luo, M. M. (2013). Continuance intention of blog users: the impact of perceived enjoyment, habit, user involvement and blogging time. *Behaviour & Information Technology*, 32(6), 570-583.
- Spence, E. (2015). Apple's Amazing iPhone Conquers China With Spectacular Q1 2015 Results And 74.5 Million Sales, *Forbes*, Jan 27, 2015, available at: <http://www.forbes.com/sites/ewanspence/2015/01/27/apple-iphone-6-sales-china/#3e3262e85420>.
- Strauss, A., & Corbin, J. (1998). Basics of qualitative research: Procedures and techniques for developing grounded theory. ed: *Thousand Oaks, CA: Sage*.
- Tang, J.-t. E., Tang, T.-I., & Chiang, C.-H. (2014). Blog learning: effects of users' usefulness and efficiency towards continuance intention. *Behaviour & Information Technology*, 33(1), 36-50.
- Tsiotsou, R. (2006). The role of perceived product quality and overall satisfaction on purchase intentions. *International journal of consumer studies*, 30(2), 207-217.
- Vatanasombut, B., Igbaria, M., Stylianou, A. C., & Rodgers, W. (2008). Information systems continuance intention of web-based applications customers: The case of online banking. *Information & Management*, 45(7), 419-428.
- Venkatesh, V., Chan, F. K., & Thong, J. Y. (2012). Designing e-government services: Key service attributes and citizens' preference structures. *Journal of Operations Management*, 30(1), 116-133.
- Vishwanath, A., & Goldhaber, G. M. (2003). An Examination of the Factors Contributing to Adoption Decisions among Late-Diffused Technology Products. *New Media & Society*, 5(4), 547-572.
- Wang, C., Harris, J., & Patterson, P. (2013). The roles of habit, self-efficacy, and satisfaction in driving continued use of self-service technologies: A longitudinal study. *Journal of Service Research*, 11(4), 407-428.
- Wang, W.-T., & Li, H.-M. (2012). Factors influencing mobile services adoption: a brand-equity perspective. *Internet Research*, 22(2), 142-179.
- Wang, W., Ngai, E. W. T., & Wei, H. (2012). Explaining Instant Messaging Continuance Intention: The Role of Personality. *International Journal of Human-Computer Interaction*, 28(8), 500-510.
- Wilska, T.-A. (2003). Mobile Phone Use as Part of Young People's Consumption Styles. *Journal of Consumer Policy*, 26(4), 441-463.
- Yau, O. H. (1988). Chinese cultural values: Their dimensions and marketing implications. *European journal of Marketing*, 22(5), 44-57.
- Yoo, B., & Donthu, N. (2001). Developing and validating a multidimensional consumer-based brand equity scale. *Journal of business research*, 52(1), 1-14.
- Zeithaml, V. A. (1988). Consumer perceptions of price, quality, and value: a means-end model and synthesis of evidence. *Journal of Marketing*, 52(3), 2-22.

Zhou, Z., Fang, Y., Vogel, D. R., Jin, X.-L., & Zhang, X. (2012). Attracted to or locked in? Predicting continuance intention in social virtual world services. *Journal of Management Information Systems*, 29(1), 273-306.