Antecedents of consumers’ brand loyalty for high-technology products

By

Ng, Ching Yee

M.B.A.

Submitted to The University of Newcastle for the Degree

Doctor of Business Administration

July 2015
The thesis contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. I give consent to the final version of my thesis being made available worldwide when deposited in the University’s Digital Repository**, subject to the provisions of the Copyright Act 1968.

**Unless an Embargo has been approved for a determined period.

____________________

Ng, Ching Yee
Abstract

This study explores the impact of antecedents of brand loyalty in the Hong Kong high-technology product market. Building strong brand loyalty in today's competitive marketplace has been a core and challenging objective for many high-technology companies. Herein, a novel relationship between brand loyalty for high-technology products and its antecedents is advanced. Data was collected using an online survey and a sample of 200 Hong Kong smartphone users aged 18 years old or above. Findings confirm that customer satisfaction mediates the relationship between service quality and attitudinal loyalty, and at the same time affects attitudinal loyalty directly. In addition, results show that repurchase intention is affected by attitudinal loyalty and that brand trust plays a critical role in building attitudinal loyalty and repurchase intentions. Consequently, important theoretical and managerial implications are provided for researchers and practitioners in the field.
Contents

Abstract ........................................................................................................................................v

Contents .......................................................................................................................................vii

List of Figures ................................................................................................................................x

List of Tables ..................................................................................................................................xi

Acknowledgements .....................................................................................................................xiii

CHAPTER 1 INTRODUCTION ......................................................................................................15
  1.1 Research Background ...........................................................................................................17
  1.2 Research Problem ...............................................................................................................20
    1.2.1 Study of Loyalty ..........................................................................................................22
    1.2.2 Service Quality, Customer Satisfaction and Attitudinal Loyalty ..............................24
    1.2.3 Customer Satisfaction, Attitudinal Loyalty and Repurchase Intention ..................26
    1.2.4 Service Quality, Brand Trust and Attitudinal Loyalty ............................................28
    1.2.5 Brand Trust and Repurchase Intention .....................................................................31
    1.2.6 Summary ....................................................................................................................31
  1.3 Aim of Study and Research Question .................................................................................32
  1.4 Contributions ......................................................................................................................34
    1.4.1 Theoretical Contributions .........................................................................................35
    1.4.2 Managerial Contributions .........................................................................................37
  1.5 Research Methodology ......................................................................................................38
    1.5.1 Sample and Sampling Method ..................................................................................38
    1.5.2 Instrument ..................................................................................................................39
    1.5.3 Data Analysis ..............................................................................................................41
  1.6 Limitations ...........................................................................................................................42
  1.7 Outline of the Report ...........................................................................................................43

CHAPTER 2 LITERATURE REVIEW ..........................................................................................45
  2.1 Service Quality, Customer Satisfaction and Attitudinal Loyalty ......................................46
  2.2 Customer Satisfaction and Attitudinal Loyalty ...................................................................51
  2.3 Attitudinal Loyalty and Repurchase Intention ....................................................................56
    2.3.1. Two Aspects of Loyalty .........................................................................................57
    2.3.2 Why Attitudinal Loyalty was Chosen in the Study ..................................................60
    2.3.3 Repurchase Intention and Its Relationship with Attitudinal Loyalty .......................63
# List of Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Proposed conceptual model</td>
<td>34</td>
</tr>
<tr>
<td>2.1</td>
<td>Proposed conceptual model</td>
<td>46</td>
</tr>
<tr>
<td>2.2</td>
<td>The proposed conceptual model with hypotheses</td>
<td>76</td>
</tr>
<tr>
<td>3.1</td>
<td>Path diagram of confirmatory factor analysis</td>
<td>99</td>
</tr>
<tr>
<td>3.2</td>
<td>Path diagram of confirmatory factor analysis for the study</td>
<td>100</td>
</tr>
<tr>
<td>3.3</td>
<td>Statistical diagram of the first mediation analysis</td>
<td>104</td>
</tr>
<tr>
<td>3.4</td>
<td>Statistical diagram of the second mediation analysis</td>
<td>105</td>
</tr>
<tr>
<td>4.1</td>
<td>Scatterplot for repurchase intention as dependent variable</td>
<td>124</td>
</tr>
<tr>
<td>4.2</td>
<td>Normal plot of regression standardised residual for repurchase intention as dependent variable</td>
<td>125</td>
</tr>
<tr>
<td>4.3</td>
<td>Scatterplot for repurchase intention as dependent variable</td>
<td>126</td>
</tr>
<tr>
<td>4.4</td>
<td>Normal plot of regression standardised residual for repurchase intention as dependent variable</td>
<td>127</td>
</tr>
<tr>
<td>4.5</td>
<td>Statistical diagram of the mediation model A</td>
<td>130</td>
</tr>
<tr>
<td>4.6</td>
<td>Statistical diagram of the mediation model B</td>
<td>132</td>
</tr>
</tbody>
</table>
List of Tables

Table 4.1 Description of the respondents .............................................................. 109
Table 4.2 Current smartphone brand in use ............................................................ 110
Table 4.3 Reliability test results ............................................................................. 112
Table 4.4 List of items for service quality ............................................................... 112
Table 4.5 Mean, standard deviation and Cronbach’s coefficient alpha for service quality ................................................................. 113
Table 4.6 List of items for brand trust ................................................................... 113
Table 4.7 Mean, standard deviation and Cronbach’s coefficient alpha for brand trust ................................................................. 114
Table 4.8 List of items for customer satisfaction .................................................... 114
Table 4.9 Mean, standard deviation, and coefficient alpha for customer satisfaction .................................................................................. 115
Table 4.10 List of items for attitudinal loyalty ....................................................... 116
Table 4.11 Mean, standard deviation and coefficient alpha for attitudinal loyalty .................................................................................. 116
Table 4.12 List of items for repurchase intention ................................................... 117
Table 4.13 Mean, standard deviation and coefficient alpha for repurchase intention .................................................................................. 117
Table 4.14 Factor analysis results ......................................................................... 119
Table 4.15 Regression analysis results with attitudinal loyalty as dependent variable .................................................................................. 122
Table 4.16 Regression analysis results with attitudinal loyalty as dependent variable .................................................................................. 123
Table 4.17 Regression analysis results with repurchase intention as dependent variable .................................................124

Table 4.18 Regression analysis results with repurchase intention as dependent variable .................................................126

Table 4.19 Regression analyses results for Model A .................................................................129

Table 4.20 Regression analyses results for Model B .................................................................131

Table 4.21 Summary of analysis results for reliability test and regression analysis .................................................................133

Table 4.22 Summary of hypothesised findings ........................................................................133
Acknowledgements

I would like to express my deepest gratitude to my supervisors, Dr Ameet Pandit and Dr Sonia Vilches-Montero, for their excellent guidance and patience throughout my dissertation preparation at the University of Newcastle. Their advice on my dissertation and the support they granted to me have helped me a lot in getting through the process. In addition, I am heartily thankful to my husband, John, who has given me a lot of support for my study. This dissertation would have simply been impossible without them.
CHAPTER 1
INTRODUCTION

According to research conducted by Google (2013), the percentage of the population in Hong Kong that owned and used a smartphone in Q1 2013 was 62.8 per cent, ranking eighth in the world. In addition, 82 per cent of smartphone owners accessed the internet every day on their smartphones. These figures reflect the fact that smartphone owners are reliant on their devices and show that Hong Kong citizens have already strongly adopted the smartphone, which has become an important part of their daily lives. Moreover, the demand for smartphones has been increasing. According to an industry report prepared by Frost and Sullivan (2014), global smartphone shipments will grow at a compound annual growth rate of 16.7 per cent from 2014 to 2018. According to this report, such an increase has various causes. First, consumers are more readily adopting new technologies, and they frequently replace high-technology products with improved versions (Farago, 2012; Voorhees-Harmon, 2012). Second, Hong Kong’s advanced telecommunications infrastructure and wide broadband coverage (both fixed and wireless) encourage adoption of new smartphone models. Finally, the disposable income and living standards in Hong Kong keep rising and smartphone products have become more affordable than they were (Frost & Sullivan, 2014). Moreover, the smartphone market in Hong Kong is highly competitive because there are more than 50 brands from around the world, including Apple, Samsung, Nokia, LG, Sony and Motorola, competing to sell products that have very similar features and outlook design. Thus, product innovation in the smartphone market is no longer a differentiating factor because
it can be commoditised easily (Petruzzellis, 2010). In addition, in this highly competitive market, customers frequently choose among many alternatives and make switching decisions (Lin & Huang, 2014); consequently, there is a high level of brand switching among customers in the smartphone market (Stremersch, Muller & Peres, 2010). In such an increasingly competitive market, where brand-switching behaviour prevails, developing the loyalty of customers is important for smartphone companies in sustaining their performance (Egan, 2004; Luarn & Lin, 2003; Nasir, 2005). Therefore, in this high-tech era, understanding the factors that differentiate customers in choosing and keeping a technology product is important (Moore, 2002). Smartphone companies need to understand which factors they need to work on to build brand loyalty. This study investigated the antecedents of brand loyalty by expanding on current loyalty models, analysing the factors influencing customer satisfaction and brand trust, and correlating the findings to brand loyalty and repurchase intention in the Hong Kong smartphone market.

This chapter starts with the research background, introducing the global and Hong Kong smartphone market, and the problems faced by the smartphone industry. The research problem is presented in Section 1.2, with an introduction to the concepts of relevant constructs used to justify a modified model developed to predict attitudinal loyalty and repurchase intention. Then, in Section 1.4, a discussion of the contributions of the study and an explanation of the research methodology adopted are provided. Finally, an outline of the entire report is given to facilitate the reading.
1.1 Research Background

Advances in information and communication technologies have enabled mass consumers to access more high-technology products (Reddy, 1997; Stremersch, Muller & Peres, 2010; Ward, Light & Goldsmith, 1999) and to learn more about the benefits of new technologies (Agarwal & Bayus, 2002). High-technology products are defined as technology products that are highly complex and have a high product development rate (Steenhuis & De Bruijn, 2006), which includes video game consoles, smartphones and flat-screen high-definition televisions. The smartphone industry has experienced substantial growth through massive penetration (Goggin, 2009; Watkins, Hjorth & Koskinen, 2012) owing to such factors as technological advances and increasing market demand (Petruzzellis, 2010). Approximately 95 per cent of all countries have smartphone networks, and probably more smartphones than televisions (Botelho & Pinto, 2004). In 2013, the world’s population reached 7.1 billion at the same time as mobile-cellular subscriptions reached 6.8 billion, which means that the world has nearly as many mobile-cellular subscriptions as the number of people (ITU, 2013). With the increasing consumer demand for internet service, as well as features such as video and personal digital assistant (PDA) in one device, the smartphone market will continue to grow rapidly in coming years (Lee, 2011). The number of global smartphone users exceeded one billion in 2013 and will reach two billion in 2015 (Shin, 2015). There will be continuous fast-track adoption of smartphones by consumers through 2017 (Shin, 2014). Unlike other technology products, the smartphone is perceived as a social necessity for communication and entertainment (Ahanonu et al., 2013; Kasesniemi & Rautianinen, 2002; Skog, 2002) and its use has become an
integral part of daily life (Ling, 2004). Thus, the smartphone plays an important role in many people’s lives (Liu & Liang, 2014). A smartphone is a device that supports the user in performing computer-type features, such as accessing the web, sending and receiving emails, and taking photographs (Cassavoy, 2015), and is ‘widely used for sharing messages, connecting with others, browsing information, and shopping’ (Liu & Liang, 2014, p. 339). With the increasing innovation of smartphone technology, as well as the wireless accessibility of internet services, it is expected that more advanced features will be provided by smartphones in the future.

As discussed in the previous section, competition is keen among smartphone companies in Hong Kong. According to an industry report prepared by Frost and Sullivan (2014), smartphone companies launch new models of smartphones with new features and improved outlook to the market nearly every 12 months to stimulate consumer demand. In fact, smartphone users usually upgrade or replace their smartphones with new models every 12 to 18 months, and more users are changing from general mobile phones to smartphones (Frost & Sullivan, 2014). The increasing demand encourages more companies to enter into the smartphone market, and thus more smartphone brands are becoming available and being sold at affordable prices (Frost & Sullivan, 2014). Most importantly, the launch of advanced or new models may significantly attract new customers (Islam & Meade, 1997), and provides opportunities for smartphone customers to switch brands (Stremersch et al., 2010). Therefore, how to build loyalty to prevent brand switching is a concern for smartphone companies. Marketers should be interested in understanding the factors that drive loyalty among smartphone customers.
Consumer demand in Hong Kong has also increased because of the development of smartphone processing capabilities empowered by more advanced mobile apps. According to a report prepared by Google (2013), 85 per cent of smartphone users in Hong Kong used their devices for multi-tasking, such as for conducting mobile searches, watching videos, using apps and building social networks. Moreover, 89 per cent of users had researched a product or service on their device; of these, 43 per cent had made a purchase on their phone with a mobile payment. In addition, the wireless network has been increasingly strengthening the use of mobile internet (Census and Statistics Department Hong Kong, 2013). The accessibility of information and personalised entertainment has now become faster and more convenient.

Finally, the increasing demand is supported by rising disposable income and living standards in Hong Kong. Hong Kong residents seek better smartphone features and design so that they can enjoy a better entertainment and communication experience with the use of smartphones (Frost & Sullivan, 2014).

There is evidence that loyalty leads to competitive advantage and profitability (Ehigie, 2006). Numerous studies have demonstrated that it is more profitable to retain customers than to acquire new ones (e.g. Hogan, Katherine & Barak, 2003; Lee-Kelley, Gilbert & Mannicom, 2003). Reichheld and Sasser (1990) suggested that profitability can be increased in the range of 25 to 85 per cent when there is a five per cent increase in customer retention. Loyal customers will help increase profitability because they will recommend the business to others and will not switch suppliers easily (Buchanan & Gilles, 1990; Narayandas, 1996) for price reasons (Reichheld & Sasser, 1990; Reichheld &
Teal, 1996). They are even willing to pay a premium price for the brand (Chaudhuri & Holbrook, 2001; Keller, 1993). This is particularly important for smartphone companies because they need to charge a high price for their products in the product introduction stage in order to skim the maximum amount of revenue before the launch of the next new technology (Kotler et al., 2012). In addition, loyal customers will buy more (Ganesh, Arnold & Reynolds, 2000), and are more willing to buy high-margin ancillary products such as smartphone cases, charging docks and USB cables (Buchanan & Gilles, 1990). The service costs for loyal customers are lower because they are familiar with the company and have regularly purchased from it (Buchanan & Gilles, 1990). As mentioned before, smartphone companies launch new models to the market nearly every 12 months to stimulate consumer demand (Frost & Sullivan, 2014). Loyal customers will buy the new models without the smartphone companies spending too much time explaining the new features to them. The aim of this study was to understand the important antecedents of brand loyalty and their effects on attitudinal loyalty and repurchase intention. The findings will help smartphone companies to develop the competitive advantage that can help increase their profitability.

1.2 Research Problem

For a company to maintain a stable performance when the competition is fierce, a defensive strategy that strives to focus more on customer retention is more important than an aggressive one that aims to acquire new customers (Ahmad & Buttle, 2002; Fornell, 1992; Lee, 2010). With the development of the internet, smartphone companies can use it to educate and inform potential
customers about the benefits of new models (Agarwal & Bayus, 2002). Customers are more informed because they are exposed to much more information about products and services provided by different companies than they were before. More informed customers know that there are more choices in the market and they can search out the best deals from those choices (Peppard, 2000). In addition, they may also adopt new models faster; thus, more brand-switching behaviours are expected (Stremersch et al., 2010). Therefore, how to create and maintain customer loyalty becomes the main issue for smartphone companies. Brand loyalty is very important for the companies because it contributes to sustainable survival and strong future growth (Kim, Park & Jeong, 2004) by building a customer base less sensitive to competitors’ marketing efforts, by increasing the companies’ ability to respond to competitive threats, and by building entry barriers to competitors (Delgado-Ballester & Munuera-Aleman, 2001).

In view of the highly competitive nature of the smartphone market in Hong Kong and the value added by brand loyalty, brand loyalty has become crucial for smartphone companies in Hong Kong. Accordingly, this study has analysed the antecedents of brand loyalty in the Hong Kong smartphone market. Many prior studies have examined selected antecedents of brand loyalty (e.g. Ehigie, 2006; Hong & Cho, 2011; Kim, 2012; Laroche, Habibi, Richard & Sankaranarayanan, 2012; Rauyruen & Miller, 2007). Taken together, these studies suggest that service quality, customer satisfaction and brand trust are direct and indirect drivers of brand loyalty and repurchase intention. However, there is a dearth of knowledge about the relationships among these drivers and how they affect brand loyalty in the field of high-tech products (Lin, Huang & Hsu, 2015),
particularly the smartphone market in Hong Kong. In the following subsections, the argument for the study of these brand loyalty antecedents is presented in more detail.

Overall, this study investigated the antecedents of brand loyalty in the high-technology product market, specifically, the smartphone market in Hong Kong. In doing so, this paper examined (1) the effects of such factors as service quality, customer satisfaction and brand trust on attitudinal loyalty and repurchase intention; and (2) the relationship among these factors in the Hong Kong smartphone market. By understanding these relationships, smartphone companies can drive their marketing efforts into enhancing the important factors of brand loyalty. Therefore, the research problem of the study was whether service quality, customer satisfaction and brand trust can help build attitudinal loyalty and repurchase intention in the smartphone market in Hong Kong.

This study had two main objectives: first, to implement an empirical analysis of the relative effects of these factors (service quality, customer satisfaction and brand trust) on attitudinal loyalty and repurchase intention, and the relationships among them; and, second, to examine the strategic implications for smartphone companies attempting to raise the level of brand loyalty. The next subsections present the argument for the study.

1.2.1 Study of Loyalty

A vast amount of research has been carried out in the domain of brand loyalty that has provided insight into how to build loyalty in a wide range of industries in many geographical markets (e.g. Aydin & Ozer, 2005; Chaudhuri & Holbrook, 2001; Cöner & Güngör, 2002; Dick & Basu, 1994; Gundlach & Murphy,
1993; Oliver, 1999; Punniyamoorthy & Raj, 2007; Sahin, Zehir & Kitapci, 2011).

In general, two major types of loyalty have been identified and explored: behavioural loyalty and attitudinal loyalty. Behavioural loyalty refers to actual repeat purchase behaviour (e.g. Ehrenberg, 1988; Gill & Dawra, 2010). However, customers’ repeating of their purchase behaviour may be due to the promotion of other brands (Hellier, Geursen, Carr & Rickard, 2003), inertia (Bloemer & Kasper, 1995), convenience (Jacoby & Chestnut, 1978) or great barriers to change (Fitzgibbon & White, 2005). Therefore, viewing repeat purchase behaviour as an expression of loyalty cannot explain how and why loyalty is developed (Bandyopadhyay & Martell, 2007). In contrast, attitudinal loyalty refers to the extent of customers’ emotional or psychological attachment to a brand (Rauyruen & Miller, 2007). Since mobile devices such as smartphones are constant companions that are used on a daily basis (Shankar & Balasubramanian, 2009), customers can easily build emotional attachment to their smartphones (Lam & Shankar, 2014). When customers feel emotionally attached to a brand, attitudinal loyalty to the brand is developed. Therefore, based on the nature of smartphone usage, attitudinal loyalty should be easier to develop before customers intend to buy the same brand again. In addition, attitudinal loyalty can drive behavioural loyalty and therefore has been regarded as the more important type of loyalty and thus worthy of in-depth analysis (Bandyopadhyay & Martell, 2007; Caceres & Paparoidamis, 2007; Russell-Bennett, McColl-Kennedy & Coote, 2007). Customers with attitudinal loyalty have higher resistance to switching to a competitor’s product (Narayandas, 1996), and are willing to pay a higher price for the brand (Chaudhuri & Holbrook, 2001). Attitudinally loyal customers will keep buying the
brand even when no incentive is offered (Fitzgibbon & White, 2005). To conclude, attitudinally loyal customers are more profitable because their purchase of a brand is stable (e.g. Bandyopadhyay & Martell, 2007; Lau & Lee, 1999) and the net income generated for companies is stable and higher (Fitzgibbon & White, 2005). Because of the importance and relevance of attitudinal loyalty to the smartphone market, this study focused on attitudinal loyalty when developing a framework that would enable further understanding of the factors underlying brand loyalty purchase behaviour.

1.2.2 Service Quality, Customer Satisfaction and Attitudinal Loyalty

Service quality has been suggested as one of the means for differentiation and competitive advantage in many studies (e.g. Aydin & Ozer, 2005; Bloemer, Ruyter & Wetzels, 1998; Venetis & Ghauri, 2000). It has always been suggested as an antecedent of customer satisfaction (e.g. Brady & Cronin, 2001). Service quality has also been regarded as an important antecedent to loyalty in much of the literature. Some research has demonstrated that service quality can lead directly to loyalty because high service quality creates value for customers (Ahmed Shaukat, Nawaz, Ahmed & Usman, 2011). Better service quality can help organisations to develop more loyal customers (Cöner & Güngör, 2002). However, other studies have suggested that service quality is not sufficient to build loyalty (Aydin & Ozer, 2005), but can only build loyalty through satisfaction (e.g. Kim et al., 2004; Lim, Widdows & Park, 2006). Before attitudinal loyalty can be developed, customers need to have feelings of satisfaction that derive from the service quality (Ehigie, 2006). This means that customer satisfaction mediates the relationship between service quality and attitudinal loyalty. Service
quality is particularly important in the smartphone industry (Tseng & Lo, 2011) because smartphone customers need a great deal of personal services to help them resolve technical problems with the devices (Chiou & Droge, 2006). Responsiveness, reliability and assurance are considered important in smartphone services because they can affect customer satisfaction and in turn affect customer loyalty (Shin, 2014, 2015). These elements are in line with the well-known service quality framework SERVQUAL, developed by Parasuraman, Zeithaml and Berry (1988). Smartphone customers are concerned about (1) reliability, meaning whether the smartphone companies have the ‘ability to perform the promised service dependably and accurately’ (Parasuraman et al., 1988, p. 23); (2) responsiveness, meaning whether the smartphone companies have the ‘willingness to help customers and provide prompt service’ (Parasuraman et al., 1988, p. 23); and (3) assurance, meaning whether the employees of smartphone companies have the knowledge and courtesy as well as the ability to inspire trust and confidence (Parasuraman et al., 1988). The study of service quality is relevant for this study because it can influence customer satisfaction, which in turn affects customer loyalty in the smartphone industry. This study aimed to evaluate, in the context of the smartphone industry, whether service quality can, through customer satisfaction, influence attitudinal loyalty specifically. In addition, different conclusions have been drawn on the relationships among service quality, customer satisfaction and loyalty. Some studies have suggested that customer satisfaction mediates the relationship between service quality and attitudinal loyalty, while others have suggested a direct relationship exists between service quality and attitudinal loyalty. Above all, service is a tool to increase differentiation that is controllable by companies
(Sharma & Singh, 2012). Therefore, it is worthwhile studying service quality and its effect on customer satisfaction, and whether the relationship between service quality and attitudinal loyalty is mediated by customer satisfaction.

1.2.3 Customer Satisfaction, Attitudinal Loyalty and Repurchase Intention

There is debate in the literature regarding whether satisfaction has a direct effect on loyalty; thus, the effect of customer satisfaction on loyalty is complex (Ehigie, 2006). Some studies (e.g. Carpenter & Fairhurst, 2005; Oliver, 1999) have suggested that customer satisfaction does not universally transform into attitudinal loyalty, although it may positively influence loyalty. Satisfied customers may switch brands (Keaveney, 1995) when they search for a competitor’s promotion (Suh & Yi, 2006) or novelty (McAlister & Pessemier, 1982). As discussed, smartphone companies launch new models with new features and outlook nearly every 12 months (Frost & Sullivan, 2014). Therefore, satisfied smartphone customers may switch brands when they want the novelty of new smartphone models (Stremersch et al., 2010). Conversely, a temporarily dissatisfied customer may remain loyal (Day, 1969; Jones & Sasser, 1995), perhaps because the seller has a loyalty programme that offers benefits to retain its members (Bolton, Kannan & Bramlett, 2000). To conclude, according to some research, customer satisfaction is insufficient to build loyalty (Agustin & Singh, 2005). This means that there may not be a direct relationship between customer satisfaction and loyalty in the smartphone industry.

However, customer satisfaction has been suggested by many other studies as one of the important antecedents for attitudinal loyalty (Lam, Shankar, Eramilli, & Murhty, 2004; Rauyruen & Miller, 2007; Russell-Bennett et al., 2007).
because satisfied customers have increased resistance to competitive offers (e.g. Bolton, 1998) and it is more likely they will stay in the relationship (Mouri, 2005). If customers are dissatisfied with a brand, they will search for information on alternatives and are more likely to switch to competitors’ brands than satisfied customers are (Anderson & Srinivasan, 2003). Therefore, in the context of smartphone usage, customers are likely to keep using a phone when they are satisfied (Lee, Moon, Kim & Yi, 2015). Consequently, customer satisfaction was expected to have a positive effect on attitudinal loyalty in the smartphone market.

To summarise, the relationship between customer satisfaction and loyalty is complex in the smartphone industry. Some studies have confirmed the direct relationship between customer satisfaction and loyalty in the smartphone market (Lee et al., 2015). However, other studies have suggested that customer satisfaction may not affect loyalty directly because satisfied smartphone customers may switch brands when they look for novelty from new smartphone models (Stremersch et al., 2010). The reasons for the different conclusions may lie in the multidimensional structure of the loyalty construct (Taylor, Hunter & Longfellow, 2006) and the ignorance on differences between various types of loyalty (Bloemer & Kasper, 1995). Therefore, there is a need to enhance the understanding on whether customer satisfaction affects attitudinal loyalty directly in the context of the smartphone market.

Repurchase intention is a measure of the likelihood of the future repurchase of a product or service (Lin & Liang, 2011; Seiders, Voss, Grewal & Godfrey, 2005) and thus can be measured with the probability of future repurchase (Davidow, 2003). However, repurchase intention has also been considered one
of the measures of attitudinal loyalty by some studies (e.g. Aydin & Ozer, 2005; Cronin & Taylor, 1992). Although attitudinal loyalty and repurchase intention are related, they are distinguishable (Hong & Cho, 2011). Other, updated studies have examined repurchase intention separately and considered it a strong predictor of actual purchase behaviour because it directly drives the actual repurchase behaviour (e.g. Akhter, 2010; Leingpibul, Thomas, Broyles & Ross, 2009). Since actual purchase behaviour is the objective of loyalty development (e.g. Ehrenberg, 1988; Gill & Dawra, 2010), it is useful to study repurchase intention specifically and understand how it is derived from attitudinal loyalty. Moreover, a study conducted on the smartphone industry has suggested that brand loyalty in a smartphone brand is the most important factor considered by customers when they purchase a product (Muhammad, Hamad & Shabir, 2014). In addition, in a survey carried out by the market research firm GfK, 84 per cent of iPhone customers indicated that they had higher intentions to buy an iPhone again because they were emotionally attached to the brand (GfK, 2011). Therefore, it was expected that general smartphone customers with attitudinal loyalty to a smartphone brand would have higher repurchase intention. Considering the relevance of these factors to the smartphone industry, as well as the need to verify the relationships among them, it is worthwhile studying whether there is a relationship between attitudinal loyalty and repurchase intention in the Hong Kong smartphone market.

1.2.4 Service Quality, Brand Trust and Attitudinal Loyalty

Overall brand trust concepts involve customers’ belief that a brand has the competence and integrity to accomplish its promised value, meet their
expectations and treat their interests with priority (Delgado-Ballester & Munuera-Aleman, 2003). These concepts are in line with the ‘reliability’ and ‘responsiveness’ dimensions of the well-known service quality framework developed by Parasuraman et al. (1988). Smartphone customers have concerns about whether smartphone companies can perform the promised service right the first time and are willing to help them and provide prompt service (Shin, 2014, 2015). Therefore, brand trust can be built if smartphone companies can fulfil these customer concerns. The fulfilment of customer expectation can be achieved through repeated interaction between the employees and customers of the smartphone companies. Smartphone companies need to have repeated interaction with customers (Chiou & Droge, 2006) to provide services that support their use of the ever-updated features of the devices. Such interaction will affect the building of trust (Kassim & Ismail, 2009). Customer trust will increase when they have positive experiences with the service quality provided by a brand (Nakhleh, 2012). Consequently, it was expected that service quality would affect brand trust in the smartphone market. However, some studies have found that that there is no significant direct relationship between service quality and trust, and product category should influence the relationship between the two constructs (Chen, Chen & Huang, 2012). Therefore, there was a need to test whether the direct effect of service quality on brand trust can be found in the smartphone industry. The results will also serve as additional evidence of whether product category has an influence over such relationship.

Brand trust has been proven to be an important antecedent to loyalty and a consequence of service quality in some studies (e.g. Laroche et al., 2012; Sultan & Mooraj, 2001). Brand trust can help in maintaining long-term relationships with
customers because trusting customers will look for long-term benefits of staying with the brand (Morgan & Hunt, 1994). Brand trust has a direct and significant influence on attitudinal loyalty (Hong & Cho, 2011) because trust can build a bond with customers (McKnight, Choudhury & Kacmar, 2002). Brand trust may be particularly important in smartphone brand loyalty because smartphone customers have common concerns about security when using a smartphone (Lam & Shankar, 2014). For high-technology products such as smartphones, a high degree of uncertainty is perceived by customers in general (Parasuraman & Colby, 2001). However, the uncertainty can be reduced as more trust is built with the brand (Chaudhuri & Holbrook, 2001). Smartphone customers are very unlikely to remain loyal if they cannot trust a smartphone brand (Lee et al., 2015). Conversely, when customers have high trust in a smartphone brand, their brand loyalty is likely to be high (Lam & Shankar, 2014; Lee et al., 2015). Various studies have confirmed the direct relationship between brand trust and attitudinal loyalty in such sectors as fast-moving consumer goods, food and newspapers (Aydin & Ozer, 2005; Punniyamoorthy & Raj, 2007). Nonetheless, studies on how brand trust affects attitudinal loyalty in the smartphone industry are very few. Considering the particular relevance and importance of brand trust in the smartphone industry, this study aimed to test whether brand trust can directly influence attitudinal loyalty in the Hong Kong smartphone market.

Overall, it was expected that service quality would affect brand trust, and brand trust would affect brand loyalty in the smartphone industry. The next question to induce interest is whether the relationship between service quality and attitudinal loyalty in the smartphone market is mediated by brand trust. Some studies have confirmed the indirect effect of service quality on attitudinal
loyalty through trust (Chiou & Droge, 2006), but the number of such studies is not substantial enough (Zehir, Sahin, Kitapci & Ozsahin, 2011). One possible reason for this is the difficulty in conceptualising and measuring the construct of brand trust (Matzler, Grabner-Krauter & Bidmon, 2008). With more studies conducted on brand trust recently, more comprehensive measures of brand trust have been developed (e.g. Sahin et al., 2011; Zehir et al., 2011). Therefore, it is worthwhile testing whether brand trust mediates the relationship between service quality and attitudinal loyalty in the smartphone industry.

1.2.5 Brand Trust and Repurchase Intention

More recent research has confirmed that the greater the trust, the higher the purchase intention (Kim, 2012; Zhu, Lee, O’Neal & Chen 2011). Customers will convince themselves that a brand is worthy of purchase when they have trust in it (Herbst, Hannah & Allan, 2013). Trust is thus considered to have the value of predicting future possible behaviour (Anderson & Narus, 1990), which is more valuable for many companies (Rauyruen, Miller & Groth, 2009). However, few studies have been conducted specifically on the relationship between brand trust and repurchase intention for the smartphone industry in Hong Kong. Thus, it was worthwhile extending the study to this context.

1.2.6 Summary

To summarise, prior studies have revealed that the relationships among different constructs may be complex in the smartphone industry. In addition, insufficient study has been conducted to test the relationships among these constructs in the smartphone industry or the Hong Kong market. As discussed in
the previous section, the Hong Kong smartphone market is highly competitive and has further growth potential. Knowing how to develop brand loyalty to build profitability is crucial for smartphone companies in Hong Kong. The loyalty framework proposed in this study will provide insight into loyalty building for Hong Kong smartphone companies. It will benefit marketers by improving their understanding of consumers’ loyalty intentions and attitudes so that they will be better informed when developing strategies to increase loyalty for a product category in which brand switching is strongly encouraged by the availability of improved products and opportunities for frequent product upgrades.

In line with prior research, this study proposes that service quality is one of the means for differentiation and competitive advantage. In addition, to build and sustain brand loyalty, customer satisfaction and brand trust must be developed. Therefore, service quality was investigated to understand how it affects loyalty through customer satisfaction and brand trust. Moreover, customer satisfaction and brand trust have been considered important antecedents for attitudinal loyalty for different industries in some studies. This study furthers the research on such relationships in the Hong Kong smartphone market. The ultimate objective of smartphone companies is to develop better financial performance through more purchases by customers. Thus, repurchase intention (which has been suggested as a strong predictor of actual repurchase) was investigated to understand how attitudinal loyalty and brand trust affect it.

1.3 Aim of Study and Research Question

Based on the above argument, additional research is required to further the understanding of the constructs in the model and their potential relationships.
The aim of this paper was to examine the effect of different antecedents such as service quality, customer satisfaction and brand trust on attitudinal loyalty and repurchase intention in the Hong Kong smartphone market. Therefore, the main research question was:

How do service quality, customer satisfaction and brand trust affect attitudinal loyalty and repurchase intentions?

Through the study, answers were sought for the following specific research sub-questions:

1. Is there a mediating effect of customer satisfaction on the relationship between service quality and attitudinal loyalty?
2. Is there a mediating effect of brand trust on the relationship between service quality and attitudinal loyalty?
3. Are the relationships between service quality and customer satisfaction positively significant?
4. Are the relationships between service quality and brand trust positively significant?
5. How does brand trust affect attitudinal loyalty and repurchase intention?
6. How does attitudinal loyalty influence repurchase intention?

Therefore, the study focused on examining the effect of service quality on attitudinal loyalty through the mediation of customer satisfaction and brand trust, and how repurchase intentions are influenced by attitudinal loyalty and brand trust in the Hong Kong smartphone market.

A model representing the relationships among all constructs is proposed as shown in Figure 1.1.
1.4 Contributions

The study is significant because it addresses the contradictions identified in the literature. Therefore the framework developed out of this study would be useful for both researchers and practitioners as it adds valuable information to the current body of knowledge on how to build brand loyalty more successfully by examining the antecedents that can help develop competitive advantages and differentiation. Building brand loyalty has long been a major part of marketing efforts, and is especially so today, when the markets have become more competitive and it is more difficult to achieve differentiation and brand loyalty. This is perhaps particularly true in the smartphone industry, in which the number of players is many and the competition is fierce. This study was built on prior research and expanded on existing models to examine the antecedents influencing smartphone attitudinal loyalty and repurchase intention. The findings are significant as they lead to more effective loyalty strategies, which include customer-centred service strategies, communication strategies and training strategies to be used in the smartphone industry. This research topic is
interesting to both academics and marketing practitioners because of the economic importance of the smartphone market and the complexity of loyalty issues.

1.4.1 Theoretical Contributions

The findings of this study will be useful for researchers because they enhance the theoretical framework on predicting attitudinal loyalty and repurchase intention by explaining their relationship with other factors. Overall, the study adds to the extant literature in two meaningful ways: (1) by examining how attitudinal loyalty, instead of overall brand loyalty, is affected by service quality, brand trust and customer satisfaction; and (2) by adding repurchase intention as a dependent variable at the end of the relationship chains of the model, and studying specifically how it is affected by attitudinal loyalty and brand trust. Ultimately, a modified brand loyalty model of the smartphone market was developed.

This study aimed to clarify which types of brand loyalty are more affected by the dependent variables in the high-tech product market. Unlike many other studies that focused on overall brand loyalty, this study identified the relevance and importance of attitudinal loyalty in the smartphone market and thus analysed the effect on it of its key antecedents. Further, the study extends the understanding of future possible purchase behaviour by investigating repurchase intention separately from attitudinal loyalty. The results revealed that, in the context of the smartphone market, attitudinal loyalty and repurchase intention are two distinct constructs and that the former directly affects the latter. Such findings clarify the complex relationship between the two constructs.
identified from prior research conducted within other industries. Therefore, it provides a more specific framework for in-depth understanding of the relationship between attitudinal loyalty and repurchase intentions for the smartphone industry.

The study also provides further understanding of the mediating roles played by customer satisfaction and brand trust on the relationship between service quality and attitudinal loyalty in the context of the smartphone market. Prior studies have been conducted on the relationships among these variables, but they drew different conclusions. Some studies have suggested that a direct relationship exists between service quality and attitudinal loyalty. Other studies have confirmed that customer satisfaction and brand trust are the mediators that individually affect the relationship between service quality and attitudinal loyalty (Chiou & Droge, 2006). The findings reveal why service quality alone cannot be a strong direct predictor of attitudinal loyalty in the smartphone industry. For service quality to lead to attitudinal loyalty in the smartphone market, customer satisfaction or brand trust must be developed by providing high service quality. The model developed out of the study thus provides a more comprehensive loyalty-building framework that covers key mediators between service quality and attitudinal loyalty.

The study also extends the understanding on the multiple roles played by customer satisfaction and brand trust in loyalty building. Both constructs can build attitudinal loyalty directly and individually mediate the relationship between service quality and attitudinal loyalty. Therefore, both customer satisfaction and brand trust are critical factors in loyalty building. The findings are consistent with some prior studies that confirmed the direct relationship between customer
satisfaction and attitudinal loyalty (e.g. Cheng, 2011; Chiou & Droge, 2006), and between brand trust and attitudinal loyalty (e.g. Anuwichanont, 2010; Chaudhuri & Holbrook, 2001). The findings also reveal that service quality is not a very strong direct predictor of attitudinal loyalty. However, service quality is still important in building customer satisfaction and brand trust directly so that attitudinal loyalty can be built. Such findings are consistent with prior studies that confirmed the direct relationship between service quality and customer satisfaction (e.g. Chiou & Droge, 2006; Solvang, 2007), and between service quality and brand trust (e.g. Aydin & Ozer, 2005; Zehir et al., 2011). However, other studies have suggested that there is no significant direct relationship between service quality and trust, and product category should have an influence on such a relationship (Chen, Chen & Huang, 2012). The findings reveal that service quality directly affects brand trust in the context of the smartphone market, and thus support the proposition that product category influences such a relationship. The model developed out of the study allows a more comprehensive understanding of the complex relationships among these constructs in the context of the smartphone industry.

1.4.2 Managerial Contributions

For marketing practitioners in the smartphone industry, the study provides academic insights into how attitudinal loyalty and repurchase intention are affected by important factors such as service quality, customer satisfaction and brand trust. This is one of the few studies about attitudinal loyalty and repurchase intention in the Hong Kong smartphone market. Commercial studies on overall brand loyalty without extensive literature reviews prevail in the market
because they can be completed much faster. This study provides more in-depth understanding of antecedents to attitudinal loyalty and repurchase intention; therefore, marketing practitioners of smartphone companies will be able to develop proper strategies that lead to sustainable brand loyalty and ultimately better organisational performance.

The information generated from this study can add knowledge for marketing practitioners in the smartphone industry so they can effectively develop and implement strategies that can help build differentiation in the highly competitive marketplace. Companies’ marketing effectiveness can then be increased and strong brand loyalty and repurchase intention can be created and preserved in the minds of their customers. Ultimately, improved profitability can be achieved.

1.5 Research Methodology

This was a quantitative study using standard and mediated regression analysis to explain the variance in the dependent variable. An anonymous questionnaire survey was conducted with a sample of 200 Hong Kong residents who were aged 18 and above and were smartphone users. To collect the data, the questionnaire was distributed through popular online platforms such as discuss.com that could reach the samples efficiently. Details of the research methodology are presented in Chapter 3.

1.5.1 Sample and Sampling Method

As the study aimed to investigate loyalty building in the Hong Kong smartphone market, the population of the study were all smartphone users in Hong Kong. According to a survey conducted by Google in 2013, relative to the
rest of the world, in 2013 Hong Kong had a very high smartphone penetration rate (62.8 per cent) among its adult population, between ages 18 and 64. The samples of the study were conveniently available and thus convenience sampling was adopted for the study. The profile of the samples recruited (Hong Kong adult smartphone users) was quite consistent with that of the target population. An online survey was used to obtain the samples and the participants were recruited through online discussion forums opened for smartphone users. Many smartphone users use such online discussion forums to share and search for information about smartphones. Smartphone users with such online behaviour allowed themselves to be sampled for the study, which was done through an online survey.

Because the study focused on brand loyalty in the Hong Kong smartphone market, the inclusion criteria for participants were (1) Hong Kong residents, (2) aged 18 and above, and (3) current smartphone users. Responses from 200 samples were collected to understand the topic of the study better.

1.5.2 Instrument

The questionnaire contained 29 questions developed on the assessment of variables on a seven-point Likert-scale (1 = strongly disagree; 7 = strongly agree). All items of each variable were used and validated by different researchers in their studies. Seven questions were given to collect demographics data such as residency, age, smartphone usage status, gender, education level and income level. Questions about residency, age and smartphone usage status were the control questions used to eliminate responses that did not fulfil the inclusion criteria. The survey instrument is found
in Appendix A. An explanation of the key terms adopted in the questionnaire are provided below for better understanding of the instrument.

In this study, service quality is viewed as the consumer’s judgement about the overall excellence or superiority of a service (Aydin & Ozer, 2005; Bitner & Hubert, 1994; Tsoukatos & Rand, 2006; Zeithaml, 1988).

For brand loyalty, a commonly cited definition was adopted in the study. It was defined by Oliver (1999) as ‘a deeply held commitment to rebuy or repatronize a preferred product/service consistently in the future, thereby causing repetitive same-brand or same-brand set purchasing, despite situational influences and marketing efforts having the potential to cause switching behaviours’ (p. 34).

Behavioural loyalty is viewed as repeated purchase behaviour towards the same brand (Amine, 1998; Gill & Dawra, 2010).

Attitudinal loyalty is viewed as the attitude (Lim & Razzaque, 1997), beliefs and disposition of a customer towards a brand (Gill & Dawra, 2010). It is also the extent of a customer’s psychological attachments and attitudinal advocacy towards the brand (Rauyruen & Miller, 2007).

Repurchase intention is defined as a measure of the likelihood of future repurchase of the same product or service (Jones & Sasser, 1995; Lin & Liang, 2011; Seiders et al., 2005) or the intent to stay with an organisation (Zeithaml, Berry, & Parasuraman, 1996).

For customer satisfaction, Oliver’s (1999) definition, ‘a consumer’s feeling that consumption provides results against a pattern of pleasure versus displeasure’ (p. 34), was adopted. It is also an evaluation of the experience with products and services (Akhter, 2010), that is, the post-usage evaluation of state
or feelings towards a brand (Olsen, Wilcox & Olsson, 2005; Zeithaml & Bitner, 2003).

Brand trust is viewed as ‘the willingness of the average consumer to rely on the ability of the brand to perform its stated function’ (Chaudhuri & Holbrook, 2001, p. 82). It is also defined as confident beliefs or expectations held by a customer that the seller is competent and dependable (Johnson & Grayson, 2005) and can be relied on to deliver promised services (Agustin & Singh, 2005; Sahin et al., 2011; Sirdeshmukh, Jagdip & Barry, 2002).

1.5.3 Data Analysis

Before the hypotheses proposed in the model were tested, the reliability of the individual scales was assessed. Cronbach’s alpha was obtained for each scale and it was confirmed that all scales were highly reliable. Confirmatory factor analysis (CFA) was conducted to confirm and validate the proposed loyalty framework of the study. The study aimed to explain variance in dependent variables by independent variables and thus a regression analysis method was used. Simple regression analysis was conducted to test whether there were positive relationships between (1) customer satisfaction and attitudinal loyalty, (2) brand trust and attitudinal loyalty, (3) brand trust and repurchase intention, and (4) attitudinal loyalty and repurchase intention. The hypotheses also called for the use of mediated regression analysis. The model developed by Baron and Kenny (1986) was used to study whether (1) customer satisfaction and brand trust could mediate the relationship between service quality and attitudinal loyalty, and (2) service quality could affect customer satisfaction and brand trust. A correlation coefficient was obtained to determine
the strength of the relationship between two variables. Results obtained from the analyses confirmed the positive relationships among different variables as mentioned above. Partial mediation effects of customer satisfaction and brand trust on the relationship between service quality and attitudinal loyalty were also confirmed. Details of the data analysis are presented in Chapter 4.

1.6 Limitations

The scope of this study was to integrate previous brand loyalty research into a modified model to study the influences of service quality, customer satisfaction and brand trust on attitudinal loyalty and repurchase intentions. The model resulting from this study can be employed or adapted to evaluate any industry in any geographical market. The results obtained from this model facilitate the understanding of general loyalty relationships between customers and companies regardless of the product and brand.

The study was restricted to the smartphone industry and to its customers in Hong Kong. The findings may not be generalisable to other industries, and other geographical markets. The opinions obtained from the survey may have some bias because the respondents may have simply wanted to express their positive or negative feelings through the survey. The study thoroughly analysed several variables influencing attitudinal loyalty and repurchase intention; however, a longitudinal study could be conducted to analyse the variations in the relationships among those constructs over time.
1.7 Outline of the Report

Chapter 1 of the report presented an introduction of the study, including the research problem and questions, the significance of the study and the methodology. Chapter 2 presents the arguments that support the study, which include the concept development of relevant constructs (e.g. service quality, attitudinal loyalty and repurchase intention), and discussion of empirical studies and literature relating to brand loyalty that formed the theoretical basis of the study. Chapter 3 introduces the research methodology, including the research design, the selection of subjects, the instrument, procedures for data collection, data analysis methods, and reliability and validity tests. Chapter 4 contains the results obtained through data analysis, presenting results of means of each construct, reliability and validity tests, and standard and mediation regression tests. Chapter 5 includes a discussion of the results, implications of the results to the researcher and the profession, recommendations for future research and conclusions.
CHAPTER 2

LITERATURE REVIEW

The purpose of the literature review was to examine the major constructs involved in loyalty building in the high-tech product market, with a focus on smartphones. The study proposes that (1) service quality has a positive effect on attitudinal loyalty through the mediation of customer satisfaction and brand trust separately, (2) service quality has a positive effect on both customer satisfaction and brand trust, (3) attitudinal loyalty and brand trust have a positive effect on repurchase intention and (4) customer satisfaction and brand trust have a positive effect on attitudinal loyalty. This study examined all these constructs and the process through which customers become attitudinally loyal and have higher repurchase intentions.

To develop a model of brand loyalty and repurchase intentions for the smartphone industry in Hong Kong, the literature on the historical and updated perspective of the major constructs influencing attitudinal loyalty and repurchase intention was examined. Specifically, this literature review includes an historic review of the development of different types of brand loyalty (i.e. attitudinal loyalty and behavioural loyalty); an explanation of the difference between attitudinal loyalty and repurchase intention; and a detailed review of the relationships among service quality, customer satisfaction, brand trust, attitudinal loyalty and repurchase intention. How service quality, customer satisfaction and brand trust eventually influence attitudinal loyalty and repurchase intention is the focus throughout the discussion in this chapter.
A conceptual model that examines the relationships is shown in Figure 2.1. The study focuses on attitudinal loyalty and its antecedents, that is, service quality, brand trust and customer satisfaction, and how repurchase intention is affected by attitudinal loyalty and brand trust separately. This chapter discusses how the model and hypotheses were developed through a literature review of these constructs.

Figure 2.1 Proposed conceptual model

2.1 Service Quality, Customer Satisfaction and Attitudinal Loyalty

Service is a type of intangible activity that normally takes place in interactions between customers and employees of a brand (Gronroos, 2000). Service is a process in which interactions between customers and the seller most often exist (Nakhleh, 2012) and therefore is considered interpersonally relational in nature (Crosby, Evans & Cowles, 1990; Crosby & Stephens, 1987; Iacobucci & Ostrom, 1996; Ostrom & Iacobucci, 1995). Since service is intangible, customers usually assess its quality subjectively (Caceres & Paparoidamis, 2007) and thus service quality is usually defined as the
consumer’s judgement about the overall excellence or superiority of a service
(Aydin & Ozer, 2005; Bitner & Hubert, 1994; Tsoukatos & Rand, 2006; Zeithaml,
1988). Service quality is thus subjectively perceived by customers during the
interactions with the seller (Gronroos, 2000). Customers may have satisfaction
when the seller provides better services than they expected (Nakhleh, 2012). In
other words, the customer is interested in the way the service is provided
(Gronroos, 1984), and thus the attitudes, behaviour, professionalism and skills of
the employees will affect the customer’s view of the service (Gronroos, 1988).
As a result, customer perceptions of the service quality provided by the
employees will greatly affect customer satisfaction (Bitner, Booms & Mohr, 1994;
Goff, Boles, Bellenger & Stojack, 1997; Iacobucci & Ostrom, 1996; Rust &
Zahorik, 1993; Westbrook, 1981). Customers will perceive the service quality as
high when the employees of the seller have the knowledge and skills required to
solve their problems, are interested in solving them and perform with their best
interests at heart (Gronroos, 1988).

Service quality is important for the smartphone industry because of its
rapidly evolving nature and short product cycle (Tseng & Lo, 2011). Smartphone
companies need to upgrade their products regularly by adding new features to
enhance their competitiveness. Faced with additional functionality and enlarged
complexity, smartphone users are likely to encounter more problems than they
have in the past (Sangareddy, Jha, Ye & Desouze, 2009). Therefore, many more
personal services are required by customers, which involve, for example,
guiding them in using the new features (Sharma & Ojha, 2004), helping them to
solve the usage problems they encounter with such a high-tech product, and
handling their various enquiries and complaints (Chiou & Droge, 2006; Teas,
In the context of the smartphone market, responsiveness, reliability and assurance are considered critical service elements that can affect customer satisfaction and in turn affect customer loyalty (Shin, 2014, 2015). These elements are in line with the broadly applied service quality framework SERVQUAL, developed by Parasuraman et al. (1988). Applying the definitions provided by Parasuraman et al. (1988), reliability means the ‘ability to perform the promised service dependably and accurately’ (p. 23), responsiveness means ‘willingness to help customers and provide prompt service’ (p. 23) and assurance means ‘knowledge and courtesy of employees and their ability to inspire trust and confidence’ (p. 23). Since these service elements are critical for smartphone services to influence customer satisfaction, which in turn affects customer loyalty, it is important for smartphone companies to enhance these elements. Thus, further study on the effect of service quality in the smartphone industry is relevant. This study aimed to evaluate how service quality affects customer satisfaction, which in turn affects attitudinal loyalty specifically.

Good service quality offers value to customers and helps them to decide whether the service justifies the cost, which creates a direct link between service quality and satisfaction (Ahmed et al., 2011; Chau & Kao, 2009). Service quality perceived by customers is seen as an appraisal construct that is usually followed by emotional responses such as satisfaction (Bagozzi, 1992; Carver & Scheier, 1990; Oliver, 1997, 1999). Service quality is believed to influence customer satisfaction (Patterson, Johnson & Spreng, 1997; Szymanski & Henard, 2001), and thus satisfaction can be predicted by the service quality perceived by customers (Van Montfort, Masurel & Van Rijn, 2000). Service quality is always suggested as an antecedent of customer satisfaction (Anderson, Fornell &

Service quality has been suggested as one of the means for differentiation and competitive advantage that enhance resistance to better alternatives (Aydin & Ozer, 2005; Bloemer et al., 1998; Jones, Beatty & Mothersbaugh, 2002; Venetis & Ghauri, 2000). Service quality can also enhance customers’ inclination to become less price sensitive (Venetis & Ghauri, 2000). Better service quality can help organisations to build customer loyalty and thus develop more loyal customers for the future (Cöner & Güngör, 2002; Kandampully, 1998). This means there is a direct positive relationship between service quality and loyalty. However, other literature has suggested that service quality is a necessary but not sufficient condition to build and maintain loyalty (Aydin & Ozer, 2005). Some research has confirmed that service quality has only an indirect effect on loyalty through satisfaction (Andreassen & Lindestad, 1998; Baumann, Burton, Elliott & Kehr, 2007; Caceres & Paparoidamis, 2007; Chen, 2001; Ibanez, Hartmann &
Calvo, 2006; Lee, Lee & Feick, 2001; Lim et al., 2006; Ostrowski, O’Brien & Gordon, 1993; Patterson & Spreng, 1997; Pritchard & Howard, 1997). Customer satisfaction plays a major role in connecting service quality and attitudinal loyalty (Oliver, 1999). When customers have the chance to evaluate the service quality of a brand, satisfaction is expected to have an effect on loyalty (Selnes, 1993). If the customer is unable to appreciate the value of service offered by the brand, satisfaction will have less effect on loyalty (Selnes, 1993). When customers have a positive evaluation of service quality, feelings of satisfaction will arise and then attitudinal loyalty will be developed (Ehigie, 2006). Loyalty in customers can be created through an increased level of customer satisfaction that results from superior service quality (Kim et al., 2004). To conclude, it is confirmed that service quality has an indirect effect on attitudinal loyalty through satisfaction (Chiou & Droge, 2006).

To summarise, an investigation of how service quality affects attitudinal loyalty through customer satisfaction was relevant for this study because similar investigations of how service quality affects customer loyalty have been conducted previously for the smartphone market. In addition, different conclusions have been drawn on the relationship among service quality, customer satisfaction and attitudinal loyalty. Some studies have suggested that service quality affects attitudinal loyalty directly, while others have suggested that customer satisfaction mediates the relationship between service quality and attitudinal loyalty. There is a need to clarify how service quality affects customer satisfaction and attitudinal loyalty in the context of the smartphone market.

To be sustainable and grow, companies have to provide a high level of service quality to retain customers (Sharma & Singh, 2012). In addition, service
quality can primarily be controlled by the seller (Baker & Crompton, 2000). Sellers can determine how they provide the service to satisfy customers. Therefore, it is worthwhile investigating whether higher levels of service quality only indirectly encourage loyalty by increasing the satisfaction associated with an organisation’s services. Therefore, the following hypotheses were formulated:

Hypothesis 1 (H1): Service quality has a positive effect on customer satisfaction.

Hypothesis 2 (H2): Customer satisfaction will mediate the relationship between service quality and attitudinal loyalty.

2.2 Customer Satisfaction and Attitudinal Loyalty

Satisfaction is the evaluation of an experience with products and services (Akhter, 2010), that is, the post-usage evaluation of state or feelings towards a brand (Olsen et al., 2005; Zeithaml & Bitner, 2003). Customer satisfaction can then be likened to ‘customer feeling of pleasure or disappointment as a result of experience’ (Ogba & Tan, 2009, p. 134). To be specific, it is defined as ‘a consumer’s feeling that consumption provides results against a pattern of pleasure versus displeasure’ (Oliver, 1999, p. 34). This means it is the extent to which customers are satisfied or dissatisfied with a brand or service provided by a company (Ogba & Tan, 2009). Therefore, satisfaction is tied to consumers’ psychological interpretations of a brand’s performance (Oliver, 1997). Customer satisfaction is important to many companies because it is generally suggested to be a significant determinant of brand loyalty (e.g. Dixon, Bridson, Evans & Morrison, 2005). It is also important to customers because it reflects a positive outcome following the expenses of the brands or the positive fulfilment of prior
needs through the brands (Mauri, 2005). Therefore, it is important for both the company and the customer to maximise satisfaction.

The effect of customer satisfaction on loyalty is complex (Ehigie, 2006). There is debate in the literature regarding whether satisfaction has a direct effect on loyalty. The first view suggests that customer satisfaction does not universally transform into loyalty, although it may positively influence loyalty (Oliver, 1999; Reichheld, Markey & Ho, 2000). The second view concludes that customer satisfaction leads directly to loyalty (e.g. Anderson & Sullivan, 1993; Stock, 2005).

Research supporting the first view considers that satisfaction is not sufficient to build loyalty (Agustin & Singh, 2005) even though it is necessary. Customer satisfaction only accounts for a part of brand loyalty (Fisher, 2001). Customers who are satisfied with service quality may switch brands (Keaveney, 1995) because a satisfied customer may not be loyal owing to situational factors such as a competitor’s promotion or discounts (Reichheld et al., 2000; Suh & Yi, 2006). An increase in satisfaction may not lead to an equal increase in loyalty for all customers (Soderlund & Vilgon, 1999). Therefore, satisfaction has no direct effect on attitudinal loyalty (Carpenter & Fairhurst, 2005; Oliver, 1999). Satisfied customers may not be loyal to a particular brand because they may hold similar positive attitudes towards a brand and its alternatives (Day, 1969; Jacoby, 1971, Jacoby & Olson, 1970; Dick & Basu, 1994). Satisfaction can exist without loyalty (Oliver, 1999) and a satisfied customer may even defect (Kassim & Ismail, 2009; Rowley & Dawes, 2000). There is evidence that organisations with a high customer satisfaction rate may have a high customer defection rate (Finn, 2006). Even if the customer is satisfied with the brand, brand-switching behaviour can
take place if the customer likes to look for variety or novelty (McAlister & Pessemier, 1982). This phenomenon is particularly possible for products such as smartphones, for which there is usually a demand for novelty features. Because smartphone technologies keep advancing, smartphone companies can launch new models with new features and improved outlook nearly every 12 months to the market (Frost & Sullivan, 2014). Consequently, even if smartphone customers are satisfied with smartphone brands, they will switch brands when they want novelties from the new smartphone models (Stremersch et al., 2010). Conversely, a temporarily dissatisfied customer may remain loyal (Day, 1969; Jones & Sasser, 1995). This may be because the seller has a loyalty programme that offers benefits to retain the members (Bolton et al., 2000). To conclude, according to some research, there may not be a direct relationship between customer satisfaction and loyalty.

The second view suggests that customer satisfaction is a key performance indicator of relationship quality and satisfying customers increases the likelihood of their staying in the relationship (Mouri, 2005; Reichheld, 1993). Since satisfaction is an ‘affective’ attitude and attitudinal loyalty is a ‘conative’ construct, the former normally affects the latter (Ajzen & Fishbein, 1980; Bansal, Taylor & James, 2005). Therefore, the direct effect of satisfaction on attitudinal loyalty was investigated. Customer satisfaction can influence attitudinal loyalty (Harris & Goode, 2004; Olsen, 2002) and higher satisfaction can bring a higher level of attitudinal loyalty (Anderson & Sullivan, 1993; Fornell, 1992). Satisfied customers will develop attitudinal loyalty because they are usually less price sensitive (Junaid-ul-haq, Abrar & Nasir, 2013; Stock, 2005) and even willing to pay a higher price (Homburg, Koschat & Hoyer, 2005; Oliver, 1997; Reichheld,
Customer satisfaction reduces price sensitivity by reducing price elasticity (Anderson, 1996; Garvin, 1988). The price elasticity of satisfied customers is reduced and they also display greater competitive resistance (Anderson et al., 1994; Fornell, 1992). Other research also supports the notion that satisfied customers are more likely to resist competitive offers (Anderson & Sullivan, 1993; Bolton, 1998; Bolton & Lemon, 1999; Cronin & Taylor, 1992; Hennig-Thurau, Gwinner & Gremler, 2002; Zeithaml et al., 1996). Therefore, customer satisfaction is further considered one of the determinants of brand loyalty (Sahin et al., 2011), the fundamental role for loyalty (Jamal & Naser, 2002) and the leading determinant of loyalty (Anderson & Fornell, 1994; Bitner, 1990; Dixon et al., 2005; Jackson, 1985; Mittal & Kamakura, 2001; Rust & Zahorik, 1993; Szymanski & Henard, 2001). Satisfaction is effective in creating brand loyalty (Cronin, Brady & Hult, 2000; Cronin & Taylor, 1992; Dick & Basu, 1994; Fornell et al., 1996; Szymanski & Henard, 2001) because it can direct customers’ decisions about repeat purchases (Cronin & Taylor, 1992). Attitudinal loyalty can further be improved by customer satisfaction because satisfied customers will not easily switch to competitors (Junaid-ul-haq et al., 2013). Conversely, dissatisfied customers will search for alternatives and are more likely to switch to competitors than satisfied customers are (Anderson & Srinivasan, 2003). As the smartphone market is highly competitive, customers can easily search for many alternatives and make switching decisions (Lin & Huang, 2014). Therefore, it is particularly important for smartphone companies to place more emphasis on customer satisfaction. Some studies have been conducted on the particular relationship between satisfaction and attitudinal loyalty and have confirmed that satisfaction has a positive effect on attitudinal loyalty (Bove & Mitzifiris, 2007;
Cheng, 2011; Chiou & Droge, 2006; Lam et al., 2004; Rauyruen & Miller, 2007; Russell-Bennett et al., 2007; Taylor, Celuch & Goodwin, 2004; Zeithaml et al., 1996). In the context of smartphone usage, customers are likely to keep using a phone when they are satisfied (Lee et al., 2015). Consequently, customer satisfaction was expected to have a positive effect on attitudinal loyalty in the smartphone market.

In conclusion, the relationship between customer satisfaction and loyalty is complex, particularly in the smartphone market. Some studies have confirmed the direct relationship between customer satisfaction and loyalty in the smartphone market (Lee et al., 2015). However, other studies have suggested that satisfied customers may switch brands when they look for variety or novelty (McAlister & Pessemier, 1982), and this phenomenon is possible in the smartphone market (Stremersch et al., 2010). The problem may lie in the multidimensional structure of the loyalty construct (Taylor et al., 2006) and the ignorance of differences among various types of loyalty (Bloemer & Kasper, 1995). In addition, factors such as industry type will affect the relationship between customer satisfaction and loyalty (Fornell, 1992). Industries that involve high technology such as the smartphone industry will strengthen the relationship between customer satisfaction and loyalty (Jones & Sasser, 1995). In view of the contradictory evidence identified, it can be concluded that satisfaction may not have been explored deeply enough to verify that true loyalty exists (Kassim & Ismail, 2009). Therefore, additional research is needed to enhance the understanding of the relationship between the two constructs in the smartphone industry. This study focused on attitudinal loyalty to provide a clear base for the
investigation of the relationship between satisfaction and attitudinal loyalty. Therefore, the following hypothesis was proposed:

Hypothesis 3 (H3): Customer satisfaction has a positive effect on attitudinal loyalty.

2.3 Attitudinal Loyalty and Repurchase Intention

The extant literature provides a comprehensive definition of loyalty and its approaches. The commonly cited definition of loyalty was developed by Oliver (1999), who defined brand loyalty as:

A deeply held commitment to rebuy or repatronize a preferred product/service consistently in the future, thereby causing repetitive same-brand or same-brand set purchasing, despite situational influences and marketing efforts having the potential to cause switching behaviors. (p. 34)

This definition adequately captures the concepts of both behavioural and attitudinal loyalty (Taylor et al., 2006) and increases the predictive ability of loyalty (Baldinger & Rubinson, 1996; Pritchard & Howard, 1997). Behavioural loyalty is viewed purely as repurchase of the brand (Gill & Dawra, 2010), whereas commitment and resistance to switching are elements of attitudinal loyalty. This definition also indicates the causal relationship between attitudinal loyalty and behavioural loyalty. The statement ‘commitment to rebuy . . . causing repetitive . . . purchasing’ indicates that attitudinal loyalty causes behavioural loyalty. Loyalty is also viewed as the strength of the relationship between customers’ relative attitudes and their repeat purchases (Dick & Basu, 1994). It further indicates that attitude and repeat purchase behaviour towards a brand form a relationship in which behavioural loyalty is influenced by attitudinal loyalty (Bandyopadhyay & Martell, 2007). Therefore, another approach to analysing
loyalty is to investigate the attitude–behaviour relationship rather than considering them together as elements of loyalty. To examine the behavioural loyalty of smartphone customers, detailed information such as actual sales quantity and the amount of smartphones sold, number of customers who have bought the smartphone, and purchasing frequency by brands and by customers should be obtained from different smartphone companies. However, it would be very difficult to obtain such confidential information because the companies are usually not willing to release such information. Moreover, purchase intention is considered a strong proxy of actual purchase (Wiedenfels, 2009). Therefore, repurchase intention was used in this study as a surrogate behavioural measure, which can be obtained directly from the customers. To conclude, instead of examining the attitude–behaviour relationship, which would be difficult in the smartphone industry, the relationship between attitudinal loyalty and repurchase intention were examined. The following subsections provide a detailed argument to support such an investigation.

2.3.1. Two Aspects of Loyalty

As discussed in the previous section, some contradictory findings were caused by the multidimensional structure of the loyalty construct (Taylor et al., 2006) and the ignorance of differences among different types of loyalty (Bloemer & Kasper, 1995). Therefore, an explanation of the major types of loyalty is provided so that a clear understanding of loyalty concepts can be developed and the use of attitudinal loyalty in this study can be clearly justified. This section provides an explanation of the two main types of brand loyalty commonly
identified in many prior studies. Section 2.3.2 provides justification for choosing attitudinal loyalty in this study.

Earlier research has defined brand loyalty purely from a behavioural perspective with the assumption that repeat purchase behaviour can capture customer loyalty towards the brand of interest (e.g. Blattberg & Sen, 1974; Ehrenberg, Goodhardt & Barwise, 1990; Kahn, Kalwani & Morrison, 1986). From the behavioural aspect, loyalty ‘relates to the conversion of intentions to action’ (Harris & Goode, 2004, p. 141) and thus is concerned with what customers actually do in terms of purchasing (Dekimpe, Steenkampe, Mellens & Abeele, 1997) and the action of repurchase (Russell-Bennett, et al., 2007). It is reflected in the customer’s actual repeat purchase behaviour (Ehrenberg, 1988; Gill & Dawra, 2010; Hennig-Thurau et al., 2002; Keller, 1998), which can be measured by share of purchase (Schoell & Guiltinan, 1990), number of repeated purchases (Keller, 1998), volume of same-brand purchasing (Tellis, 1988), and purchase frequency and regularity of a brand over time (Bandyopadhyay, Gupta & Dube, 2005; Cunningham, 1956; Powers & Valentine, 2008). Brand loyalty has thus long been considered the repeated buying behaviour towards the same brand (Amine, 1998). However, the approach of equating behaviour patterns with loyalty has been challenged (Newman, 1966). A loyal customer’s purchase may be hindered by some situational factors such as stock-out and non-availability (Bandyopadhyay & Martell, 2007). Behavioural loyalty is useful, but it does not enable researchers to differentiate the various buying situations and personal motives that may induce customers to buy the same brand over time (Amine, 1998). It cannot help to provide an explanation of the repeat purchase behaviour observed and thus it has less of an explanatory and predictive effect (Amine,
More researchers have acknowledged that the concept of brand loyalty cannot be measured by purchase frequency and proportion alone. For brand loyalty to be true, it is necessary to verify that repeat purchase is intentional and will be continued in the future (Amine, 1998). Such differentiation warns companies that they need to know whether the repeat purchasing will continue or will stop when there is a situational change. Many more recent studies have included ‘attitude’ along with behaviour to define brand loyalty and proposed two aspects of brand loyalty, namely, attitudinal loyalty and behavioural loyalty (Aaker, 1991; Assael, 1998; Day, 1969; Dick & Basu, 1994; Jacoby & Chestnut, 1978; Jacoby & Kyner, 1973; Oliver, 1997, 1999; Olsen, 2002). Brand loyalty measures have evolved to include attitudinal measurements in addition to behavioural indicators (Amine, 1998). Attitudinal loyalty means the attitude (Lim & Razzaque, 1997), beliefs and disposition of a customer towards a brand (Gill & Dawra, 2010). It is the extent of a customer’s psychological attachment and attitudinal advocacy towards the brand (Rauyruen & Miller, 2007). It concerns favour or disfavour towards a brand (Berger & Mitchell, 1989; Jacoby & Chestnut, 1978; Oliver, 1997; Powers & Valentine, 2008) and customer intentions to be loyal to the brand (Pappu, Quester & Cooksey, 2005). It includes attitudinal preference (Jacoby & Chestnut, 1978), commitment (Chaudhuri & Holbrook, 2001) and strong positive attitude (Fitzgibbon & White, 2005) towards the brand. It relates to a degree of dispositional or psychological commitment to repurchase the brand (Caceres & Paparoidamis, 2007; Russell-Bennett et al., 2007). Customers with strong attitudinal loyalty have strong internal dispositions to continue buying the same brand (Day, 1969). This can be derived from psychological involvement and preference and can be measured by a favourable
attitude towards the brand (Dick & Basu, 1994), for example, how much they feel committed to the brand (Kassim & Ismail, 2009), their resistance to switching to a competitor’s product (Narayandas, 1996), and their positive beliefs and feelings about the brand (Donio, Massari & Passiantedabho, 2006). Customers ‘with a strong, favourable attitude should be more willing to pay premium prices for the brand’ (Keller, 1993, p. 9). In other words, customers are willing to pay a higher price for a brand than for an alternative offer when they have attitudinal loyalty towards that brand (Chaudhuri & Holbrook, 2001) and thus attitudinal loyalty can also be measured by willingness to pay a premium price (Narayandas, 1996; Zeithaml et al., 1996).

2.3.2 Why Attitudinal Loyalty was Chosen in the Study

As discussed, behavioural loyalty is concerned with the action of repurchase (Russell-Bennett et al., 2007). However, a customer’s repeat purchase behaviour may not necessarily be due to a continuous feeling of satisfaction or a real intention to stay with a brand (Ogba & Tan, 2009); instead, it may be caused by the promotion of other brands (Hellier et al., 2003). Customers may also keep buying a brand because of inertia (Bloemer & Kasper, 1995), habit (East, 1997; Jacoby & Kyner, 1973; Bei & Chiao, 2001), convenience (Jacoby & Chestnut, 1978; Bei & Chiao, 2001), great barriers to change (Fitzgibbon & White, 2005), or a lack of alternatives (Bei & Chiao, 2001). Even though behavioural loyalty involves long- or short-term repeat purchases of a brand (Ogba & Tan, 2009), it can exist as a result of simple habitual purchasing (Assael, 1998), which enables the customer to cope with time pressures and reduce search efforts more effectively (East, 1997). The view of
repeat purchasing being an expression of loyalty is incomplete unless it is complemented with a positive attitude towards the brand (Amine, 1998). It is such a positive attitude that ensures previous purchase behaviour will continue (Amine, 1998; Bandyopadhyay & Martell, 2007). Therefore, behavioural loyalty is not sufficient to understand the factors underlying brand loyal purchase behaviour (Dick & Basu, 1994). A customer who repeatedly purchases the same brand but does not also demonstrate a favourable attitude towards a brand may switch to another brand (Bloemer & Kasper, 1995). Behavioural loyalty is thus inadequate to explain how and why loyalty is developed or modified (Bandyopadhyay & Martell, 2007).

Behavioural loyalty takes into consideration repeat purchase behaviour by basing it only on the customer's purchase history, and hence it focuses on the past rather than on future actions (Dimitriades, 2006). To measure the behavioural loyalty of smartphone customers, accurate data such as the exact money spent on and purchase frequency of the smartphone brands must be collected. If such data were collected through a survey with smartphone users, the results may not be reliable enough owing to possible memory distortion. The most accurate data can only be collected from the databases of smartphone companies, but this would be very difficult for researchers because the companies are not willing to release such confidential information. Repurchase intention was thus employed in this study as a proxy for repurchase behaviour (loyalty in behavioural aspects) because intention is a strong predictor of actual purchase behaviour (Fishbein & Ajzen, 1975; Jones & Sasser, 1995; Keller, 2003). Further argument is provided in the next section. To summarise, because of the limited predictive value of behavioural loyalty and the difficulties involved
in obtaining accurate data measuring behavioural loyalty, it is more beneficial to study attitudinal loyalty in the smartphone market.

Attitudinal loyalty represents the long-term commitment of a customer to a brand, which can drive continuous and more enduring repeat purchase behaviour (Bandyopadhyay & Martell, 2007; Caceres & Paparoidamis, 2007; Lau & Lee, 1999). Therefore, attitudinal loyalty should be more important than behavioural loyalty. To achieve true loyalty, there must be a strong ‘attitudinal commitment’ to the brand (Jacoby & Chestnut, 1978). Customers with attitudinal loyalty are those who have a favourable attitude and thus emotional attachment to the brand (Uncles, Dowling & Hammond, 2003) and are therefore much less susceptible to negative information about the brand (Donio et al., 2006; Kassim & Ismail, 2009). Thus, attitudinally loyal customers have greater tolerance of negative experiences and lower price sensitivity, which infers a lower probability of switching to competitors because of negative experiences or the higher price of a brand (Fitzgibbon & White, 2005). This implies that attitudinally loyal customers are more profitable because they will keep buying the brand even when no incentive is offered, and thus the seller does not need to offer promotions or price discounts continually to generate repurchase (Fitzgibbon & White, 2005). Attitudinal loyalty can also influence behavioural loyalty (Bandyopadhyay & Martell, 2007) and even lead to behavioural loyalty (Liska, 1984; Russell-Bennett et al., 2007).

To conclude, consistent purchasing may be an invalid indicator of loyalty and it is unwise to infer loyalty solely from repeat purchase behaviour (Jacoby & Chestnut, 1978). To identify true brand loyalty, customer beliefs and affect within the customer attitude structure should be assessed (Oliver, 1999). Attitudinal
loyalty can be distinguished from repeat purchase behaviour through the notion of commitment (Amine, 1998). Therefore, managing attitudinal loyalty can allow companies to identify customers who may keep buying from competitors owing to exit barriers and thus are vulnerable to change (Reichheld, 1996). This will enhance the ability of companies to acquire new customers, in addition to retaining customers. In the context of the smartphone market, customers treat their smartphones as constant companions that are used every day (Shankar & Balasubramanian, 2009). Therefore, customers can easily build emotional attachment with their smartphones (Lam & Shankar, 2014). Once customers feel emotionally attached to a smartphone brand, attitudinal loyalty to the brand is developed. Since the smartphone has become a ubiquitous communication device in people’s daily lives, it is easier for users to develop attitudinal loyalty before they intend to buy the same brand again. Therefore, attitudinal loyalty is relevant and important in the study of smartphone loyalty.

2.3.3 Repurchase Intention and Its Relationship with Attitudinal Loyalty

Repurchase intention is a measure of the likelihood of future repurchase of the same product or service (Jones & Sasser, 1995; Lin & Liang, 2011; Seiders et al., 2005) or the intent to stay with an organisation (Zeithaml et al., 1996). It reflects the predictable purchase decision in the more immediate future (Espejel, Fandos & Flavian, 2008). Thus, it can be measured with the probability of future repurchase (Davidow, 2003). It indicates people’s willingness to purchase from the same company again, taking into account their previous experiences (Hellier et al., 2003). The taxonomy of loyalty aspects may be most similar to that of repurchase intention aspects in nature (Zboja & Voorhees, 2006). For example,
repurchase intentions are used as an element of brand loyalty (Delgado-Ballester & Munuera-Aleman, 2001; Macintosh & Lockshin, 1997). Conative loyalty, one of the phases of attitudinal loyalty development, was operationalised as repurchase intention by Oliver (1997). In addition, repurchase intention was used as one of the measures of attitudinal loyalty by Anderson and Sullivan (1993), Aydin and Ozer (2005), and Cronin and Taylor (1992). Although attitudinal loyalty and repurchase intention are related, they are distinguishable (Hong & Cho, 2011). Attitudinal loyalty is more about the customer’s positive disposition or psychological commitment to the seller, and thus it should grow stronger as the customer’s attitude towards the brand becomes more favourable (Kassim & Abdullah, 2010). Repurchase intention denotes behavioural intention to repeat purchase (Hong & Cho, 2011). A customer who has expressed an intention to buy a brand again will be more likely to repurchase the brand (Perugini & Bagozzi, 2001). Repurchase intention thus reflects a customer’s motivation or conscious plan to exert effort to carry out a repurchase behaviour (Eagly & Chaiken, 1993) and thus it has behavioural consequences (Akhter, 2010). Customers with high repurchase intention will keep buying from the same seller and typically with a higher level of spending (Khan, Naumann & Williams, 2012). Thus, the behavioural intention to repeat a purchase should not be measured by attitudinal loyalty, but by repurchase intention, and it has been found that attitudinal loyalty can affect repurchase intention (Hong & Cho, 2011). Some studies have confirmed that the purchase intention towards a brand depends on the attitudes and beliefs about the brand (Fishbein & Ajzen, 1975, 1980). In addition, some studies have confirmed that attitudinal loyalty has a positive and significant effect on behaviour intentions such as repurchase
intention (Harris & Goode, 2004; Johnson, Herrmann & Huber, 2006). The stronger the attitudinal loyalty developed by customers, the stronger the intention will be for those customers to repurchase the brand (Kassim & Ismail, 2009). Thus, attitudinal loyalty is the primary driver of intention to repurchase (Tolba & Hassan, 2009). In the context of the smartphone industry, it has been found that brand loyalty towards a smartphone brand is the most important factor considered by customers when they purchase a smartphone (Muhammad et al., 2014). In a survey conducted on the smartphone market by the market research firm GfK, a large proportion of respondents (84 per cent) who were using an Apple iPhone indicated that they had emotional attachment to the iPhone and thus had a higher intention to repurchase the brand (GfK, 2011). Therefore, it was expected that general smartphone customers with attitudinal loyalty to their current smartphone brands would have higher repurchase intention. According to these studies, repurchase intention has a relationship with attitudinal loyalty, although such a relationship appears to be quite confusing. However, repurchase intention is considered a strong predictor of actual purchase behaviour by more updated studies (Fishbein & Ajzen, 1975; Jones & Sasser, 1995; Keller, 2003; Keiningham, Cooil, Aksoy, Andreassen & Weiner, 2007; Leingpibul et al., 2009; Lin & Liang, 2011; Seiders et al., 2005). It has been found that a customer’s buying behaviour is motivated by favourable and positive intentions towards the brand (Yoo & Bai, in press), and thus the stronger the repurchase intention, the higher the probability of an actual purchase (Akhter, 2010; Chen et al., 2012). Further, some prior studies have confirmed that behaviour intentions such as repurchase intention can predict purchase behaviour, especially in moderate–high involvement contexts (East, Gendall,
such as mobile phones (Goode, Davies, Moutinho & Jamal, 2005; Sharma & Ojha, 2004; Turnbull, Leek & Ying, 2000). Since actual purchase behaviour should be the ultimate objective of loyalty building (Gill & Dawra, 2010; Keller, 1998), it is useful to examine further how repurchase intention actually derives from attitudinal loyalty. Moreover, both attitudinal loyalty and repurchase intention have relevance for the smartphone industry. Therefore, it is worthwhile measuring how repurchase intention works independently from or is affected by attitudinal loyalty in the context of the smartphone market. Therefore, the following hypothesis was formulated:

Hypothesis 4 (H4): Attitudinal loyalty has a positive effect on repurchase intention.

2.4 Service Quality and Brand Trust

Brand trust is defined as the confident belief or expectation held by a customer that a seller is competent and dependable (Johnson & Grayson, 2005) and can be relied on to deliver promised services (Agustin & Singh, 2005; Sahin et al., 2011; Sirdeshmukh et al., 2002). Brand trust is also defined as 'a consumer’s willingness to rely on the brand in the face of risk because of expectations that the brand will cause positive outcomes' (Lau & Lee, 1999, p. 344). Trust is thus viewed as a belief, sentiment or expectation about a seller’s trustworthiness and integrity that results from the seller’s expertise or reliability (Caceres & Paparoidamis, 2007; Zehir et al., 2011). Therefore, beliefs about reliability, expectation fulfilment and honesty are important facets of operationalised trust (Chaudhuri & Holbrook, 2001). Trust is particularly influential for long-term relationships when customers need to make decisions
about expensive investments (Elliot & Yannopoulou, 2007) or costly choices (Garbarino & Johnson, 1999) such as the purchase of a smartphone. Brand trust is thus a mental mechanism through which customers reduce uncertain risks associated with brand choice (Matzler et al., 2008). For high-technology products such as smartphones, customers will generally perceive a high degree of uncertainty (Parasuraman & Colby, 2001). Since they use smartphones to store and share personal information and connect with other people, they are particularly concerned about whether the smartphone companies can ensure security in the use of the smartphone (Lam & Shankar, 2014). However, when more trust is built with a brand, the uncertainty can be reduced (Chaudhuri & Holbrook, 2001). Therefore, trust is important and relevant in the study of the smartphone market.

Trust is a multidimensional concept that includes two main components, namely, brand reliability and brand intentionality (Delgado-Ballester & Munuera-Aleman, 2003). Brand reliability is the extent to which customers believe that the brand accomplishes its value promised and meets their expectations. In the service quality context, reliability covers area such as ‘doing it right the first time’ and repeated performance over time (Davis & Mentzer, 2006). Customers may be willing to rely on a brand with brand competence that is able to solve their problems and meet their needs (Lau & Lee, 1999). The concept of brand reliability is in line with the ‘reliability’ dimension of the well-known service quality framework SERVQUAL, developed by Parasuraman et al. (1988). Reliability in SERVQUAL means the ‘ability to perform the promised service dependably and accurately’ (Parasuraman et al., 1988, p. 23). Smartphone customers are usually concerned about whether smartphone
companies fulfil this dimension (Shin, 2014, 2015). Therefore, if a smartphone company can perform the promised service right the first time, customers will trust that the company will accomplish the value promised and meet their expectations. The second component of brand trust is brand intentionality, which is defined as ‘the attribution of good intentions of the brand in relation to the consumers’ interests and welfare’ (Delgado-Ballester & Munuera-Aleman, 2005, p. 188). It is based on the extent to which customers feel confident that the brand will treat their interests with priority over its self-interest when unexpected problems with usage of the product arise (Delgado-Ballester, 2004). It also reflects the belief that the brand will compensate a customer in some way for problems with the product (Hawass, 2013). The concept of brand intentionality is in line with the ‘responsiveness’ dimension of the well-known service quality framework SERVQUAL, developed by Parasuraman et al. (1988). Responsiveness in SERVQUAL means the ‘willingness to help customers and provide prompt service’ (Parasuraman et al., 1988, p. 23). Smartphone customers are concerned about whether smartphone companies are willing to help them and provide prompt service (Shin, 2014, 2015). If smartphone companies can provide prompt service and assistance, customers will trust that the companies will treat customers’ interests with priority over their self-interest. Therefore, overall, service quality was expected to affect brand trust in the smartphone market. Competitive advantage in service can be developed when smartphone companies build trust through service quality (De Ruyter, Moorman & Lemmink, 2001).

The direct link between service quality and trust has been explored and some contradictory results have been found. Many studies have supported the
direct relationship between service quality and trust, but others have not. Studies supporting the direct relationship between service quality and trust have noted that an increased level of interaction between consumers and the brand is fundamental for building trust (Schau, Muniz & Arnould, 2009; Wang & Emurian, 2005; Zhou, 2012). Service quality is one of the criteria evaluated by customers before they build trust with a seller (Doney & Cannon, 1997) and this is the evaluation of their own direct experiences with the seller (Singh & Sirdeshmukh, 2000). Trust will occur when customers believe that the seller will perform the service according to their expectations (Kassim & Ismail, 2009) and act to produce positive outcomes for them through the services provided (Anderson & Narus, 1996; Nakhleh, 2012). This implies that service quality may build customers’ beliefs and, further, will have a positive effect on trust (Roostika, 2011). When customers feel that the seller is concerned about their interest and is willing to satisfy their desires, they will perceive that the seller can be trusted (Liang & Wang, 2008). Consequently, service quality has been confirmed as having a positive effect on trust (Aydin & Ozer, 2005).

Companies that produce high-technology products such as smartphones need to provide many personal services. This is because technologies keep advancing, and thus, from time to time, their customers will have problems or enquiries about hardware maintenance, and software operation and upgrading. All these involve repeated interactions with customers (Chiou & Droge, 2006; Teas, 1993). The customer’s experience in interacting with the brand will influence trust building (Kassim & Ismail, 2009), and repeated interactions are critical in developing trust (Mosavi & Kenarehfard, 2013). Trust starts to be built with customers when they have a positive experience with the service quality
and receive benefits from the service (Aydin, Ozer & Arasil, 2005; Nakhleh, 2012; Wong & Sohal, 2006). Brand trust can be built upon professional personal service delivered through frequent interaction between the staff and customers of the brand (Gronroos, 2000). Professionalism can be demonstrated by having the customers’ best interest at heart, and by having the skills to understand and solve customers’ problems honestly (Beatty, Mayer, Coleman, Reynolds & Lee, 1996). The direct relationship between service quality and trust has been confirmed in quite a number of studies in different contexts, such as the mobile telecommunication industry (Aydin & Ozer, 2005), automotive industry (Zehir et al., 2011), and business-to-business context (Sultan & Mooraj, 2001). However, other studies have found that there is no significant relationship between service quality and trust in the online pharmacy sector, and thus product category should influence the relationship between quality and trust (Chen et al., 2012).

Considering the contradictory findings on the relationship between service quality and brand trust, it was necessary to test whether service quality has a direct effect on brand trust in the smartphone industry. The results will also confirm whether product category has an influence over such relationships. Therefore, the following hypothesis was proposed:

Hypothesis 5 (H5): Service quality has a positive effect on brand trust.

2.5 Brand Trust and Attitudinal Loyalty

Trust is an important attribute in relationship maintenance in different exchange contexts (Verhoef, Francis & Hoekstra, 2002). One study has even suggested that ‘to gain the loyalty of the customers, you must first gain their trust’ (Reichheld & Schefter, 2000, p. 18). As discussed earlier, trust involves
confidence in the seller’s reliability and integrity. Since it can shift the relationship focus to future conditions and continuity, trust is necessary for long-term relationship building (Doney & Cannon, 1997; Ganesan, 1994) and long-term loyalty (Hess, 1995). Trust thus seems implicit for true attitudinal loyalty (Oliver, 1999). Brand trust leads to a higher level of attitudinal loyalty because trust can build bonds (McKnight et al., 2002) or long-term exchange relationships between customers and sellers that are highly valued (Morgan & Hunt, 1994). The effect of trust on attitudinal loyalty is direct and strong (Hong & Cho, 2011). Customers with trust will maintain their attitudinal loyalty and preserve relationship investments by resisting attractive short-term benefits offered by competitors (Junaid-ul-haq et al., 2013; Morgan & Hunt, 1994). Quite a number of studies have confirmed that there is a positive relationship between brand trust and attitudinal loyalty (e.g. Anuwichanont, 2010; Bove & Mitzifiris, 2007; Chaudhuri & Holbrook, 2001; Chiou & Droge, 2006; Foster & Cadogan, 2000; Laroche et al., 2012; Matzler et al., 2008; Punniyamoorthy & Raj, 2007; Rauyruen et al., 2009; Taylor et al., 2004). Moreover, many studies have recognised brand trust as an antecedent to brand loyalty in the mobile telecommunication sector and the industries of personal computers, fast-moving consumer goods, electronic appliances, food and newspapers (Aydin & Ozer, 2005; Chaudhuri & Holbrook, 2001; De Ruyter et al., 2001; Gundlach & Murphy, 1993; Punniyamoorthy & Raj, 2007). In the context of the smartphone industry, brand loyalty will be high when customers have high trust in the smartphone brands (Lam & Shankar, 2014; Lee et al., 2015). Conversely, smartphone customers are very unlikely to remain loyal if they cannot trust a brand (Lee et al., 2015). However, very few studies have specifically reported brand trust issues and its relationship with attitudinal
loyalty in the domain of the smartphone market. Therefore, the following hypothesis was formulated:

Hypothesis 6 (H6): Brand trust has a positive effect on attitudinal loyalty.

2.6 Brand Trust and Repurchase Intention

Trust is considered central to a customer's intention to continue an exchange relationship with a seller (Doney & Cannon, 1997) and an important factor for purchase intention (Andreassen & Lindestad, 1997; Bouhlel, Mzoughi, Hadiji & Slimane, 2011; Chang & Chen, 2008; Delgado-Ballester & Munuera-Aleman, 2001; Genfen, 2000; Hiscock, 2001; Liza, 2011; Yoon, 2002). Customers' trust influences their perceived risk, which in turn affects their willingness to buy (Jarvenpaa, Tractinsky & Vitale, 2000). If customers trust a brand, they will develop some form of positive buying intention towards the brand (Aydin & Ozer, 2005; Mayer & Davis, 1999; Pavlou & Gefen, 2004; Zboja & Voorhees, 2005). When customers have trust in a brand, they will convince themselves that the brand is worthy of purchase (Herbst et al., 2013). Some studies have suggested that customers with trust are more likely to repurchase from the same seller (e.g. Doney & Cannon, 1997; Hess, 1995; Hiscock, 2001; Lau & Lee, 1999; Moorman, Deshpande, & Zaltman, 1993; Morgan & Hunt, 1994; Palvia, 2009). Therefore, trust has a predictive value of future behaviour (Anderson & Narus, 1990; Hsin, Huery & Chiou, 2009). It is believed that many companies have more interest in future customer behaviour than current or past customer behaviour (Rauyruen et al., 2009). Thus, future repurchase intentions should be of more interest to them (Fornell, 1992; Rust & Zahorik, 1993; Zeithaml et al., 1996). In addition, no studies have been conducted specifically
on brand trust and repurchase intentions in the smartphone industry. Therefore, it is worthwhile investigating the effect of brand trust on repurchase intentions in such a context. Thus, the following hypothesis was formulated:

Hypothesis 7 (H7): Brand trust has a positive effect on repurchase intention.

2.7 Service Quality, Brand Trust and Attitudinal Loyalty

When a company provides services, person-to-person interaction with customers is created (Czepiel & Gilmore, 1987), which leads the customers to develop a strong relationship with the company (Gronroos, 1990; Parasuraman, Zeithaml & Berry, 1985). Companies should pay attention to how to foster relationship bonds with their customers to secure reliable repeat business (Dwyer, Schurr & Oh, 1987). High-quality service requires the ability and willingness of a company to provide prompt service to customers (Zeithaml, Parasuraman & Malhotra, 2002). It reflects the company’s competence, which will induce trust. When companies can provide service based on their understanding of customer requirements, trust from customers is enhanced (Kassim & Ismail, 2009). Prompt service and service that targets their specific needs are perceived as part of the positive outcomes of high-quality service. Trust involves estimation of the ability of the company to continue meeting its promise to deliver these positive outcomes through services. In trusting a brand, customers believe the positive outcomes will continue for long period of time (Doney & Cannon, 1997). Consequently, service quality should have a positive effect on trust. In the context of the smartphone market, customers have concerns about whether smartphone companies can perform the promised service right the first time and are willing to help them and provide prompt
service (Shin, 2014, 2015). Therefore, if smartphone companies can fulfil customers’ concerns regarding service quality, brand trust can be built. Trust can help the company to preserve relationships with customers because customers with trust will look for the long-term benefits of staying with the company and resist short-term alternatives (Morgan & Hunt, 1994). Therefore, there is a positive relationship between trust and loyalty. In the context of the smartphone market, if customers cannot trust the brand, they are very unlikely to remain loyal (Lee et al., 2015). Conversely, brand loyalty is likely to be high when customers have high smartphone brand trust (Lam & Shankar, 2014; Lee et al., 2015).

Overall, in the context of the smartphone market, it was expected that service quality would affect brand trust, and brand trust would affect brand loyalty. The next relationship worthy of further study is whether brand trust will mediate the relationship between service quality and attitudinal loyalty in the smartphone market. Some studies have confirmed the indirect effect of service quality on attitudinal loyalty through trust (Chiou & Droge, 2006). However, too few empirical studies have investigated the nomological structure among service quality, trust and attitudinal loyalty (Hong & Cho, 2011; Zehir et al., 2011) in the context of the smartphone industry. One possible reason for this is the difficulty in conceptualising and measuring the construct of brand trust (Matzler et al., 2008). With more studies having been carried out on brand trust recently, a more comprehensive measure of brand trust has been developed (e.g. Sahin et al., 2011; Zehir et al., 2011). Therefore, it is worthwhile testing the relationship of these constructs in the smartphone industry. Thus, the following hypothesis was formulated:

Hypothesis 8 (H8): Brand trust will mediate the relationship between service
quality and attitudinal loyalty.

2.8 Conceptual Model

This study examined the effect of service quality, brand trust and customer satisfaction on attitudinal loyalty and repurchase intention in the Hong Kong smartphone market. Based on the results of the earlier studies discussed above, a model with eight directional hypotheses was developed for the study. In addition, a mediation effect of customer satisfaction and brand trust on the relationship between service quality and attitudinal loyalty has been suggested. Therefore, the following eight hypotheses were tested in the study:

H1: Service quality has a positive effect on customer satisfaction.
H2: Customer satisfaction will mediate the relationship between service quality and attitudinal loyalty.
H3: Customer satisfaction has a positive effect on attitudinal loyalty.
H4: Attitudinal loyalty has a positive effect on repurchase intention.
H5: Service quality has a positive effect on brand trust.
H6: Brand trust has a positive effect on attitudinal loyalty.
H7: Brand trust has a positive effect on repurchase intention.
H8: Brand trust will mediate the relationship between service quality and attitudinal loyalty.

A model representing all of the hypotheses and the mediation relationship is proposed as shown in Figure 2.2. The model posits relationships among the variables: service quality, customer satisfaction, brand trust, attitudinal loyalty and repurchase intention.
This study clarifies some contradictory findings on the relationships among different constructs in the context of the smartphone industry. Since some of the contradictory findings were caused by the ignorance of differences among various types of loyalty (Bloemer & Kasper, 1995), the study has tried to obtain more representative findings by focusing on one particular type of loyalty, namely, attitudinal loyalty. There were also confusing findings on the relationship between attitudinal loyalty and repurchase intention. The study aimed to verify the relationship between these two constructs to provide a clear base for future research. In addition, the industry type (Fornell, 1992) and product type (Chen et al., 2012) also affect the relationship among different constructs. The study focused on the smartphone industry to identify the solid relationships among different constructs in this industry.

To conclude, the proposed model adds to the extant literature by (1) focusing the study on attitudinal loyalty and examining its relationship with its antecedents, that is, service quality, brand trust and customer satisfaction in the context of the smartphone market; and (2) adding repurchase intention as a dependent variable at the end of the two relationship chains of (a) service quality, customer satisfaction and attitudinal loyalty; and (b) service quality, brand trust.
and attitudinal loyalty. Ultimately, the study aimed to identify how attitudinal loyalty and repurchase intention are affected by service quality, customer satisfaction and brand trust in the context of the smartphone industry. Accordingly, a modified model of brand loyalty was developed to enhance the understanding of loyalty building.

The study extends the understanding of the roles of attitudinal loyalty and repurchase intention in the loyalty framework. The study aimed to reveal whether attitudinal loyalty affects repurchase intention directly and thus whether they are two distinct constructs. The findings clarify the complex relationship between the two constructs identified from prior research. Therefore, the model herein provides a more specific framework for in-depth understanding of the relationship between attitudinal loyalty and repurchase intention.

The study also provides further understanding of the mediating effects that customer satisfaction and brand trust have on the relationship between service quality and attitudinal loyalty. The study investigated whether customer satisfaction or brand trust must be developed by providing high service quality before attitudinal loyalty can be built. The model developed out of the study thus provides a more comprehensive loyalty-building framework that covers key mediators between service quality and attitudinal loyalty.

The study also extends the understanding of the multiple roles played by customer satisfaction and brand trust in loyalty building by examining whether both constructs can build attitudinal loyalty directly and, at the same time, individually mediate the relationship between service quality and attitudinal loyalty. Therefore, the model developed out of the study enables a more
comprehensive understanding of the complex relationships among attitudinal loyalty and its key antecedents.

The next chapter discusses how this model was tested and whether all the hypotheses could be supported through a quantitative study using standard and mediated regression analysis.
CHAPTER 3

METHODOLOGY

This chapter presents the research design and methods used in the study, namely, sampling, data collection method, instruments and data analysis. The primary objective of the study was to test a model of brand loyalty in the smartphone industry. The research investigated the attitudes of smartphone users towards the smartphone brands they were using in terms of brand loyalty and repurchase intentions.

This was a quantitative study using standard and mediated regression analysis to explain the variance in the dependent variable. An anonymous questionnaire survey was conducted with a sample of 200 Hong Kong residents who were aged 18 and above and were smartphone users. The questionnaire (see Appendix A) was distributed through popular online platforms that could reach the samples efficiently. This chapter starts with the research design as it provides the overall direction of the study, which guided how the knowledge would be established.

3.1 Research Design

The aim of this paper was to examine the effect of service quality on attitudinal loyalty through the mediation of customer satisfaction and brand trust, and how repurchase intentions are influenced by attitudinal loyalty and brand trust in the Hong Kong smartphone market. Some prior studies have been carried out on different relationships among these variables and different theories have been developed. Therefore, a deductive-based quantitative
research approach was chosen, owing to the exploratory nature of the study and the fact that the research focused on the relationships among the identified variables. This study adopted a positivist epistemological position because the purpose was to generate hypotheses that could be tested and would therefore 'allow explanations of laws to be assessed' (Bryman & Bell, 2011, p. 15). A positivist methodology was adopted because the study attempted to explain relationships by identifying ‘causes which influence outcomes’ (Creswell, 2009, p. 7). The study started with hypotheses about the relationships among independent and dependent variables and then sought data to confirm or disconfirm the hypotheses; thus, the outcome was produced through theory testing (Easterby-Smith, Thorpe & Jackson, 2012). In addition, the aim of the positivist methodology ‘is to formulate laws, thus yielding a basis for prediction and generalization’ (Scotland, 2012, p. 10), which is in line with the aim of the study. Although a positivist methodology suited the purpose of the study, there are some disadvantages that needed to be considered. First, the implications generated for action are not obvious, as the method seeks to confirm the hypotheses established (Easterby-Smith et al., 2012). Second, while it is good to test theory, it is not good for the generation of process, meanings or theory (Easterby-Smith et al., 2012). However, the nature of the study calls for a positivist methodology and thus these disadvantages will not have affected the outcome of the study. The quantitative research approach seeks measurable and observable data on variables and thus could provide an explanation of the relationships among variables by confirming the hypotheses.

The conceptual framework was composed of analytical constructs (e.g. service quality and attitudinal loyalty) that could be used to analyse the
regularities of the data. Consequently, conclusions could be drawn on the relationships among the variables identified. In brief, knowledge of the phenomenon was developed through testing the hypotheses presented in Chapter 2.

3.2 Sample and Sampling Method

As the study aimed to analyse the effects of antecedents of loyalty in the smartphone market in Hong Kong, the population of the study were all smartphone users in Hong Kong. Therefore, nonprobability sampling was adopted. According to a survey conducted by Google’s Our Mobile Planet in 2014, Hong Kong had a very high smartphone penetration rate (62.8 per cent) in 2013 relative to the rest of the world among its adult population, between ages 18 and 64. Since the samples of the study were conveniently available, convenience sampling was adopted for the study. According to a report prepared by Go-Globe (2015), 96 per cent of smartphone users in Hong Kong surf the internet on their smartphones every day and the penetration rate of social media is 64 per cent. These convenience samples are thus individuals who are easily accessible because they are always present in the online locale, for example, in various social media discussion forums. Compared with probability sampling, convenience sampling requires less time and effort (Sue & Ritter, 2012). Convenience sampling may create doubt about the representativeness of the target population. Samples from the convenient population may indicate greater access to resources, better education or knowledge (Hedt & Pagano, 2011); any of these factors can affect the access to and assessment of expensive products such as smartphones. However, the
demographic profile of the sample recruited was quite consistent with that of the
target population. Moreover, respondents with more access to smartphones or
better education were capable of providing feedback relevant to the survey. The
convenience sample was obtained through an online survey and the participants
were recruited through online discussion forums that were opened specifically
for smartphone users. Sampling could be done from a set of people who did
something that enabled them to be sampled (Fowler, 2002; Singleton & Stratis,
2005). Many smartphone users use online discussion forums opened
specifically for them to share and seek information about smartphone features
and performance. Such online behaviour enabled them to be sampled for the
study, which was done through an online survey.

As the study focused on brand loyalty in the Hong Kong smartphone market,
the first important inclusion criterion for participants was they were current
smartphone users. This group of participants needed to have hands-on
experience in using smartphones and dealing with the suppliers of smartphone
brands. They would thus be able to provide opinions about the service quality of
the smartphone brands they were currently using and their feelings of
satisfaction, trust, loyalty and repurchase intentions towards the brands. The
next inclusion criterion for participants was that they were Hong Kong residents.
Participants living in Hong Kong would understand better how different
smartphone brands operate in the local market and thus have ideas about the
service quality provided by the smartphone brands in Hong Kong. The last
inclusion criterion for participants was that they were aged 18 years or older. This
group would be capable of deciding on their own which smartphone brands to
buy and thus would be able to provide independent opinions about their
smartphones. In short, the samples of the study were current smartphone users who were Hong Kong residents aged 18 years or older. Demographic data about residence, age and smartphone usage status were collected to verify whether the respondent fulfilled the inclusion criteria.

As regression analysis was employed for the data analysis, the sample size needed to be at least several times as large as the number of variables in the study and preferably 10 times as large (Sekaran & Bougie, 2009). As there were five variables in the study, a sample size of minimum 50 was appropriate. However, the researcher conducted the survey with 200 samples to improve understanding.

### 3.3 Data Collection Method

A questionnaire (see Appendix A) was employed because what was required from the study and how to measure the variables of interest were known. Both the questionnaire and data collection method were approved by the University of Newcastle’s ethics committee (HREC), as shown in appendix B. According to a report prepared by Go-Globe (2015), 96 per cent of smartphone users in Hong Kong surf the internet on a daily basis on their smartphones, which is the highest rate in Asia. The penetration rate of social media is 64 per cent (Facebook on the top) with users spending an average of 30 minutes on each visit (Go-Globe, 2015). Therefore, the penetration rate of different online discussion forums is high in Hong Kong and there are forums opened specifically for discussion about smartphones. ‘Smartphone forum’ is the common name for these forums and people can access them to read and post messages without the need to log in. The discussion topics usually include
where to download mobile apps for different smartphone brands, how to solve some technical problems with the use of smartphones, and comparing the prices and features of different smartphone brands. Thus, these are open forums available to anyone with an interest in various topics related to smartphones. The key idea behind open forums is allowing all interested people to share information, and the communications are many-to-many—a user may start a conversation, and then other users may join in and many others will 'see' the conversation (Murphy, Hill & Dean, 2014). As the forums operate 24 hours every day, exchange through the forums is always possible, enabling users to have high involvement in the forums. Obviously, participants of these discussion forums are users of different smartphone brands and are highly involved in the ‘smartphone’ category. The major advantage of using online discussion forums as survey sites is that they are a platform that enables access to people who share specific interests regarding products and brands (Wright, 2006). For the study, a concentrated number of smartphone users were found in the ‘Smartphone forum’ of various websites. By posting the survey to the forums, local groups of smartphone users could be easily identified and accessed. After the smartphone users participated in the survey, they became the self-selected samples. The survey was then distributed to the online discussion forums. Forums opened at facebook.com, and discuss.com.hk were the primary locations for distribution of the questionnaire and it was posted to Hong Kong groups only. There are some disadvantages to using online discussion forums as a platform for posting invitations to participate in a survey. First, members of forums might consider this type of posting offensive (Hudson & Bruckman, 2004) or ‘spam’ (Andrews, Nonnecke & Preece, 2003). This problem might also apply
to traditional survey methods such as the mailed survey. Second, the forum moderator may perceive the invitation to participate in a survey as an unwanted post and delete it (Wright, 2005). Therefore, it is important to have the forum administrators post a link to the page on the forum website or gain their consensus before posting.

3.3.1 Data Collection Process

A link to the invitation page was provided on the forum page. To verify whether the potential respondents fulfilled the inclusion criteria, three screening questions about their residence, age and whether they were currently using smartphones were posted together with the invitation. Participants who did not meet the inclusion criteria received a message notifying them of their ineligibility and thanking them for their interest in the study. Eligible participants were provided with the link to the participant information sheet (PIS) (see Appendix C). Respondents had to tick a box to indicate they had read the PIS before the questionnaire was loaded for their completion. To encourage respondents to complete the entire questionnaire, a progress indicator was posted to show how far the respondent had progressed through the questionnaire at particular points. Progress indicators are suggested as effective in reducing the number of respondents who abandon questionnaires before completion (Couper, Traugott & Lamias, 2001). Questionnaire items for each variable were placed on a screen together because there is evidence that it takes less time for respondents to complete related items when they are put on a screen together (Couper et al., 2001). Respondents also seem less inclined to leave out related questions when they are shown together on a screen (Bryman & Bell, 2011). Measures such as
cookies placed in browsers were used to block repeated attempts to screen for eligibility.

### 3.3.2 Benefits of Using Online Survey

Online surveys provide a number of benefits. First, online surveys can make the samples feel anonymous (and thus their response will not be affected by the interviewer) and free to participate at their convenience anytime and anywhere so that the samples can be reached more efficiently than through other data collection methods (Bhattacherjee, 2002). Second, online surveys can ensure the completion of the survey since mandatory responses for all survey items can be implemented (Wang & Emurian, 2005). The online system can check for required questions when the samples click the Next or Done buttons. If the respondents miss any questions, the system sends them back to the skipped question with an error message. Samples must answer all questions in order for the page to be submitted. Third, participants of online surveys posted through discussion forums are self-selected samples who tend to provide more complete and more meaningful responses than participants who are not self-selected (Hsu, Ju, Yen & Chang, 2007). Fourth, online surveys can maximise coverage of the target population in terms of respondent variety and quantity because they enable faster response time and unrestricted geographical coverage (Hsu & Lu, 2004; Tan & Teo, 2000). Finally, by collecting data through an online platform, data can be collected, entered, and stored immediately once the samples click the Submit button. There is also no need for data input as data are automatically posted to a database and provided in digital format. Data entry errors can be eliminated. In addition, since the entire process of data collection is done
automatically through web-based databases, the cost involved is minimal. Paper surveys tend to be costly, especially for large-scale surveys using mailed questionnaires (Wright, 2005). The use of online surveys can save costs by eliminating the need for paper, printing, data entry and postage (Llieva, Baron & Healey, 2002; Watt, 1999; Witmer, Colman & Katzman, 1999). Generally speaking, online surveys help to collect data faster while at the same time reducing the omission of data. There are also some disadvantages to online surveys. Apart from some basic demographic variables, little can be known about the characteristics of people who respond to online surveys, and even the demographic information may be questionable (Dillman, 2000; Stanton, 1998). However, such problems can also apply to traditional survey methods such as mailed surveys in which respondents can misrepresent their age, gender, level of income and education as easily as a person can in an online survey (Wright, 2005). People who are reached through online surveys ‘will tend to be disproportionately and systematically heavier users of the internet’ (Poynter, 2010, p. 34). Thus, online surveys may not reach those smartphone users who do not use the internet. However, according to a study conducted by Go-Globe in 2015, 96 per cent of smartphone users in Hong Kong surf the internet every day on their smartphone, and the penetration rate of social media is as high as 64 per cent. Consequently, the target population has been clearly identified and represented. Another disadvantage of online surveys relates to privacy issues: the inability of participants to control the use, retention and disposal of personal data (Cho & LaRose, 1999). To resolve this issue, the study purpose was fully disclosed before the questionnaire was loaded, and no personal identification data were collected at any point in the data collection process.
3.3.3 Ethical Considerations

The survey was done anonymously and thus it did not attempt to collect any personal identification information such as names of the respondents. Therefore, respondents would not be directly or indirectly identifiable in any report arising from the survey. In addition, the data were not processed ‘to support measures or decisions with respect to particular individuals’, or ‘in such a way that substantial damage or substantial distress is, or is likely to be, caused to any’ respondent (Section 33, Data Protection Act 1988). Under such circumstances, according to the Data Protection Act 1998 (Stationery Office, 1998), the student researcher is not required to inform the respondents about whether their personal data are processed by or on behalf of the respondents. The questionnaire was distributed through different online discussion forums. A link to the questionnaire from the forum page was provided so it could ensure identification would not be collected. Members of the forums would believe their responses really were confidential and would be treated anonymously, which was one of the advantages of this kind of web survey (Bryman & Bell, 2011).

Information such as the purpose of the research project, the name of the organisation or individual responsible for data collection, the general subject of the data collection, whether the data collection is to be recorded, who is likely to have access to recorded information, and privacy issues was provided in the PIS as part of the invitation. The provision of this information fulfils the Code of Conduct developed by the Market Research Society (2014). The PIS also explained that participation was totally the respondents’ choice and such a decision would not disadvantage them. Therefore, respondents would not feel compelled to complete the survey. Respondents would have a clear
understanding of what the study would do, how the information collected would be used and how their privacy would be protected. Respondents would also understand that there were no risks or benefits of participating in the study. Respondents had to tick a box to indicate they had read the PIS and agreed to participate in the survey before the questionnaire was loaded for their completion. As the survey was done anonymously, completion and return of the questionnaire was considered implied consent. An email contact was provided to the respondents so that they could raise any further queries. Information provided by the respondents was treated with strict confidentiality. Data were stored electronically on the student researcher’s password-protected computer and could only be accessed by the student researcher and the supervisors of the project. Data will be erased five years after the approval of the Doctor of Business Administration qualification of the student researcher. Through these measures, the student researcher has ensured that the respondents were not harmed or adversely affected by the research. Overall, the measures comply with the Marketing Research Society’s Code of Conduct (Market Research Society, 2014).

3.4 Instrument

This study examined the effect of service quality, brand trust and customer satisfaction on attitudinal loyalty and repurchase intention in the Hong Kong smartphone market. Therefore, the research question was:

How do service quality, customer satisfaction and brand trust affect attitudinal loyalty and repurchase intentions?
Under this main research question, the following sub-questions were to be answered:

1. Is there a mediating effect of customer satisfaction on the relationship between service quality and attitudinal loyalty?

2. Is there a mediating effect of brand trust on the relationship between service quality and attitudinal loyalty?

3. Are the relationships between service quality and customer satisfaction positively significant?

4. Are the relationships between service quality and brand trust positively significant?

5. How does brand trust affect attitudinal loyalty and repurchase intention?

6. How does attitudinal loyalty influence repurchase intention?

To answer the above research questions, the questionnaire of the study aimed to collect information on respondents’ judgement of a brand’s service quality, and evaluation of their trust, satisfaction, attitudinal loyalty and repurchase intention towards a brand.

The questionnaire included three major sections. Section 1 contained three control questions for screening and classifying respondents. A definition of ‘smartphone’ was provided to obtain accurate responses. Participants who met the inclusion criteria were provided with the link for further participation. Section 2 contained 29 questions developed on the assessment of variables on a seven-point Likert-scale (1 = strongly disagree; 7 = strongly agree). In order to generate a higher response rate, questionnaires should be designed to reduce the effort required by the respondents to answer them (Rolstad, Adler & Ryden,
2011). The measurement scales of the study were adopted because they had been tested by prior research and because they contributed to reducing the effort needed to complete the questionnaire by having a minimum of items in each construct. Eight items of service quality (e.g. ‘This brand performs the service right the first time’ and ‘This brand has my best interest at heart’) were drawn from the shortened SERVQUAL adopted by Chiou and Droge (2006) and Teas (1993). The shortened version of the SERVQUAL was adopted for the study because it was used in prior research and had a minimised number of items, thus reducing the effort required by respondents to answer the questionnaire. Eight items of brand trust (e.g. ‘I feel confident in this brand’ and ‘This brand meets my expectation’) were drawn from the works of Sahin et al. (2011) and Zehir et al. (2011). Five items of customer satisfaction (e.g. ‘I am satisfied with my decision to purchase this brand’ and ‘I truly enjoy my purchase of this brand’) were adopted from Oliver (1997) and Zboja and Voorhees (2006). Six items for attitudinal loyalty (e.g. ‘I consider myself to be loyal to this brand’ and ‘I am willing to pay a higher price for this brand’) were adopted from Beatty, Kahle and Homer (1988), Chaudhuri and Holbrook (2001), Matzler et al. (2008), and Yoo, Donthu and Lee (2000). Two items of repurchase intention (‘I will probably not purchase this brand again’ and ‘I will use this brand much less in the future’) were adopted from Davidow (2003). The measurement scale of repurchase intention consisted of items tested using exploratory factor analysis and reliability tests and further refined in pretests by Davidow (2003). An interval scale was used in this section as the distance between any two points on the scale could be measured. The use of the interval scale also allowed the respondents to choose among the several alternatives quickly. Prior to
responding to the items related to smartphone use, participants were given the following definition of smartphones along with examples of their features:

A mobile phone built on a mobile operating system, with more advanced computing capability and connectivity than a mobile phone. The smartphones combined the following functions with a mobile phone to form one multi-use device: personal digital assistant (PDA), portable media players, digital cameras, pocket video cameras, GPS navigation units, touchscreens and web browsers that display standard web pages as well as mobile-optimized sites.

For classification purposes, a question about the current smartphone brand in use (with a list of common smartphone brands for selection) was posted before loading the questions on variables.

Section 3 included three questions related to further demographics of the participants, namely, their gender, education level and income level. These demographics are commonly adopted in most research (e.g. Bayraktar, Tatoglu, Turkyilmaz, Delen & Zaim, 2012; Deng, Lu, Wei & Zhang, 2010; Lam & Shankar, 2014; Petruzzellis, 2010; Wang & Chang, 2011; Wang & Li, 2012) related to loyalty studies or studies on high-tech products. A limited number of items (fewer than 12 items) was used for each construct to encourage a higher response rate. A nominal scale was used for the questions about age, gender, residency and smartphone usage status in order to assign respondents to different categories. An ordinal scale was used for questions about education level and income level so that respondents could be categorised and rank ordered.

3.4.1 Variables and Measures

The following constructs were measured to test the hypotheses. The measurement scales adopted for each construct were empirically tested in
previous research related to loyalty studies and thus were considered appropriate for the study.

**Service quality.** Service in the smartphone industry involves personal services provided by the employees. This includes, for example, helping customers to solve problems, and handling various customer enquiries and complaints (Chiou & Droge, 2006; Teas, 1993). The measures for service quality thus included how well the brand dealt with different customer needs. Respondents were asked to indicate their agreement or disagreement about the quality of service offered by the smartphone brand they were using on a seven-point Likert-scale on the following questionnaire items:

1. When I have a problem, this brand shows a sincere interest in solving it.
2. This brand performs the service right the first time.
3. Employees of this brand give me prompt service.
4. Employees of this brand are never too busy to respond to my request.
5. Employees of this brand are consistently courteous.
6. Employees of this brand can answer my questions.
7. Employees of this brand understand my specific needs.
8. This brand has my best interest at heart.

**Brand trust.** Trust is viewed as a belief, sentiment or expectation about the exchange partner’s trustworthiness that results from the partner’s expertise or reliability (Moorman et al., 1993). Therefore, the measures of brand trust included customer confidence in and reliance on the smartphone brand they were using. Respondents were asked to indicate the level of trust on a seven-point Likert-scale on the following questionnaire items:
1. This brand meets my expectation.
2. I feel confident in this brand.
3. This brand never disappoints me.
4. This brand guarantees satisfaction.
5. This brand would be honest and sincere in addressing my concern.
6. I could rely on this brand to solve the problem.
7. This brand would make any effort to satisfy me.
8. This brand would compensate me in some way for the problem with the product.

**Customer satisfaction.** Satisfaction is defined as the consumer’s post-consumption feeling of either pleasure or displeasure (Oliver, 1999). Measures of customer satisfaction thus included feeling of pleasure and feeling of correctness towards their purchase decision. Respondents were asked to indicate their satisfaction level with the smartphone brand they were using on a seven-point Likert-scale on the following questionnaire items:

1. I am satisfied with my decision to purchase this brand.
2. My choice to buy this brand was a wise one.
3. I think I did the right thing when I bought this brand.
4. I am not happy that I bought this brand. (Reverse)
5. I truly enjoy my purchase of this brand.

**Attitudinal loyalty.** Based on the literature review, several attributes were selected to measure the attitudinal aspect of brand loyalty, for example, resistance to switching to a competitor’s product (Narayandas, 1996),
willingness to pay a premium price (Narayandas, 1996; Zeithaml et al., 1996), and the intention to buy the brand as a primary choice (Amine, 1998; Oliver, 1997; Yoo & Donthu, 2002). Respondents were asked to indicate their agreement and disagreement on the following questionnaire items, using a seven-point Likert-scale:

1. I consider myself to be loyal to this brand.
2. This brand would be my first choice when considering smartphone.
3. I use this brand because it is the best choice for me.
4. I am willing to pay a higher price for this brand.
5. If I had to do it over again, I would choose this brand.
6. I would not switch to a competitor, even if I have a problem with this brand.

**Repurchase intention.** Repurchase intention is the individual’s judgement about buying the same brand again (Hellier et al., 2003). This can be measured by the probability of future repurchase (Davidow, 2003) in terms of action (i.e. the purchase action) and target (i.e. the brand) components of behaviour (Peter & Olson, 2008). The respondents were asked to indicate their agreement and disagreement about the probability of repurchasing the brand in future on a seven-point Likert-scale. The following were the questionnaire items for repurchase intention:

1. I will probably not purchase this brand again. (Reverse)
2. I will use this brand much less in the future. (Reverse)
Finally, the respondents were asked to fill out some demographics questions, including age, residency, smartphone usage status and brand in use, education level and income level, to determine sample characteristics. Questions about age, residency and smartphone usage status were the control questions to enable screening out responses from ineligible respondents.

3.5 Data Analysis

Data analysis of this study consisted of three stages. At the first stage, descriptive statistics was conducted to understand the characteristics of the sample. A reliability test and factor analysis were conducted at the second stage to assess the inter-item consistency and scale validity. The model was tested at the third stage by testing all hypotheses. The procedure is summarised in Appendix D. SPSS was used for data analysis.

3.5.1 Descriptive Statistics

In the first stage, descriptive statistics was performed for all attributes of service quality, brand trust, customer satisfaction, attitudinal loyalty and repurchase intention. Mean and standard deviation were the measures for central tendency and dispersion respectively because they are the most common descriptive statistics for interval scaled data (Sekaran & Bougie, 2009). Frequency analysis was performed to determine the sample characteristics on the categorical questions, which included demographic variables such as age, gender, residency, smartphone brand in use, education level and income level. All these findings are discussed in the next chapter.
3.5.2 Reliability Tests

In the second stage, inter-item consistency reliability was conducted to assess the consistency of respondents’ answers to all the items used in the study because all variables were measured with multi-item scales. Cronbach’s coefficient alpha was used as the measure of reliability as it is a perfectly adequate index of inter-item consistency reliability in most cases (Sekaran & Bougie, 2009). The higher the Cronbach’s alpha, the higher is the internal consistency reliability. The threshold value for acceptable reliabilities is 0.70 (Hair, Anderson, Tatham & Black, 1998; Sekaran & Bougie, 2009). Therefore, coefficients higher than 0.70 should be looked for as this indicates a better measuring instrument. The findings are discussed in the next chapter.

3.5.3 Factor Analysis

The measurement scales used in the study have been empirically tested in previous studies. CFA was conducted to test the extent to which the a priori, theoretical pattern of factor loadings on the constructs tested before represent the actual data. In other words, CFA enabled the testing of how well the ‘theoretical specification of the factors matches the reality (the actual data)’ (Hair, Black, Babin & Anderson, 2010, p. 693) in the context of this study. There are various arguments about the sample size requirements for factor analysis. Researchers generally require a minimum sample size of 50, and 100 or larger is preferred (Hair et al., 2010). The general rule is to have at least five times as many observations as the number of variables, and preferably to have 10 times the number of observations (Hair et al., 2010). Based on this rule of thumb, the sample size of 200 in this study was ideal for factor analysis. To determine the
appropriateness of factor analysis, the Bartlett test of sphericity and the Kaiser-Meyer-Olkin measure of sampling adequacy (MSA) have to be obtained. The Bartlett test of sphericity provides ‘overall significance of all correlations within a correlation matrix’ (Hair et al., 2010, p. 92). When the Bartlett test of sphericity is statistically significant (p < .05), this indicates sufficient correlations exist among the variables to proceed. Then, factor analysis is appropriate. The Kaiser-Meyer-Olkin MSA is used to check the degree to which each variable is predicted without error. This index ranges from 0 to 1. An index closing to 1 means the variable is perfectly predicted without error by the other variables. An index of .80 or above can be interpreted as meritorious, .70 or above as middling and .50 or above as acceptable (Hair et al., 2010). Factor analysis is appropriate when the MSA value exceeds .50. Before results could be computed, the number of factors that existed for a set of variables and which factor each variable would load on were specified based on prior research. A variable was assigned to only a single factor (construct) for results computation. The size of factor loading, eigenvalue and total variance explained were obtained to determine how well the measured variables represent the constructs. Figure 3.1 presents the visual diagram showing the linkages between a specific measured variable and its associated construct. The X₁ to X₄ represent the measured indicator variables and the L₁ to L₄ are the relationships between the latent construct and the respective measured items (i.e. factor loadings). In general, factor loadings of .30 to .40 are considered minimally acceptable and values greater than .50 are practically significant. Values greater than .70 would be ideal, meaning that the items were strongly related to their associated construct (Hair et al., 2010). For a sample size of 200 (the sample size of this study), factor
loadings of .40 and higher is already considered significant for interpretative purposes (Hair et al., 2010). The eigenvalue indicates the explanatory power of the factor. It represents the amount of variance accounted for by a factor. If the eigenvalue is greater than 1 and the percentage of total variance explained by the factor is more than 60 per cent, it can be confirmed that each construct yields only one factor and individual measured items represent only one latent construct. This means the measured variables represent the constructs perfectly. All these findings are discussed in the next chapter.

Figure 3.1 Path diagram of confirmatory factor analysis

Figure 3.2 presents a visual diagram of the study showing the model with linkages between specific measured variables and their associated construct. Latent constructs are shown with an oval. The dotted lines indicate a causal path from a construct to an indicator (L). The model displays 29 measured indicator variables and five latent constructs. All measured items are allowed to load on only one construct each. Two constructs are indicated by eight measured items,
one by six and one by five. The construct of Repurchase Intention is indicated by two items. It should not be a problem because the concept of repurchase intention is relatively simple and very easily understood (Hair et al., 2010). Two items can be sufficient to represent this construct.

3.5.4 Tests for Normality, Linearity and Homoscedasticity

The assumptions of normality, linearity and homoscedasticity should be satisfied for regression analysis. Normality is ‘the degree to which the distribution of the sample data corresponds to a normal distribution’ (Hair et al., 2010, p. 36). To satisfy normality, the assumption that ‘the differences between the obtained
and predicted dependent variable scores are normally distributed’ (Coakes & Ong, 2011, p. 140) should be confirmed. Linearity represents the linear association between variables. When the residuals ‘have a linear relationship with the predicted dependent variables scores’ (Coakes & Ong, 2011, p. 140), linearity is confirmed. The degree of deviations from linearity must be detected. Although mild deviations are not serious, moderate to extreme deviations may lead to a serious underestimation of the actual strength of the relationship (Coakes & Ong, 2011; Hair et al., 2010). Homoscedasticity refers to the assumption that there is an equal variance of dependent variable(s) dispersed across the range of predictor variable(s). Homoscedasticity is desirable because ‘the variance of dependent variable being explained in the dependence relationship should not be concentrated in only a limited range of the independent values’ (Hair et al., 2010, p. 74). All these can be tested through regression analysis by examination of residual scatterplots against predicted values, and normal plot of regression standardised residuals. Linearity can be determined by observing whether the residuals appear randomly on the residual scatterplots against predicted values. Moreover, if the residuals have about the same spread on either side of the horizontal line drawn through the average residual, homoscedasticity is confirmed. The normal plot of regression standardised residuals will compare the standardised residuals with the normal distribution. The normal distribution is represented by a straight diagonal line, and the residuals are plotted against this line. If the actual distribution is normal, the residual line closely follows the diagonal line. All these findings are discussed in the next chapter.
3.5.5 Hypotheses Testing

In the third stage, regression analysis was adopted to confirm the relationship between variables. Simple regression analyses were used to test the hypotheses in which one independent variable affects one dependent variable. Regression coefficients were obtained to understand how a unit change of the independent variable would affect the dependent variable. If the regression coefficient is significantly different from zero, it is statistically significant. Then, its value indicates the extent to which the independent variable is directly associated with the dependent variable (Hair et al., 2010). Coefficient of determination ($R^2$) was also obtained to assess the prediction accuracy for the regression model. It represents the amount or percentage of variance in the dependent variable that is explained by the independent variable(s) (Hair et al., 2010; Sekaran & Bougie, 2009). If $R^2$ is close to 1, ‘most of the variance in the dependent variable can be explained by the regression model. In other words, the regression model fits the data well’ (Sekaran & Bougie, 2009, p. 349). Simple regression analysis was done to test the hypotheses that customer satisfaction had a positive effect on attitudinal loyalty ($H_3$), brand trust had a positive effect on attitudinal loyalty ($H_6$), brand trust had a positive effect on repurchase intention ($H_7$) and attitudinal loyalty had a positive effect on repurchase intention ($H_4$). The findings are discussed in the next chapter. By observing the individual regression coefficients obtained, the number of units by which a dependent variable would increase if an independent variable increased by a unit could be identified. When the regression coefficient is significantly different from zero, it is statistically significant, meaning the independent variable is strongly associated with the dependent variable (Hair et al., 2010).
The hypotheses called for the use of mediated regression analysis and all the variables were measured at the interval level. The mediation analysis approach developed by Baron and Kenny (1986) was adopted for the study. Three regression models were estimated: Model 1, regressing the dependent variable on the independent variable; Model 2, regressing the mediator on the independent variable; and Model 3, regressing the dependent variable on both the independent variable and the mediator. Separate coefficients were examined for each model. Some form of mediation was supported if the following conditions held: first, the independent variable affected the dependent variable in the first model; second, the independent variable affected the mediator in the second model; and third, the mediator affected the dependent variable in the third model. If the independent variable was no longer significant when the mediator was controlled, the finding supported full mediation. If the independent variable was still significant (i.e. both independent variable and mediator significantly predict dependent variable), the finding supported partial mediation.

Two mediation analyses were done to test the entire model. The first mediation analysis was done on the relationship among service quality, customer satisfaction and attitudinal loyalty. The second mediation analysis was done on the relationship among service quality, brand trust and attitudinal loyalty.

First mediation analysis. To test the hypothesis that customer satisfaction mediated the effect of service quality on attitudinal loyalty, the following three
models were done. The findings are discussed in the next chapter. Figure 3.3 illustrates the relevant statistical diagram.

Model 1: Regress attitudinal loyalty on service quality.

Model 2: Regress customer satisfaction on service quality.

Model 3: Regress attitudinal loyalty on both service quality and customer satisfaction.

Figure 3.3 Statistical diagram of the first mediation analysis

Separate coefficients for each model were estimated and tested. To establish mediation, the following conditions must be held: service quality must affect attitudinal loyalty in Model 1, service quality must affect customer satisfaction in Model 2, and customer satisfaction must affect attitudinal loyalty in Model 3 (while controlling for service quality). If these conditions all held in the predicted direction, then the effect of service quality must be less in Model 3 than in Model 1. Full mediation held if service quality had no effect on attitudinal loyalty when the effect of customer satisfaction was controlled for (Model 3).
Partial mediation held if the service quality still affected attitudinal loyalty in Model 3.

**Second mediation analysis.** To test the hypothesis that brand trust mediated the effect of service quality on attitudinal loyalty, the following three models were done. The findings are discussed in the next chapter. Figure 3.4 illustrates the relevant statistical diagram.

Model 1: Regress attitudinal loyalty on service quality.

Model 2: Regress brand trust on service quality.

Model 3: Regress attitudinal loyalty on both service quality and brand trust.

Separate coefficients for each model were estimated and tested. To establish mediation, the following conditions must be held: service quality must affect attitudinal loyalty in Model 1, service quality must affect brand trust in Model 2, and brand trust must affect attitudinal loyalty in Model 3 (while
controlling for service quality). If these conditions all held in the predicted
direction, then the effect of service quality must be less in Model 3 than in Model
1. Full mediation held if service quality had no effect on attitudinal loyalty when
the effect of brand trust was controlled for (Model 3). Partial mediation held if the
service quality still affected attitudinal loyalty in Model 3.

As the independent variables and mediating variable were measured in
different units of measurement, their measurements were standardised by
transforming them into variables with a mean of 0 and a standard deviation of 1.
Standardised regression coefficients for each variable were obtained to allow the
researcher to compare the relative effects of independent variables and
mediating variable on the dependent variable (Sekaran & Bougie, 2009).
CHAPTER 4

DATA ANALYSIS AND RESULTS

Results of the data analysis are presented in this chapter. This study examined the effect of service quality, brand trust and customer satisfaction on attitudinal loyalty and repurchase intention in the Hong Kong smartphone market. For this study, a correlational research design was used to determine whether a linear relationship existed among the five variables. A total of 200 respondents participated in the survey through the online survey system by completing the questionnaire. The data were obtained electronically. Once the targeted number of completed questionnaires was obtained, the raw data were exported into an Excel spreadsheet and then imported into the statistical software package SPSS version 18 for analysis. The results of data analysis would indicate whether there is (1) a mediating effect of customer satisfaction on the relationship between service quality and attitudinal loyalty, (2) a mediating effect of brand trust on the relationship between service quality and attitudinal loyalty, (3) a positive relationship between attitudinal loyalty and repurchase intention, (4) a positive relationship between brand trust and repurchase intention, (5) a positive relationship between service quality and customer satisfaction, (6) a positive relationship between customer satisfaction and attitudinal loyalty, (7) a positive relationship between service quality and brand trust and (8) a positive relationship between brand trust and attitudinal loyalty.

This chapter begins with a description of the sample characteristics in terms of demographic variables such as age, gender, residency, smartphone brand in use, education level and income level. This is followed by a discussion of the
results of linearity, normality and homoscedasticity to confirm the assumptions that needed to be satisfied for regression analysis. Descriptive analysis results for all attributes of each construct are then presented. Then, the results of reliability tests are reported to assess the consistency of respondents’ answers to all the items used in the study. Finally, the results of hypotheses tests are discussed.

In the results section, the results of the standard regression analyses run on four relationship paths are presented. The four relationship paths include (1) customer satisfaction has a positive effect on attitudinal loyalty, (2) brand trust has a positive effect on attitudinal loyalty, (3) brand trust has a positive effect on repurchase intention and (4) attitudinal loyalty has a positive effect on repurchase intention. Then, results of the mediation regression analyses that were run on two relationship paths are presented. The two mediation relationship paths include (1) customer satisfaction can mediate the relationship between service quality and attitudinal loyalty, and (2) brand trust can mediate the relationship between service quality and attitudinal loyalty.

4.1 Sample Characteristics

The participants of the study were current smartphone users who were Hong Kong residents age 18 years or above. A questionnaire was distributed to the online discussion forums opened at facebook.com and discuss.com.hk. A total of 200 valid responses were received because respondents who did not meet the inclusion criteria were screened out before going to the questionnaire page. The frequency and percentage of demographics variables describing the sample are presented in Table 4.1. All respondents were Hong Kong residents. The respondents were predominately male (56 per cent). Around half of the
respondents (52.5 per cent) were between 35 and 54 years old, which is quite close to the general population. A majority of the respondents had a degree qualification or above (82 per cent), indicating that most of them were capable of judging the service quality provided by different smartphone features and thus should be able to provide relevant feedback about their satisfaction and trust with different smartphone brands. In terms of individual monthly income, a majority of the respondents (78 per cent) earned HK$20,001 or above. This indicated that it was financially viable for the respondents to buy expensive smartphone brands such as Apple iPhone and Samsung Galaxy. This finding was consistent with the proportion of respondents who bought Apple iPhone and Samsung Galaxy brands (80 per cent). Overall, the respondents’ demographics indicated that many smartphone brand users were mature in age and had a high education qualification and high income level. Their opinions should be reliable as they had the capability to judge the smartphone performance and determine their satisfaction, trust and loyalty level accordingly.

Table 4.1 Description of the respondents

<table>
<thead>
<tr>
<th>Demographic variables</th>
<th>Valid sample N = 200</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
</tr>
<tr>
<td>Residency</td>
<td>Hong Kong</td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>18–24</td>
<td>29</td>
</tr>
<tr>
<td>25–34</td>
<td>40</td>
</tr>
<tr>
<td>35–44</td>
<td>53</td>
</tr>
<tr>
<td>45–54</td>
<td>52</td>
</tr>
<tr>
<td>55–64</td>
<td>26</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>112</td>
</tr>
<tr>
<td>Female</td>
<td>88</td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>College</td>
<td>30</td>
</tr>
<tr>
<td>Degree</td>
<td>114</td>
</tr>
<tr>
<td>Income</td>
<td>Frequency</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Master or above</td>
<td>50</td>
</tr>
<tr>
<td>Secondary or below</td>
<td>6</td>
</tr>
<tr>
<td>$10,000 or below</td>
<td>16</td>
</tr>
<tr>
<td>$10,001–$20,000</td>
<td>28</td>
</tr>
<tr>
<td>$20,001–$30,000</td>
<td>23</td>
</tr>
<tr>
<td>$30,001–$50,000</td>
<td>77</td>
</tr>
<tr>
<td>$50,001–$70,000</td>
<td>24</td>
</tr>
<tr>
<td>$70,001 or above</td>
<td>32</td>
</tr>
</tbody>
</table>

Table 4.2 indicates the distribution of the smartphone brand currently in use by the respondents. A majority of them were using Apple (43.5 per cent) and Samsung (36.5 per cent) brands, and the total share of all other brands was far below the share of any one of these two brands. This indicates that Apple and Samsung were the most adopted smartphone brands in Hong Kong and their users were mainly high qualification and high income groups.

Table 4.2 Current smartphone brand in use

<table>
<thead>
<tr>
<th>Smartphone brand in use</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple (e.g. iPhone series)</td>
<td>87</td>
<td>43.5</td>
</tr>
<tr>
<td>Samsung (e.g. Galaxy series)</td>
<td>73</td>
<td>36.5</td>
</tr>
<tr>
<td>Sony (e.g. Xperia series)</td>
<td>16</td>
<td>8.0</td>
</tr>
<tr>
<td>HTC (e.g. 8XT/One/Droid DNA)</td>
<td>5</td>
<td>2.5</td>
</tr>
<tr>
<td>LG (e.g. Optimus/Lucid/Spectrum)</td>
<td>9</td>
<td>4.5</td>
</tr>
<tr>
<td>Motorola (e.g. Droid Ultra)</td>
<td>3</td>
<td>1.5</td>
</tr>
<tr>
<td>Nokia (e.g. Lumia series)</td>
<td>2</td>
<td>1.0</td>
</tr>
<tr>
<td>Sky Vega</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>Xiaomi</td>
<td>4</td>
<td>2.0</td>
</tr>
</tbody>
</table>

4.2 Tests for Linearity, Normality and Homoscedasticity

From the scatterplot of residuals against predicted values, the residuals appear randomly. This means there was no clear relationship between the
residuals and the predicted values, which is consistent with the assumption of linearity. The data points of the two variables exhibit equal dispersion across all data values on the scatterplots. This means the pattern of residuals had about the same spread on either side of the horizontal line drawn through the average residual. This was an indication of homoscedasticity. The data points of independent as well as mediating variables on the normal plot of regression standardised residual for the dependent variable fell close to the diagonal reference line. This means the rate of change in the dependent variable was the same for all the values of the independent variable. This was further evidence of a strong linear relationship between the dependent variable and independent variable. Such normal plots also indicate a relatively normal distribution. All the Mahalanobis distance values obtained were not greater than the critical chi-square value of 13.8 at an alpha level of .001. This indicated that there were no multivariate outliers among the independent variables (Coakes & Ong, 2011). These findings fulfil the assumptions required for regression analyses.

4.3 Descriptive Analysis and Reliability Tests

4.3.1 Reliability Test Results

The coefficient alpha estimates for all scales are presented in Table 4.3. All alpha coefficients exceeded the threshold value of 0.70 for acceptable reliabilities as recommended by Hair et al. (2010), and Sekaran and Bougie (2009). The results indicated that all the measures used in the study could be considered highly reliable as all the Cronbach’s alpha were over 0.90.
Table 4.3 Reliability test results

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service quality</td>
<td>.954</td>
</tr>
<tr>
<td>Customer satisfaction</td>
<td>.970</td>
</tr>
<tr>
<td>Brand trust</td>
<td>.972</td>
</tr>
<tr>
<td>Attitudinal loyalty</td>
<td>.939</td>
</tr>
<tr>
<td>Repurchase intention</td>
<td>.932</td>
</tr>
</tbody>
</table>

4.3.2 Results for Service Quality

Eight items were used to measure the level of service quality (Chiou & Droge, 2006; Teas, 1993). Table 4.4 provides the item code and a description of each item.

Table 4.4 List of items for service quality

<table>
<thead>
<tr>
<th>Item code</th>
<th>Description of item</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQ1</td>
<td>When I have a problem, this brand shows a sincere interest in solving it.</td>
</tr>
<tr>
<td>SQ2</td>
<td>This brand performs the service right the first time.</td>
</tr>
<tr>
<td>SQ3</td>
<td>Employees of this brand give me prompt service.</td>
</tr>
<tr>
<td>SQ4</td>
<td>Employees of this brand are never too busy to respond to my request.</td>
</tr>
<tr>
<td>SQ5</td>
<td>Employees of this brand are consistently courteous.</td>
</tr>
<tr>
<td>SQ6</td>
<td>Employees of this brand can answer my questions.</td>
</tr>
<tr>
<td>SQ7</td>
<td>Employees of this brand understand my specific needs.</td>
</tr>
<tr>
<td>SQ8</td>
<td>This brand has my best interest at heart.</td>
</tr>
</tbody>
</table>

As indicated by Table 4.5, the means for a majority of attributes and for the entire construct were close to 5, which was high. SQ6 (‘Employees of this brand can answer my questions.’) obtained the highest mean that exceeded 5. The Cronbach’s coefficient alpha (.954) exceeded .9, confirming the high internal
consistency reliability of the measures (Hair et al., 2010; Sekaran & Bougie, 2009).

Table 4.5 Mean, standard deviation and Cronbach’s coefficient alpha for service quality

<table>
<thead>
<tr>
<th>Item code</th>
<th>Valid sample N = 200</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean*</td>
</tr>
<tr>
<td>SQ1</td>
<td>4.72</td>
</tr>
<tr>
<td>SQ2</td>
<td>4.73</td>
</tr>
<tr>
<td>SQ3</td>
<td>4.73</td>
</tr>
<tr>
<td>SQ4</td>
<td>4.50</td>
</tr>
<tr>
<td>SQ5</td>
<td>4.78</td>
</tr>
<tr>
<td>SQ6</td>
<td>5.04</td>
</tr>
<tr>
<td>SQ7</td>
<td>4.81</td>
</tr>
<tr>
<td>SQ8</td>
<td>4.79</td>
</tr>
<tr>
<td>Service quality</td>
<td>4.77</td>
</tr>
</tbody>
</table>

*Seven-point Likert-scale: 1 = Strongly disagree; 7 = Strongly agree

4.3.3 Results for Brand Trust

Eight items were used to measure the level of brand trust (Delgado-Ballester, 2004; Sahin et al., 2011; Zehir et al., 2011). Table 4.6 provides the item code and a description of each item of the construct.

Table 4.6 List of items for brand trust

<table>
<thead>
<tr>
<th>Item code</th>
<th>Description of item</th>
</tr>
</thead>
<tbody>
<tr>
<td>BT1</td>
<td>This brand meets my expectation.</td>
</tr>
<tr>
<td>BT2</td>
<td>I feel confident in this brand.</td>
</tr>
<tr>
<td>BT3</td>
<td>This brand never disappoints me.</td>
</tr>
<tr>
<td>BT4</td>
<td>This brand guarantees satisfaction.</td>
</tr>
<tr>
<td>BT5</td>
<td>This brand would be honest and sincere in addressing my concern.</td>
</tr>
<tr>
<td>BT6</td>
<td>I could rely on this brand to solve the problem.</td>
</tr>
<tr>
<td>BT7</td>
<td>This brand would make any effort to satisfy me.</td>
</tr>
</tbody>
</table>
As Table 4.7 indicates, the means for the entire construct and many items were near 5. The first two items had mean scales of higher than 5. The Cronbach’s coefficient alpha (.972) exceeded .7, which means the measures can be considered highly reliable (Hair et al., 2010; Sekaran & Bougie, 2009).

Table 4.7 Mean, standard deviation and Cronbach’s coefficient alpha for brand trust

<table>
<thead>
<tr>
<th>Item code</th>
<th>Valid sample N = 200</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean*</td>
<td>Std deviation</td>
<td>Coefficient alpha</td>
</tr>
<tr>
<td>BT1</td>
<td>5.18</td>
<td>1.20</td>
<td></td>
</tr>
<tr>
<td>BT2</td>
<td>5.25</td>
<td>1.24</td>
<td></td>
</tr>
<tr>
<td>BT3</td>
<td>4.76</td>
<td>1.35</td>
<td></td>
</tr>
<tr>
<td>BT4</td>
<td>4.89</td>
<td>1.25</td>
<td></td>
</tr>
<tr>
<td>BT5</td>
<td>4.76</td>
<td>1.20</td>
<td></td>
</tr>
<tr>
<td>BT6</td>
<td>4.93</td>
<td>1.27</td>
<td></td>
</tr>
<tr>
<td>BT7</td>
<td>4.67</td>
<td>1.28</td>
<td></td>
</tr>
<tr>
<td>BT8</td>
<td>4.62</td>
<td>1.33</td>
<td></td>
</tr>
<tr>
<td>Brand trust</td>
<td>4.88</td>
<td></td>
<td>.972</td>
</tr>
</tbody>
</table>

*Seven-point Likert-scale: 1 = Strongly disagree; 7 = Strongly agree

4.3.4 Results for Customer Satisfaction

Five items were used to measure the level of customer satisfaction (Oliver, 1997; Zboja & Voorhees, 2006). Table 4.8 presents the item code and a description for each item of the construct.

Table 4.8 List of item for customer satisfaction

<table>
<thead>
<tr>
<th>Item code</th>
<th>Description of item</th>
</tr>
</thead>
</table>
I am satisfied with my decision to purchase this brand.
My choice to buy this brand was a wise one.
I think I did the right thing when I bought this brand.
I am not happy that I bought this brand. (Reverse)
I truly enjoy my purchase of this brand.

As Table 4.9 indicates, the means for the entire construct and for all items were higher than 5, which were high. The Cronbach’s coefficient alpha (.970) exceeded .70, confirming the high reliability of the measures (Hair et al., 2010; Sekaran & Bougie, 2009).

Table 4.9 Mean, standard deviation, and coefficient alpha for customer satisfaction

<table>
<thead>
<tr>
<th>Item code</th>
<th>Valid sample N = 200</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean*</td>
</tr>
<tr>
<td>CS1</td>
<td>5.35</td>
</tr>
<tr>
<td>CS2</td>
<td>5.40</td>
</tr>
<tr>
<td>CS3</td>
<td>5.40</td>
</tr>
<tr>
<td>CS4</td>
<td>5.76**</td>
</tr>
<tr>
<td>CS5</td>
<td>5.28</td>
</tr>
<tr>
<td>Customer satisfaction</td>
<td>5.44</td>
</tr>
</tbody>
</table>

*Seven-point Likert-scale: 1 = Strongly disagree; 7 = Strongly agree
**After recoding

4.3.5 Results for Attitudinal Loyalty

Six items were used to measure the level of attitudinal loyalty (Beatty, Kahle & Homer, 1988; Chaudhuri & Holbrook, 2001; Oliver, 1997; Matzler et al., 2008; Sirdeshmukh, Singh & Sabol, 2002; Yoo et al., 2000). Table 4.10 provides the item code and a description of each item.
Table 4.10 List of item for attitudinal loyalty

<table>
<thead>
<tr>
<th>Item code</th>
<th>Description of item</th>
</tr>
</thead>
<tbody>
<tr>
<td>AL1</td>
<td>I consider myself to be loyal to this brand.</td>
</tr>
<tr>
<td>AL2</td>
<td>This brand would be my first choice when considering smartphone.</td>
</tr>
<tr>
<td>AL3</td>
<td>I use this brand because it is the best choice for me.</td>
</tr>
<tr>
<td>AL4</td>
<td>I am willing to pay a higher price for this brand.</td>
</tr>
<tr>
<td>AL5</td>
<td>If I had to do it over again, I would choose this brand.</td>
</tr>
<tr>
<td>AL6</td>
<td>I would not switch to a competitor, even if I have a problem with this brand.</td>
</tr>
</tbody>
</table>

Table 4.11 indicates that four items had the mean scales of 5 or above, except for two items: AL4, ‘I am willing to pay a higher price for this brand’ (mean = 4.17), and AL6, ‘I would not switch to a competitor, even if I have a problem with this brand’ (mean = 3.89). The implications of these results will be discussed in Chapter 5. The Cronbach’s coefficient alpha (.939) exceeded .7, which means the measures are highly reliable (Hair et al., 2010; Sekaran & Bougie, 2009).

Table 4.11 Mean, standard deviation and coefficient alpha for attitudinal loyalty

<table>
<thead>
<tr>
<th>Item code</th>
<th>Valid sample N = 200</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean*</td>
</tr>
<tr>
<td>AL1</td>
<td>5.00</td>
</tr>
<tr>
<td>AL2</td>
<td>5.11</td>
</tr>
<tr>
<td>AL3</td>
<td>5.19</td>
</tr>
<tr>
<td>AL4</td>
<td>4.17</td>
</tr>
<tr>
<td>AL5</td>
<td>5.00</td>
</tr>
<tr>
<td>AL6</td>
<td>3.89</td>
</tr>
<tr>
<td>Attitudinal loyalty</td>
<td>4.73</td>
</tr>
</tbody>
</table>

*Seven-point Likert-scale: 1 = Strongly disagree; 7 = Strongly agree
4.3.6 Results for Repurchase Intention

Two items were used to measure the level of repurchase intention (Davidow, 2003). Table 4.12 provides the item code and a description of each item for the construct.

<table>
<thead>
<tr>
<th>Item code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RI1</td>
<td>I will probably not purchase this brand again. (Reverse)</td>
</tr>
<tr>
<td>RI2</td>
<td>I will use this brand much less in the future. (Reverse)</td>
</tr>
</tbody>
</table>

As Table 4.13 indicates, the entire construct and all items had mean scales of higher than 5, which is very high. The Cronbach’s efficient alpha (.932) exceeded .7, confirming the high reliability of the measure (Hair et al., 2010; Sekaran & Bougie, 2009).

<table>
<thead>
<tr>
<th>Item code</th>
<th>Valid sample N = 200</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Std deviation</td>
<td>Coefficient alpha</td>
<td></td>
</tr>
<tr>
<td>RI1</td>
<td>5.71**</td>
<td>1.32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RI2</td>
<td>5.60**</td>
<td>1.37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repurchase intention</td>
<td>5.66</td>
<td></td>
<td>.932</td>
<td></td>
</tr>
</tbody>
</table>

*Seven-point Likert-scale: 1 = Strongly disagree; 7 = Strongly agree
**After recoding

4.4 Factor Analysis

The sources of the measurement scales and their items were presented in Chapter 3. To test the extent to which the a priori pattern of factor loadings on constructs tested before represented the actual data, CFA was conducted. With
CFA conducted in different contexts, the a priori theory could be either ‘confirmed’ or ‘rejected’ (Hair et al., 2010). To check the appropriateness of factor analysis, the Bartlett test of sphericity and the Kaiser-Meyer-Olkin MSA were obtained. For factor analysis to be appropriate, the Bartlett test of sphericity should be statistically significant (p < .05) and the Kaiser-Meyer-Olkin MSA should be at least .50. The Bartlett test of sphericity for all constructs showed that the results of factor analysis were statistically significant at p < 0.001, indicating that the correlation matrix of each construct was not an identity matrix and had significant correlations among variables. In addition, the Kaiser-Meyer-Olkin MSA was obtained to check the degree of each variable to be predicted without error. A score of .80 or above was considered meritorious and .50 was considered acceptable (Hair et al., 2010). The result of the MSA of all constructs showed scores above .80, except for the construct of repurchase intention, which showed .50, indicating a majority of the constructs were meritorious. The correlation matrix also indicated that all numbers of correlations exceed 0.5. Therefore, factor analysis was suitable for the study.

Table 4.14 presents the factor analysis results obtained for all measurement scales. All 29 items were loaded highly on their corresponding constructs, ranging from 0.759 to 0.979. Given the larger sample size of the study (which is 200), a smaller loading of 0.40 or higher was already considered significant for interpretative purposes (Hair et al., 2010). The factor loadings obtained from the study were ideal as they were all above 0.7, meaning that the items were strongly related to their associated constructs (Hair et al., 2010). If the eigenvalue is greater than 1 and the percentage of total variance explained by the factor is more than 60 per cent, it can be confirmed that each construct only
yielded one factor and individual measured items represented only one latent construct. As indicated in Table 4.14, the eigenvalues are greater than 1 and the percentage of total variance accounted for by each factor ranged from 76.97 to 93.67 per cent. All these findings supported a single factor solution for each scale, meaning that the individual measured items represented only one latent construct. The results of all measurement scales were favourable because all items loaded significantly on their appropriate factors, confirming that all measurement scales used in the survey were valid.

Table 4.14 Factor analysis results

<table>
<thead>
<tr>
<th>Constructs &amp; items</th>
<th>Factor loading</th>
<th>Eigenvalue</th>
<th>Total variance explained</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service quality</td>
<td></td>
<td>6.157</td>
<td>76.97%</td>
</tr>
<tr>
<td>SQ3 Employees of this brand give me prompt service.</td>
<td>.936</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SQ5 Employees of this brand are consistently courteous.</td>
<td>.917</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SQ6 Employees of this brand can answer my questions.</td>
<td>.906</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SQ4 Employees of this brand are never too busy to respond to my request.</td>
<td>.884</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SQ7 Employees of this brand understand my specific needs.</td>
<td>.882</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SQ8 This brand has my best interest at heart.</td>
<td>.857</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SQ1 When I have a problem, this brand shows a sincere interest in solving it.</td>
<td>.837</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SQ2 This brand performs the service right the first time.</td>
<td>.791</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer satisfaction</td>
<td></td>
<td>4.506</td>
<td>90.13%</td>
</tr>
<tr>
<td>CS1 I am satisfied with my decision to purchase this brand.</td>
<td>.979</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS2 My choice to buy this brand was a wise one.</td>
<td>.978</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS5 I truly enjoy my purchase of this brand.</td>
<td>.952</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS4 I am not happy that I bought this brand. (Reverse)</td>
<td>.853</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brand trust</td>
<td>6.745</td>
<td>84.31%</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------------</td>
<td>-------</td>
<td>--------</td>
<td></td>
</tr>
<tr>
<td>BT5 This brand would be honest and sincere</td>
<td>.946</td>
<td></td>
<td></td>
</tr>
<tr>
<td>in addressing my concern.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BT4 This brand guarantees satisfaction.</td>
<td>.940</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BT6 I could rely on this brand to solve the</td>
<td>.940</td>
<td></td>
<td></td>
</tr>
<tr>
<td>problem.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BT7 This brand would make any effort to</td>
<td>.935</td>
<td></td>
<td></td>
</tr>
<tr>
<td>satisfy me.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BT2 I feel confident in this brand.</td>
<td>.934</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BT1 This brand meets my expectation.</td>
<td>.933</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BT8 This brand would compensate me in some way</td>
<td>.862</td>
<td></td>
<td></td>
</tr>
<tr>
<td>for the problem with the product.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BT3 This brand never disappoints me.</td>
<td>.850</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitudinal loyalty</td>
<td>4.699</td>
<td>78.32%</td>
<td></td>
</tr>
<tr>
<td>AL5 If I had to do it over again, I would</td>
<td>.950</td>
<td></td>
<td></td>
</tr>
<tr>
<td>choose this brand.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AL2 This brand would be my first choice when</td>
<td>.948</td>
<td></td>
<td></td>
</tr>
<tr>
<td>considering smartphone.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AL1 I consider myself to be loyal to this brand.</td>
<td>.931</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AL3 I use this brand because it is the best</td>
<td>.892</td>
<td></td>
<td></td>
</tr>
<tr>
<td>choice for me.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AL4 I am willing to pay a higher price for this</td>
<td>.812</td>
<td></td>
<td></td>
</tr>
<tr>
<td>brand.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AL6 I would not switch to a competitor, even if</td>
<td>.759</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have a problem with this brand.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repurchase intention</td>
<td>1.873</td>
<td>93.67%</td>
<td></td>
</tr>
<tr>
<td>RI2 I will use this brand much less in the</td>
<td>.968</td>
<td></td>
<td></td>
</tr>
<tr>
<td>future. (Reverse)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RI1 I will probably not purchase this brand</td>
<td>.968</td>
<td></td>
<td></td>
</tr>
<tr>
<td>again. (Reverse)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 4.5 Hypotheses Testing

This section presents the test results of the hypotheses of the study, which were presented in Chapter 2.

The significance of the test results is reported in the following three ways based on the probability level (Coolican, 1990, p. 174):

- ‘significant’: $0.05 > p < 0.01$;
- ‘highly significant’: $0.01 > p < 0.001$; and
• ‘very highly significant’: p < 0.001.

All probabilities reported are based on two-tailed tests as each comparison had two possible directions.

The hypothesis testing was started with simple linear regression analyses to test the hypotheses that customer satisfaction has a positive effect on attitudinal loyalty (H3), brand trust has a positive effect on attitudinal loyalty (H6), brand trust has a positive effect on repurchase intention (H7), and attitudinal loyalty has a positive effect on repurchase intention (H4). Then, mediation analyses were run to test the hypotheses that customer satisfaction mediates the effect of service quality on attitudinal loyalty (H2), brand trust mediates the effect of service quality on attitudinal loyalty (H8), service quality has a positive effect on customer satisfaction (H1) and service quality has a positive effect on brand trust (H5).

4.5.1 Simple Regression Analyses

Simple regression analyses were done to test the hypothesis that customer satisfaction and brand trust has a positive effect on attitudinal loyalty individually (H3 and H6), and the hypothesis that attitudinal loyalty and brand trust affects repurchase intention individually (H4 and H7). Using the simple regression analysis could determine whether there is a significant linear relationship between customer satisfaction and attitudinal loyalty, between brand trust and attitudinal loyalty, between attitudinal loyalty and repurchase intention, and between attitudinal loyalty and repurchase intention. In another sense, it could determine whether an increase in customer satisfaction and brand trust affects
the degree of attitudinal loyalty separately, and whether an increase in attitudinal loyalty and brand trust affects the degree of repurchase intention separately.

**Customer satisfaction and attitudinal loyalty.** Table 4.15 summarises the results of the regression analysis done on Hypothesis 3, that there is a positive relationship between customer satisfaction and attitudinal loyalty. The results indicated that customer satisfaction had a very highly significant effect on attitudinal loyalty (B = 0.851, p < 0.001). Based on the beta, the direction of the effect was positive, indicating that customer satisfaction was positively correlated with attitudinal loyalty. As the customer satisfaction score increased, indicating improving customer satisfaction, the attitudinal loyalty score also increased, indicating improving attitudinal loyalty. The R square for customer satisfaction was 0.727, indicating the model was statistically significant. Customer satisfaction could explain around 73 per cent of the variance in attitudinal loyalty. In summary, statistically significant correlations were found between customer satisfaction and attitudinal loyalty. With this finding, Hypothesis 3, that customer satisfaction has a positive effect on attitudinal loyalty, was thus supported.

<table>
<thead>
<tr>
<th>Constant</th>
<th>R square</th>
<th>Coefficient (B)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer satisfaction</td>
<td>0.727</td>
<td>0.851</td>
<td>0.000</td>
</tr>
</tbody>
</table>

**Brand trust and attitudinal loyalty.** Table 4.16 shows the results of the regression analysis done on the hypothesis that brand trust has a positive effect on attitudinal loyalty (Hypothesis 6). The results indicated that brand trust had a
very highly significant effect on attitudinal loyalty (B = .853, p < .001). The positive beta indicated that there was positive correlation between brand trust and attitudinal loyalty. As the brand trust score increased, indicating improving brand trust, the attitudinal loyalty score increased as well, indicating improving attitudinal loyalty. The R square for brand trust was 0.724, indicating the model was statistically significant. Brand trust could explain around 72 per cent of the variance in attitudinal loyalty. To conclude, statistically significant correlations were found between brand trust and attitudinal loyalty. With this finding, Hypothesis 6, that brand trust has a positive effect on attitudinal loyalty, was supported.

Table 4.16 Regression analysis results with attitudinal loyalty as dependent variable

<table>
<thead>
<tr>
<th>Constant</th>
<th>R Square</th>
<th>Coefficient (B)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brand trust</td>
<td>0.724</td>
<td>0.853</td>
<td>0.000</td>
</tr>
</tbody>
</table>

**Attitudinal loyalty and repurchase intention.** Table 4.17 summarises the results of the analysis done on the hypothesis that attitudinal loyalty has a positive effect on repurchase intentions (Hypothesis 4). The results supported that attitudinal loyalty has a very highly significant effect on repurchase intention (B = 0.713, p < 0.001). The direction of the effect was positive by observing the beta, indicating that attitudinal loyalty has a positive correlation with repurchase intention. As the attitudinal loyalty score increased, indicating improving attitudinal loyalty, the repurchase intention score also increased, indicating improving repurchase intention. The R square for attitudinal loyalty was 0.509, meaning that attitudinal loyalty can explain around 51 per cent of the variance in repurchase intention. Based on a visual inspection on the scatterplot (see Figure
the residuals appeared randomly. This means there was no relationship between the residuals and the predicted values, indicating a linear model with good fit. From the normal plot of regression standardised residual for the dependent variable (see Figure 4.2), the data points of the independent variable fell close to the diagonal reference line. This indicated a relatively normal distribution. All these findings supported that the model was statistically significant. In summary, statistically significant correlations were found between attitudinal loyalty and repurchase intention. With this finding, Hypothesis 4, that attitudinal loyalty has a positive effect on repurchase intention, was supported.

Table 4.17 Regression analysis results with repurchase intention as dependent variable

<table>
<thead>
<tr>
<th>Constant</th>
<th>R Square</th>
<th>Coefficient (B)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitudinal loyalty</td>
<td>0.509</td>
<td>0.713</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Figure 4.1 Scatterplot for repurchase intention as dependent variable
Brand trust and repurchase intention. Table 4.18 indicates the results of the analysis done on Hypothesis 7, that brand trust has a positive effect on repurchase intention. The results supported that brand trust has a very highly significant effect on repurchase intention ($B = 0.579$, $p < 0.001$). Based on the positive beta, the brand trust was positively correlated with repurchase intention. As the brand trust score increased, indicating improving brand trust, the repurchase intention score also increased, indicating improving repurchase intention. The model was statistically significant by observing the R square, which was $0.335$. Brand trust could explain around 34 per cent of the variance in repurchase intention. From the scatterplot of residuals against predicted values (see Figure 4.3), the residuals appeared randomly. This means there was no relationship between the residuals and the predicted values, indicating a linear model with good fit. By observing the normal plot of regression standardised residual for the dependent variable (see Figure 4.4), the data points of the independent variable fell close to the diagonal reference line. This indicated a...
relatively normal distribution. All these findings supported that the model was statistically significant. To conclude, statistically significant correlations were found between brand trust and repurchase intention. With this finding, Hypothesis 7 that brand trust had a positive effect on repurchase intention was supported.

Table 4.18 Regression analysis results with repurchase intention as dependent variable

<table>
<thead>
<tr>
<th>Constant</th>
<th>R Square</th>
<th>Coefficient (B)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brand trust</td>
<td>0.335</td>
<td>0.579</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Figure 4.3 Scatterplot for repurchase intention as dependent variable
Figure 4.4 Normal plot of regression standardised residual for repurchase intention as dependent variable

4.5.2 Mediation Analysis Approach

Mediation testing attempts to understand the mechanism through which the predictor variable affects the outcome. In this study, mediation testing enabled further insight into the mechanism through which service quality is related to attitudinal loyalty. Two mediation analyses were done to test the two mediation relationship paths for the study. The first mediation analysis (Model A) was done on the relationship between service quality and attitudinal loyalty through the mediation of customer satisfaction. The second mediation analysis (Model B) was done on the relationship between service quality and attitudinal loyalty through the mediation of brand trust. Both mediation models were done based on the model developed by Baron and Kenny (1986). Three steps should be conducted for each mediation model: Step 1, regressing the dependent variable on the independent variable; Step 2, regressing the mediator on the independent variable; and Step 3, regressing the dependent variable on both the independent variable and the mediator. Separate coefficients should be examined for each
Some form of mediation is supported if the following conditions hold: first, the independent variable affects the dependent variable in the first step; second, the independent variable affects the mediator in the second step; and third, the mediator affects the dependent variable in the third step. If the independent variable is no longer significant when the mediator is controlled, the finding supports full mediation. If the independent variable is still significant (i.e. both independent variable and mediator significantly predict dependent variable), the finding supports partial mediation.

**Mediation analysis results of Model A.** Table 4.19 presents the results of Model A. To test Hypothesis 2, that customer satisfaction mediates the effect of service quality on attitudinal loyalty, three steps of analysis were taken. The first step was to regress attitudinal loyalty on service quality. The results indicated that service quality had a significant positive effect on attitudinal loyalty ($R^2 = .606$, $p < .001$). The second step was to regress customer satisfaction on service quality. The results indicated that service quality had a significantly positive effect on customer satisfaction ($R^2 = .581$, $p < .001$). This provided support for Hypothesis 1. The third step was to regress attitudinal loyalty on both service quality and customer satisfaction. The results indicated that customer satisfaction did mediate the relationship between service quality and attitudinal loyalty ($R^2 = .766$, $p < .001$). While the effect of customer satisfaction on attitudinal loyalty was significant ($B = .645$, $p < .001$), the effect of service quality on attitudinal loyalty remained significant ($B = .366$, $p < .001$) when customer satisfaction was controlled for. However, the effect of service quality on attitudinal loyalty was less in Step 3 ($B = 0.366$) than in Step 1 ($B = 0.930$). After
customer satisfaction was controlled for, the relationship between attitudinal loyalty and service quality was reduced (from 0.930 to 0.366) but not to a non-significant level. Thus, customer satisfaction had a partial mediation effect on the relationship between service quality and attitudinal loyalty. This provided support for Hypothesis 2. That is to say, not all loyal customers transferred from customers who were satisfied with the service quality had customer satisfaction with the smartphone brands they were using.

Table 4.19 Regression analyses results for Model A

<table>
<thead>
<tr>
<th>Constant</th>
<th>R Square</th>
<th>Coefficient (B)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1, attitudinal loyalty as dependent variable, service quality as independent variable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service quality</td>
<td>0.606</td>
<td>0.930</td>
<td>0.000</td>
</tr>
<tr>
<td>Step 2, customer satisfaction as dependent variable, service quality as independent variable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service quality</td>
<td>0.581</td>
<td>0.875</td>
<td>0.000</td>
</tr>
<tr>
<td>Step 3, attitudinal loyalty as dependent variable, service quality and customer satisfaction as independent variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service quality</td>
<td>0.766</td>
<td>0.366</td>
<td>0.000</td>
</tr>
<tr>
<td>Customer satisfaction</td>
<td></td>
<td>0.645</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Mediation effect obtained for Model A. Figure 4.5 illustrates the relevant statistical diagram with coefficients obtained for different steps for the calculation of the mediation effect. For Hypothesis 2, the mediation effect was 0.564 (c – c' = 0.930 – 0.366). The percentage of the direct effect that was being mediated was around 61 per cent, demonstrating a statistically significant partial mediation.
Mediation analysis results of Model B. Table 4.20 presents the results of Model B. To test Hypothesis 8, that brand trust mediates the effect of service quality on attitudinal loyalty, the following three steps were taken. The first step was to regress attitudinal loyalty on service quality. The results indicated that service quality had a significant positive effect on attitudinal loyalty ($R^2 = .606, p < .001$). The second step was to regress brand trust on service quality. The results showed that service quality had a significantly positive effect on brand trust ($R^2 = .724, p < .001$). This supported Hypothesis 5. The third step was to regress attitudinal loyalty on both service quality and brand trust. The results indicated that brand trust did mediate the relationship between service quality and attitudinal loyalty ($R^2 = .734, p < .001$). While the effect of brand trust on attitudinal loyalty is significant ($B = .789, p < .001$), the effect of service quality on
attitudinal loyalty remained significant (B = .236, 0.01 > p > 0.001) when brand trust was controlled for. However, the effect of service quality on attitudinal loyalty was less in Step 3 (B = 0.236) than in Step 1 (B = 0.930). After brand trust was controlled for, the relationship between service quality and attitudinal loyalty was reduced (from 0.930 to 0.236) but not to non-significance. Thus, brand trust had a partial mediation effect on the relationship between service quality and attitudinal loyalty. This supported Hypothesis 8. That is to say, not all loyal customers transferred from customers who were satisfied with the service quality had brand trust with the smartphone brands they were using.

Table 4.20 Regression analyses results for Model B

<table>
<thead>
<tr>
<th>Constant</th>
<th>R Square</th>
<th>Coefficient (B)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1, attitudinal loyalty as dependent variable, service quality as independent variable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service quality</td>
<td>0.606</td>
<td>0.930</td>
<td>0.000</td>
</tr>
<tr>
<td>Step 2, brand trust as dependent variable, service quality as independent variable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service quality</td>
<td>0.724</td>
<td>0.879</td>
<td>0.000</td>
</tr>
<tr>
<td>Step 3, attitudinal loyalty as dependent variable, service quality and brand trust as independent variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service quality</td>
<td>0.734</td>
<td>0.236</td>
<td>0.005</td>
</tr>
<tr>
<td>Brand trust</td>
<td></td>
<td>0.789</td>
<td>0.000</td>
</tr>
</tbody>
</table>

**Mediation effect obtained for Model B.** Figure 4.6 presents the relevant statistical diagram with coefficients obtained for different steps for the calculation of the mediation effect. For Hypothesis 8, the mediation effect was 0.694 (c – c' = 0.930 – 0.236). The percentage of the direct effect that was being mediated was around 75 per cent, demonstrating a statistically significant partial mediation.
4.6 Conclusions

This chapter presented the results of the data analysis. The reliability test results supported the high reliability of the constructs. The results of the mediation regression as well as simple regression analyses supported the hypotheses of the study. The results showed how the mediators (customer satisfaction and brand trust) affected the dependent variable, that is, attitudinal loyalty, in different paths. The results of the simple regression analyses also supported how customer satisfaction and brand trust affected attitudinal loyalty separately, as well as how attitudinal loyalty and brand trust affected repurchase intention individually. Table 4.21 summarises the analysis results for the
reliability test and regression analysis for all variables and relationship paths conducted in the study.

Table 4.21 Summary of analysis results for reliability test and regression analysis

<table>
<thead>
<tr>
<th>Constant</th>
<th>R square</th>
<th>Coefficient (B)</th>
<th>p-value</th>
<th>Coefficient alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service quality</td>
<td></td>
<td></td>
<td></td>
<td>0.954</td>
</tr>
<tr>
<td>with customer satisfaction as dependent variable</td>
<td>0.581</td>
<td>0.875</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>with brand trust as dependent variable</td>
<td>0.724</td>
<td>0.879</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>with attitudinal loyalty as dependent variable</td>
<td>0.606</td>
<td>0.930</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>Customer satisfaction</td>
<td></td>
<td></td>
<td></td>
<td>0.970</td>
</tr>
<tr>
<td>with attitudinal loyalty as dependent variable</td>
<td>0.727</td>
<td>0.851</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>Brand trust</td>
<td></td>
<td></td>
<td></td>
<td>0.972</td>
</tr>
<tr>
<td>with attitudinal loyalty as dependent variable</td>
<td>0.724</td>
<td>0.853</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>with repurchase intention as dependent variable</td>
<td>0.335</td>
<td>0.579</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>Attitudinal loyalty</td>
<td></td>
<td></td>
<td></td>
<td>0.939</td>
</tr>
<tr>
<td>with repurchase intention as dependent variable</td>
<td>0.509</td>
<td>0.713</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>Repurchase intention</td>
<td></td>
<td></td>
<td></td>
<td>0.932</td>
</tr>
</tbody>
</table>

Table 4.22 presents a summary of all the hypothesised findings. All hypotheses were supported, and partial mediation could be found for the two mediation hypotheses.

Table 4.22 Summary of hypothesised findings

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Supported</td>
</tr>
<tr>
<td>H2</td>
<td>Customer satisfaction will mediate the relationship between service quality and attitudinal loyalty.</td>
</tr>
<tr>
<td>----</td>
<td>-------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>H3</td>
<td>Customer satisfaction has a positive effect on attitudinal loyalty.</td>
</tr>
<tr>
<td>H4</td>
<td>Attitudinal loyalty has a positive effect on repurchase intention.</td>
</tr>
<tr>
<td>H5</td>
<td>Service quality has a positive effect on brand trust.</td>
</tr>
<tr>
<td>H6</td>
<td>Brand trust has a positive effect on attitudinal loyalty.</td>
</tr>
<tr>
<td>H7</td>
<td>Brand trust has a positive effect on repurchase intention.</td>
</tr>
<tr>
<td>H8</td>
<td>Brand trust will mediate the relationship between service quality and attitudinal loyalty.</td>
</tr>
</tbody>
</table>

Chapter 5 provides an interpretation of the data and the conclusions of the research study. In addition, suggestions for how to improve service quality and further research are discussed.
CHAPTER 5
CONCLUSIONS

The objective of this study was to provide insight into the factors driving brand loyalty and repurchase intention in the Hong Kong smartphone market. The hypothesis testing and data analysis yielded findings that enhance our understanding of customer satisfaction and brand trust, and their influence on the predictive relationships between service quality and attitudinal loyalty. The findings also strengthen our understanding of how repurchase intention is affected by brand trust and attitudinal loyalty. The results of the study provide empirical support for a number of existing studies on attitudinal loyalty and repurchase intention, and how they are influenced by such factors as service quality and brand trust. This chapter first presents an interpretation of the results related to the model and hypotheses presented in earlier chapters. This means that a discussion on the results of the descriptive analysis, regression analysis and mediation analysis will be presented first. Then, based on the findings, the broader implications of the issues of brand loyalty for the smartphone industry will be discussed. Finally, a discussion on the limitations and thus the recommendations for future research will be presented.

5.1 Discussion of Findings
5.1.1 Descriptive Statistics

This section presents the findings from the descriptive analysis results for each construct.
**Service quality construct.** Generally speaking, the respondents were satisfied with the service quality provided by the smartphone brands they were using. The smartphone brands could fulfil the ‘reliability’, ‘responsiveness’ and ‘assurance’ dimensions of the service quality framework SERVQUAL, developed by Parasuraman et al. (1988). As discussed in Chapter 2, smartphone companies that can fulfil these dimensions can build trust with their customers.

**Brand trust construct.** The results indicated that, in general, respondents had a high level of trust in the smartphone brands they were using. However, the mean for the item ‘This brand would compensate me in some way for the problem with the product’ was the lowest of all the items even though it was not too low. This implies that smartphone companies should ensure there is proper compensation for any problems encountered by their customers in order to increase brand trust with customers. As discussed in Chapter 2, providing compensation forms part of the ‘responsiveness’ dimension of the SERVQUAL framework, which helps build trust with customers. The mean for the brand trust construct was higher than that for the service quality construct, indicating that a higher proportion of brand trust is generated if smartphone companies can provide high-quality service. This reflects the importance of service quality in building brand trust in the smartphone industry.

**Customer satisfaction construct.** Respondents generally agreed that they were satisfied and felt right about the purchase decision of the smartphone brands they were using. Many of them did not agree that they were not happy with the purchase. Conversely, a majority of them believed that they were wise
to have bought the current smartphone brand and were enjoying their purchase. The mean for the overall customer satisfaction construct was higher than that of the service quality construct. This indicates that a higher level of customer satisfaction is generated if smartphone companies can provide high-quality service. It reflects the importance of service quality in the building of customer satisfaction within the smartphone industry.

**Attitudinal loyalty construct.** The results indicated that respondents generally considered themselves loyal to the brand they were using and considered the brand the first and best choice for them. The item ‘I would not switch to a competitor, even if I have a problem with this brand’ received the lowest mean score. This reflects that some of them might find it easy to switch to a competitor if they had a problem with the brand they were using. This finding is in line with what was discussed in Chapter 1: that in the highly competitive smartphone market, brand-switching activity may be more common. Therefore, it is important for smartphone companies to ensure that customers are very satisfied with their service to ensure a high level of attitudinal loyalty.

**Repurchase intention construct.** The overall mean for this construct was the highest compared with all other constructs. This reflects that most of the respondents had fairly high intentions to repurchase and use the same smartphone brands they were currently using. Smartphone companies can induce a higher level of repurchase intention in customers if they increase the level of their attitudinal loyalty or brand trust.
5.1.2 Simple Regression Analysis

This study focused on attitudinal loyalty and its antecedents, that is, service quality, brand trust and customer satisfaction, and how repurchase intention is affected by attitudinal loyalty and brand trust separately. The relationship between service quality and customer satisfaction, brand trust and attitudinal loyalty are discussed in Section 5.1.3. This section presents the findings from the simple regression analysis on the following hypotheses: customer satisfaction has a positive effect on attitudinal loyalty (H3); brand trust has a positive effect on attitudinal loyalty (H6), brand trust has a positive effect on repurchase intention (H7), and attitudinal loyalty has a positive effect on repurchase intention (H4). The results support all these hypotheses in the smartphone industry. Brand trust is the seed for repurchase intention, not only because it increases attitudinal loyalty, which in turn increases repurchase intention in a high-service product market, but also because it directly increases repurchase intention. Customer satisfaction is also an important factor because it increases attitudinal loyalty directly and indirectly increases repurchase intention. Many prior studies have confirmed that brand trust affects repurchase intention. However, this study demonstrates the pervasive effects of brand trust—effects that are direct on both attitudinal loyalty and repurchase intention. The following is a detailed illustration of these four hypotheses.

**H3: Customer satisfaction has a positive effect on attitudinal loyalty.**

The findings were consistent with previous research that found that attitudinal loyalty can be built when customers have a high level of satisfaction. This supported Hypothesis 3, that customer satisfaction has a positive effect on
attitudinal loyalty. When customers feel satisfied with their purchase, they will consider the brand the first and best choice for them and develop a psychological commitment to buying the brand again (e.g. Cheng, 2011; Chiou & Droge, 2006). Although they are willing to pay a higher price (Homburg et al., 2005; Reichheld, 1996), they are also more likely to resist competitive offers (Hennig-Thurau et al., 2002). Some prior studies have suggested that customer satisfaction does not lead to brand loyalty directly, whereas others have confirmed the direct relationship between customer satisfaction and attitudinal loyalty. One of the possible reasons for such contradictory results may be the multidimensional structure of the loyalty construct (Taylor et al., 2006). To have a clear base for the study, the study focused on attitudinal loyalty rather than general brand loyalty. In contrast to prior research that posits that customer satisfaction does not drive brand loyalty directly, the present study shows that customer satisfaction can build attitudinal loyalty directly in the context of the smartphone industry.

**H6: Brand trust has a positive effect on attitudinal loyalty.** The relationship between brand trust and attitudinal loyalty was found to be positively correlated. This finding is consistent with that of previous studies, that trust has a direct and strong effect on attitudinal loyalty (e.g. Hong & Cho, 2011). This supported Hypothesis 6, that brand trust has a positive effect on attitudinal loyalty. When customers have trust in a brand, they will retain their attitudinal loyalty with the brand and resist attractive short-term competitive offers (Junaid-ul-haq et al., 2013; Morgan & Hunt, 1994). This implies that, when customers have trust in a smartphone brand, they will stay with the brand that
they trust no matter how attractive competitive offers are. This means, when smartphone companies can build brand trust, they can then build long-term relationships with customers. Prior research has confirmed the direct relationship between these two constructs in different industries such as fast-moving consumer goods, food and newspapers. The findings of this study extend this conclusion to the smartphone industry: brand trust is also important for smartphones, which are luxury, high-technology products, in building attitudinal loyalty.

**H7: Brand trust has a positive effect on repurchase intention.** The findings were consistent with those of previous research, that customers with trust in a brand are more likely to repurchase the same brand (e.g. Doney & Cannon, 1997; Hiscock, 2001). This supported Hypothesis 7, that brand trust has a positive effect on repurchase intention. When customers trust a brand, they will convince themselves that the brand is worthy of purchase (Herbst et al., 2013) and develop some form of positive buying intention towards the brand (Aydin & Ozer, 2005). In the context of the smartphone industry in Hong Kong, customers will repurchase the smartphone brand that they trust and use it again in future. Since no study has been specifically done on this relationship for the smartphone industry, the present study extends the conclusion of previous research: brand trust is also critical for smartphone companies to build repurchase intention with customers.

**H4: Attitudinal loyalty has a positive effect on repurchase intention.** The relationship between attitudinal loyalty and repurchase intention was found
to be positively correlated. This finding was consistent with that of previous studies, that attitudinal loyalty has a positive and significant effect on behavioural intentions such as repurchase intention (e.g. Harris & Goode, 2004). This supported Hypothesis 4, that attitudinal loyalty has a positive effect on repurchase intention. When customers consider themselves loyal to a brand and that the brand is their first and best choice, they have a high probability of repurchasing the brand and using it again. Other prior research has suggested different relationships between attitudinal loyalty and repurchase intention. Some of them consider repurchase intention one of the measures of attitudinal loyalty (e.g. Aydin & Ozer, 2005). In contrast to such prior research, this study confirms that attitudinal loyalty is the driver of repurchase intention in the context of the smartphone industry in Hong Kong. Others have suggested that repurchase intention is driven by attitudinal loyalty (e.g. Harris & Goode, 2004). These findings are consistent with some prior studies of other industries (e.g. Hong & Cho, 2011). The findings of this study extend this conclusion to the context of the Hong Kong smartphone industry.

### 5.1.3 Mediation Analyses

One of the main aims of this study was to understand whether customer satisfaction mediates the relationship between service quality and attitudinal loyalty, and whether brand trust mediates the relationship between service quality and attitudinal loyalty. The study also tested whether there is a positive relationship between service quality and customer satisfaction, and whether there is a positive relationship between service quality and brand trust.
The main results showed that service quality is a significant antecedent of both customer satisfaction and brand trust. Moreover, both customer satisfaction and brand trust play mediating roles between service quality and attitudinal loyalty through different paths.

**H1: Service quality has a positive effect on customer satisfaction.** The relationship between service quality and customer satisfaction was found to be significant. This hypothesis is therefore supported. The positive coefficients indicated that the higher the service quality experienced by customers, the more the customers are satisfied with the brand. This finding is consistent with that of many prior studies, that service quality has a direct effect on customer satisfaction (e.g. Ahmed et al., 2010; Parasuraman, 1998).

**H2: Customer satisfaction will mediate the relationship between service quality and attitudinal loyalty.** Although the findings supported only partial mediation, the partial mediating effect of customer satisfaction on the relationship of service quality and attitudinal loyalty was found to be significant. Thus, this hypothesis is supported. Overall, the indirect effect of service quality on attitudinal loyalty stemmed from the positive correlation between service quality and customer satisfaction, which directly affect attitudinal loyalty. The findings contradict some prior studies that have suggested there is a direct relationship between service quality and attitudinal loyalty (e.g. Cöner & Güngör, 2002). However, according to the results of this study, service quality has an indirect effect on attitudinal loyalty through satisfaction in the context of the smartphone industry. Such findings were consistent with many previous studies.
conducted in other industries (e.g. Andreassen & Lindestad, 1998; Baumann et al., 2007; Chiou & Droge, 2006). Therefore, the findings of this study extend the conclusion on this relationship to the Hong Kong smartphone industry. It was suggested that not all loyal customers transferred from customers who were satisfied with the service quality were satisfied with the smartphone brands they were using. Perhaps they were not satisfied with other aspects of the brand, for example, features, and thus they were not satisfied. However, since they were so satisfied with the quality of service provided by the brand, they became attitudinally loyal. Customer satisfaction was thus proved to be very important in the smartphone market because of its direct effect on attitudinal loyalty, as well as its mediating role between service quality and attitudinal loyalty.

**H5: Service quality has a positive effect on brand trust.** The findings showed that there was a significant correlation between service quality and brand trust. The positive coefficients indicated that the higher the service quality experienced by customers, the more the customers trust the brand. Therefore, this hypothesis is supported. It was consistent with some previous studies conducted within the mobile telecommunication industry (Aydin & Ozer, 2005), automotive industry (Zehir et al., 2011) and business-to-business context (Sultan & Mooraj, 2001), among others. When customers perceive favourable service quality, they will ultimately increase their trust in the seller (Chiou & Droge, 2006). However, some studies have suggested that service quality does not have a significant effect on brand trust in the online pharmacy industry and thus concluded that product category should influence the relationship between service quality and brand trust (Chen et al., 2012). Based on the results of this
study, service quality was the direct driver of brand trust for the smartphone industry. This finding is consistent with those found in some industries, but at the same time was contradictory to findings in other industries. Therefore, by confirming the positive effect of service quality on brand trust in the smartphone market, this study extends the support for the conclusion that product category does influence the effect of service quality on brand trust.

H8: Brand trust will mediate the relationship between service quality and attitudinal loyalty. Although a full mediation effect of brand trust could not be found on the relationship between service quality and attitudinal loyalty, a partial mediation effect of brand trust was found to be significant. Thus, this hypothesis is supported. Overall, the indirect effect of service quality on attitudinal loyalty stems from the positive correlation between service quality and brand trust, which directly affect attitudinal loyalty. Such findings are consistent with previous studies that supported the indirect effect of service quality on attitudinal loyalty through trust (Chiou & Droge, 2006). It was suggested that not all loyal customers transferred from customers who were satisfied with the service quality had brand trust with the smartphone brands they were using. Since there are too few empirical studies that have investigated the nomological structure of these constructs (Hong & Cho, 2011; Zehir et al., 2011), this study serves as one of the few to confirm the relationships among these constructs in the context of the smartphone industry.

Such results indicate that, in the Hong Kong smartphone market, when customer satisfaction and brand trust is generated from service quality, attitudinal loyalty can be built and maintained. After customers have developed
attitudinal loyalty and brand trust, their repurchase intention can be high. Since repurchase intention is a strong indicator of actual purchase behaviour, it has become one of the main areas of attention of many companies. The study results further prove its importance.

5.2 Implications

This study was undertaken based on the need to strengthen our understanding of service quality, customer satisfaction and brand trust and how they affect attitudinal loyalty and repurchase intention in the Hong Kong smartphone industry. The study enriches the theoretical model for examining repurchase intention and attitudinal loyalty by assessing its relationship with service quality, customer satisfaction and brand trust. The study adds to the existing knowledge by (1) providing an in-depth examination of attitudinal loyalty and its relationship with its antecedents, that is, service quality, customer satisfaction and brand trust; and (2) adding repurchase intention to the end of the relationship chain of the model. Ultimately, a new model explaining the mediating effect of customer satisfaction and brand trust on the relationship between service quality and attitudinal loyalty, combined with how attitudinal loyalty and brand trust affect repurchase intention, was developed. Therefore, it is a useful framework for both researchers and practitioners, when they search for more insight into the factors of loyalty and repurchase intention. They will then be able to develop proper strategies and practices that lead to the improvement of brand loyalty, customer retention and, ultimately, overall organisational performance.
5.2.1 Theoretical Implications

Mediating effect of customer satisfaction and brand trust. This study has confirmed the mediating roles of customer satisfaction and brand trust on the relationship between service quality and attitudinal loyalty. Although only a partial mediation effect was found, the effect was still significant. The findings explain why service quality alone cannot be a strong direct predictor of attitudinal loyalty in the smartphone industry. Although some studies have argued that service quality has a direct effect on loyalty (e.g. Ahmed et al., 2011), the findings of this study confirm that service quality has a significant indirect effect on loyalty through satisfaction and brand trust in the smartphone industry. The findings support prior research conducted in different industries, but at the same time, extend the conclusion on this relationship to the Hong Kong smartphone industry. Even if companies provide a high quality of service, customers may view the brand favourably but not engage in loyalty if no meaningful form of satisfaction and brand trust is built through service quality. For service quality to lead to attitudinal loyalty in the smartphone industry, customer satisfaction and brand trust must be created by providing high-quality service.

Relationship between attitudinal loyalty and repurchase intention. This study has revealed that attitudinal loyalty can build repurchase intention directly. Such findings clarify the complex relationship between attitudinal loyalty and repurchase intention in the context of the smartphone industry. Previous research has suggested different relationships between these two constructs. Some studies have suggested that repurchase intention was one of the measures of attitudinal loyalty (e.g. Aydin & Ozer, 2005). In contrast to prior
research, the findings of this study confirm that, instead of being one of the measures of attitudinal loyalty, repurchase intention is a distinct construct from and is affected by attitudinal loyalty in the context of the smartphone industry. The findings increase understanding of the complex relationship between attitudinal loyalty and repurchase intention. To build repurchase intention, which is a conscious plan to carry out repurchase behaviour, smartphone companies must first develop attitudinal loyalty, which is the psychological commitment to the brand.

**Critical roles played by customer satisfaction.** The study also revealed the critical roles of customer satisfaction in loyalty building. While it had a direct and positive effect on attitudinal loyalty, it also mediated the relationship between service quality and attitudinal loyalty in the context of the smartphone industry in Hong Kong. The finding on the mediation effect of customer satisfaction supported previous research conducted in different industries. Thus, this study extends this conclusion to the Hong Kong smartphone industry. High-technology industries such as the smartphone industry can strengthen the relationship between customer satisfaction and loyalty (Jones & Sasser, 1995). Therefore, customer satisfaction plays a very important role in loyalty building in the smartphone industry. Although some studies have argued that customer satisfaction may not lead to loyalty (e.g. Suh & Yi, 2006), this may not apply to all types of industries (Fornell, 1992). In contrast to the findings of prior research, this study has clarified that customers of the smartphone industry will have attitudinal loyalty after they are satisfied with a brand.
Critical roles played by brand trust. The study has confirmed that brand trust plays a very important role in building attitudinal loyalty and repurchase intention directly. It has a direct and positive effect on both attitudinal loyalty and repurchase intention. It also mediates the relationship between service quality and attitudinal loyalty. Prior research on these relationships has been carried out in other industries, but too few have been conducted in the smartphone industry. This study is one of the few that extends the conclusions of these relationships to the smartphone industry. In the context of the smartphone industry, brand trust can play different roles in building attitudinal loyalty and repurchase intention. If brand trust is developed and managed properly, it can lead directly to attitudinal loyalty and repurchase intention. Brand trust must also be monitored to determine whether it can be developed after services with high quality are offered. This is because, for service quality to lead to attitudinal loyalty in the smartphone market, brand trust has to be developed after service quality.

To conclude, these findings have confirmed that, in the context of the smartphone market, customer satisfaction and brand trust can play critical roles in loyalty building. They can build attitudinal loyalty directly as well as individually mediate the relationship between service quality and attitudinal loyalty. Therefore, both customer satisfaction and brand trust are important factors in loyalty building in the smartphone market. The findings have also revealed that service quality is not a very strong direct predictor for attitudinal loyalty. However, service quality is still important in building customer satisfaction and brand trust so that attitudinal loyalty can be built. The study has also clarified the roles of attitudinal loyalty and repurchase intention by confirming that attitudinal loyalty
can lead directly to repurchase intention in the smartphone market. Therefore, the study discriminates between attitudinal loyalty and repurchase intention, which enables better understanding of the complex relationships between these two constructs in the context of the smartphone industry.

5.2.2 Managerial Implications

With the findings obtained from the study, smartphone companies can develop insight into developing strategies that can help them to achieve a higher level of attitudinal loyalty and repurchase intention. Customer-centred service strategies, communication strategies and training strategies are the main suggestions derived from the findings.

With more smartphone brands entering from the USA, Korea and China, consumers in Hong Kong today face more and more smartphone brand choices. In such a competitive marketplace, smartphone companies find it difficult to differentiate their brands from those of their competitors in the mind of consumers. Smartphone companies are facing the challenge of providing customers with clear choices rather than more choices. This implies that the companies need to understand how to manipulate the variables influencing brand loyalty as well as repurchase intention. The model presented in this study is a realistic empirical approach to capturing such an important part of a business operation. The results of the study demonstrate the relationships between the related constructs and their direct and indirect effect on attitudinal loyalty and repurchase intention in the smartphone industry. From a managerial perspective, it is apparent that attitudinal loyalty is affected by service quality through customer satisfaction and brand trust. The mediating roles of customer
satisfaction and brand trust provide evidence concerning their importance and key roles in affecting attitudinal loyalty, which in turn influences repurchase intentions. From a strategic standpoint, this study demonstrates one major potential area of competitive advantage, that is, service quality, which can help smartphone companies to become differentiated from their competitors.

How to develop competitive advantages through service quality.

Achieving sustainable competitive advantage can be very difficult, and superior service quality is one of the essential elements (Berry, 1999). Service quality can be the source of competitive advantage in the smartphone industry because of the highly interactive nature of service provided by smartphone companies. Because of the highly interactive nature of the smartphone industry, smartphone companies can adopt a customer-centred service strategy. To build a competitive advantage, service offering has to be customised for the companies’ existing customers or target customer groups rather than for the mass market. This requires in-depth knowledge of their customers’ apparent needs as well as their implicit needs, which can be understood through interaction. Knowledge of customer needs should then be applied to the design of service offering so that companies can differentiate themselves by satisfying customers’ different and specific needs. Smartphone companies should develop services that can help them differentiate the service areas that are important in the field, such as speed of delivery, efficiency, friendliness of employees, ease of contact and frequent communication (Mandhachitara & Poolthong, 2011). In the process of monitoring, management must emphasise how these service areas are delivered with high quality in the entire service process, from first encounter,
through purchasing, to sales closure and after-sales services. Moreover, management needs to monitor how their services generate more customer satisfaction and brand trust. Through regular customer surveys focusing on these areas, smartphone companies can monitor how they perform in the process of providing high-quality service. Service involves interaction, which is significant in customer experiences. High-quality service, which can enhance customer experience, can be delivered by demonstrating caring through sincere problem-solving, individual attention, understanding of specific needs and professionalism. Professionalism can be delivered by being consistently courteous, providing services right the first time and always being prepared for customers. To enable employees to perform the above high-quality service throughout the whole service process, more training on the above service area is necessary. To conclude, providing high-quality service is essential because it can create and maintain customer satisfaction and brand trust. Subsequently, customers who have satisfaction and brand trust will have a higher level of attitudinal loyalty, which will lead to higher repurchase intentions.

**Ensure customer satisfaction and brand trust are developed from service quality.** The study has confirmed that, in the context of the smartphone industry, for service quality to lead to attitudinal loyalty, customer satisfaction and brand trust must be created and maintained by providing high-quality service such as that proposed above. Based on these results, it is suggested that smartphone companies also monitor the consequences of service quality, that is, how service quality generates more customer satisfaction and brand trust. This means, if companies want to establish long-term relationships with their
customers, they should work, not only on satisfying their customers, but also on developing brand trust with them. In turn, satisfied and trusting customers will have attitudinal loyalty, and attitudinally loyal customers will have higher repurchase intentions. It is thus important for smartphone companies in Hong Kong to focus their efforts on managing and improving the quality of their services with the aim of improving customer satisfaction and brand trust. Brand trust is very important for the smartphone industry because the smartphone is a high-involvement, premium product and the costs associated with unfavourable selection are high (Chiou & Droge, 2006). To build trust, companies must consider its two main components, namely, brand reliability and brand intentionality (Delgado-Ballester & Munuera-Aleman, 2003). Brand reliability is the extent to which customers believe that the brand accomplishes what it has promised and meets their expectations. Brand intentionality is the extent to which customers feel confident that the brand will treat their interests with priority against its self-interest (Delgado-Ballester & Munuera-Aleman, 2005).

Customers of the smartphone industry require a great deal of technical support in the areas of product usage and functionality. Therefore, to build brand reliability, smartphone companies must ensure service consistency by delivering what they have promised in terms of service. Expert advice must also be provided all the time to facilitate customers’ use of their products. Therefore, training is important to ensure employees can deliver the service and the company’s promises at the quality level expected by the customers or even exceeding customer expectation. It is particularly important to train up employees in delivering prompt service right the first time. This requires training on such aspects as product features and software application. Training should
also be provided to improve technical skills on, for example, product functionality and mobile apps application, so that employees can answer customers’ enquiries and solve customers’ problems effectively and efficiently. To develop brand intentionality, it is critical that customers feel that employees care about them and have their interest at heart. It is hard to develop such quality through training, but it can be developed through observing how the management treat their customers with honesty and sincerity. Therefore, the management of the companies, as their leaders, have to behave as role models and demonstrate how to treat customers with their best interest in mind. There is also a need to develop a stringent customer service policy that provides guidelines on how to delight customers with their best interest at heart. When customers encounter problems with the product’s functionality, employees must be honest and sincere in addressing customers’ concerns and offer compensation whenever appropriate. For example, smartphone companies can even consider offering a brand-new product when customers encounter serious functionality problems with a smartphone that was only bought a few months previously. Customers will develop more trust in the brand and will be willing to rely on the brand to solve problems because they believe that it will create positive outcomes such as compensation for its customers. Consequently, customers will be more attitudinally loyal to such companies because of the trust built through the differentiated service quality.

**Communication strategies.** Communication strategies should emphasise companies’ differential characteristics of service quality to foster higher levels of customer satisfaction, brand trust, attitudinal loyalty and ultimately repurchase
intention. The differential characteristics must be communicated to customers
during and after the purchase phase. This means differential service must be
provided during the purchase phase and throughout the ownership period. In
this way, customers will become more satisfied and have more trust in the brand.

**How to develop attitudinal loyalty and repurchase intention.** The results
of the study have revealed that attitudinal loyalty leads to repurchase intention,
which is a strong predictor of actual purchase behaviour. Without loyalty,
customers will make purchase decisions based solely on the price or product
quality (Eng & Keh, 2007). Attitudinally loyal customers are less price sensitive
(Fitzgibbon & White, 2005) and are ‘more willing to pay premium prices for the
brand’ (Keller, 1993, p. 9). This means companies with more attitudinally loyal
customers do not have to cut their prices to attract purchases. Their marketing
strategy will not need to be based solely on pricing, which can lead to easy
substitution by a lower price alternative. Instead, companies can invest more in
service enhancement to build a competitive advantage. Customers will then
develop more trust and satisfaction, and they will be willing to spend more with
the brands. Moreover, service enhancement will induce customers’ willingness
to pay a premium price for benefits arising from the enhanced service. Therefore,
companies with more attitudinally loyal customers can maintain higher profits
because they do not need to use promotion or price discounts to generate
repurchases. Attitudinal loyalty can only be built and strengthened over the
period the brand is used and the service is experienced. In the process of the
service being experienced by customers, employees play a very important role
because they are the ones who deal directly with customers on a frequent basis.
The employees must understand the promises made by the companies in terms of different service attributes because they are the ones who deliver the service promises to the customers on behalf of the companies. The management of the companies should communicate the brand promise effectively to employees to convince them of its value and encourage employees to display passion for the brand. To conclude, the positive effect of attitudinal loyalty on repurchase intention is confirmed. Companies should invest in building attitudinal loyalty by improving customer satisfaction and increasing brand trust to increase the number of customers intending to purchase their brands.

The relationship among different constructs is dynamic and can be manipulated by companies’ strategies and actions to the benefit of both the companies, through more attitudinal loyalty and repurchase intention, and the customers, through higher quality service.

5.3 Limitations and Recommendations for Future Research

This study has some limitations. First, the study examined only a single direction of the casual relationship between loyalty and its antecedents. However, according to Chaudhuri and Holbrook (2001), reverse causality is possible. Customer satisfaction and brand trust are suggested as the key determinants of loyalty, but this does not preclude the possibility that continuous attitudinal loyalty in turn may also create additional customer satisfaction and brand trust. Moreover, service quality is commonly suggested as the antecedent of customer satisfaction (e.g. Parasuraman et al., 2005). However, some studies have demonstrated that an increase in satisfaction will lead to a higher level of perceived service quality (e.g. Bolton & Drew, 1991). Therefore, it is possible
that ‘studies over time will find that these relationships are ongoing and reciprocal’ (Chaudhuri & Holbrook, 2001, p. 91). Accordingly, the study could be extended to evaluate the reverse causality between loyalty and the factors.

Second, the study focused only on one single industry in one single geographical market—the smartphone market in Hong Kong. The sample is thus limited to Hong Kong residents. The results may not be generalisable to other industries and geographical markets. Further study could be done in comparing the results on the smartphone industry with those of other industries such as the service industry and fast-moving consumer goods. Studies could also be conducted in other geographical markets to test the framework appropriateness and make cross-cultural comparisons of the framework. It has been proven that cultural values can influence the interpretation of service quality, and that these differences can generate different levels of trust and satisfaction (Geletkanycz, 1997). By broadening the types of industry and geographical markets that are studied, the ability to generalise the results of the model studied will be enhanced.

Third, the study does not consider the existence of different stages of satisfaction and trust development in a relationship continuum. There is empirical support for the idea that the accumulating effect of customer satisfaction as determined by service quality will result in customer loyalty (Slotegraaf & Inman, 2004). This means there are different stages and thus different levels of satisfaction and trust developed throughout the purchase experience because customers’ perceptions about satisfaction and trust can change over time. Employing a longitudinal research design for, say, a period of years, will enable the examination of the variations in perception of all constructs.
and more comprehensive information about the correlation among the
constructs in the study.

Lastly, there is a need to strengthen the understanding of the predictive
effect of repurchase intention on actual repurchase behaviour. Considering the
difficulties encountered in measuring actual purchase behaviour, an ‘intention’
approach was followed rather than a behavioural one in this study. Although
some studies consider repurchase intention a strong predictor of actual
purchase behaviour (e.g. Keller, 2003; Keiningham et al., 2007), there is a need
to test such correlation empirically by evaluating the actual sales data of the
companies. The sales data might include sales amount by customer, and
purchase frequency and interval by customer. Such measurements of real
behaviour have proven to be very difficult from a practical point of view (Caceres
& Paparoidamis, 2005). Owing to the limited resources of this study, it is not
possible to obtain actual sales information from companies. To encourage
companies to release their sales information, researchers need to convince
them that the studies will help them to realise their potential to enhance
long-term performance by achieving competitive advantages.

5.4 Summary

Numerous studies have demonstrated that it is more profitable to retain
customers than to acquire new ones (e.g. Hogan et al., 2003; Lee-Kelley et al.,
2003). Companies should continue to focus on factors that lead to customer
loyalty and retention. Attitudinal loyalty and repurchase intention are important
measures for customer loyalty and retention, which are crucial to a company’s
long-term business success and financial performance. For a company to
achieve long-term success, it is essential that it understands the factors affecting attitudinal loyalty and repurchase intention and act on it accordingly. This study has contributed to the research literature on the antecedents of attitudinal loyalty and repurchase intention. The findings have demonstrated the correlation between these two constructs and among their antecedents, that is, service quality, customer satisfaction and brand trust. The correlation and effects of the constructs examined in the study provide strategic and managerial direction for smartphone companies to enhance their marketing strategies, which can help them to achieve better performance in the long run. Owing to the multidimensional nature of each construct, there is a need to continue the research in this area, so that better understanding of these constructs and the relationships among them can be obtained. It would be beneficial to replicate the model developed from this study for use with other brands and industries so that the results of the model can be generalised.
References


Journal of Marketing, 41(7/8), 836-867.


Census and Statistics Department Hong Kong (May 2013). Hong Kong as an Information Society. Hong Kong.


loyalty and behavioral loyalty. *International Journal of Business and Social Science*. 2(10), 149-166.


satisfaction, retention, and prices in the life insurance Industry. *Journal of Marketing Research, 24 (November),* 404-411.


Marketing. Harlow: Pearson Education.


Google (May 2013). *Our Mobile Planet: Hong Kong, Understanding the Mobile Consumer*. Hong Kong.


Gundlach, G.T., and Murphy, P.E. (1993). Ethical and legal foundations of


Research, 11(3), 29-35.


361–367.


Oliver, R.L. (1980). A cognitive model of the antecedents and consequences of


multiple-item scale for measuring consumer perceptions of service quality. 
*Journal of Retailing, 64*(1), 12-40.


Poynter, R. (2010). *Handbook of Online and Social Media Research: Tools and
Techniques for Market Researchers. NJ: Wiley.


Scotland, J. (2010). Exploring the philosophical underpinnings of research: Relating ontology and epistemology to the methodology and methods of the scientific, interpretive, and critical research paradigms. English Language Teaching, 5(9), 9-16.


Shankar, V., and Balasubramanian, S. (2009). Mobile marketing: a synthesis and
prognosis. *Journal of Interactive Marketing, 23*(2), 118-129.


Administration, 1-21.


two-stage model of choice. *Journal of Marketing Research, 25* (2), 134-144.


Yoo, M, and Bai B. (in press). Customer loyalty marketing research: a
comparative approach between hospitality and business journals. International
Journal of Hospitality Management.

Yoon, S.J. (2002). The antecedents and consequences of trust in

communication and service quality in building brand loyalty through brand trust:
The empirical research on global brands. *Procedia Social and Behavioral
Sciences, 24*, 1218-1231.

means-end model and synthesis of evidence. *Journal of Marketing, 52*(July),
2-22.


delivery through web sites: a critical review of extant knowledge. *Journal of the

Zboja, J.J., and Voorhees, C.M. (2006). The impact of brand trust and
satisfaction on retailer repurchase intentions. *Journal of Services Marketing,
20*(5), 381-390.

myths and truths about mediation analysis, *Journal of Consumer Research, 37*,
197-206.

elaboration likelihood perspective. *Computers in Human Behavior, 28*(4),
p.1518-1525.

Me: Trust Antecedents that Increase Online Consumer Purchase Intention.
Appendices

Appendix A: Questionnaire

Section one
The following questions are for classification. Please check or respond appropriately for each question.

a) Age:  ○ below 18  ○ 18-24  ○ 25-34  ○ 35-44  ○ 45-54  ○ 55-64  ○ 65 or above

b) Are you Hong Kong resident?
   ○ Yes  ○ No __________________ (your residency)

c) Are you current smartphone users?  No  Yes

A smartphone is a mobile phone built on a mobile operating system, with more advanced computing capability and connectivity than a mobile phone. The smartphones combined the following functions with a mobile phone to form one multi-use device: personal digital assistant (PDA), portable media players, digital cameras, pocket video cameras, GPS navigation units, touchscreen and web browsers that display standard web pages as well as mobile-optimized sites.

Section two

d) Current smartphone brand in use:
   ○ Apple (e.g. iPhone series)
   ○ LG (e.g. Optimus/Lucid/Spectrum)
   ○ Samsung (e.g. Galaxy series)
   ○ HTC (e.g. 8XT/One/Droid DNA)
   ○ Sony (e.g. Xperia series)
   ○ Motorola (e.g. Droid Ultra)
   ○ Nokia (e.g. Lumia series)
   ○ Others

Please indicate your agreement or disagreement with the following questions regarding the experiences with the current smartphone brand you are using now.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>
1 When I have a problem, this brand shows a sincere interest in solving it.
2 This brand performs the service right the first time.
3 Employees of this brand give me prompt service.
4 Employees of this brand are never too busy to respond to my request.
5 Employees of this brand are consistently courteous.
6 Employees of this brand can answer my questions.
7 Employees of this brand understand my specific needs.
8 This brand has my best interest at heart.
9 This brand meets my expectation.
10 I feel confident in this brand.
11 This brand never disappoints me.
12 This brand guarantees satisfaction.
13 This brand would be honest and sincere in addressing my concern.
14 I could rely on this brand to solve the problem.
15 This brand would make any effort to satisfy me.
16 This brand would compensate me in some way for the problem with the product.
17 I am satisfied with my decision to purchase this brand.
18 My choice to buy this brand was a wise one.
19 I think I did the right thing when I bought this brand.
20 I am not happy that I bought this brand.
21 I truly enjoy my purchase of this brand.
22 I consider myself to be loyal to this brand.
23 This brand would be my first choice when considering smartphone.
24 I use this brand because it is the best choice for me.
25 I am willing to pay a higher price for this brand.
26 If I had to do it over again, I would choose this brand.
27 I would not switch to a competitor, even if I have a problem with this brand.
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>I will probably not purchase this brand again.</td>
</tr>
<tr>
<td>29</td>
<td>I will use this brand much less in the future.</td>
</tr>
</tbody>
</table>

**Section Three**

30. The following questions are for classification purposes. Please check appropriately for each question.

a) Gender
   - Female
   - Male

b) Education level:
   - Secondary or below
   - Degree
   - College
   - Master or above

c) Individual monthly income level (HK$):
   - $10,000 or below
   - $10,001-$20,000
   - $20,001-$30,000
   - $30,001-$50,000
   - $50,001-$70,000
   - $70,001 or above
Appendix B : Approval from Human Research Ethics Committee

HUMAN RESEARCH ETHICS COMMITTEE

Notification of Expedited Approval

To Chief Investigator or Project Supervisor: Mr Pandit Ameet Pramod
Cc Co-investigators / Research Students: Ms Ching Yee Ng
                                          Mrs Sonia Vilches-Montero
Re Protocol: Impacts of antecedents of brand loyalty in Hong Kong smartphone market
Date: 18-Feb-2014
Reference No: H-2014-0039
Date of Initial Approval: 18-Feb-2014

Thank you for your Response to Conditional Approval (minor amendments) submission to the Human Research Ethics Committee (HREC) seeking approval in relation to the above protocol.

Your submission was considered under Expedited review by the Ethics Administrator.

I am pleased to advise that the decision on your submission is Approved effective 18-Feb-2014.

In approving this protocol, the Human Research Ethics Committee (HREC) is of the opinion that the project complies with the provisions contained in the National Statement on Ethical Conduct in Human Research, 2007, and the requirements within this University relating to human research.

Approval will remain valid subject to the submission, and satisfactory assessment, of annual progress reports. If the approval of an External HREC has been "noted" the approval period is as determined by that HREC.
The full Committee will be asked to ratify this decision at its next scheduled meeting. A formal Certificate of Approval will be available upon request. Your approval number is H-2014-0039.

If the research requires the use of an Information Statement, ensure this number is inserted at the relevant point in the Complaints paragraph prior to distribution to potential participants. You may then proceed with the research.

**Conditions of Approval**

This approval has been granted subject to you complying with the requirements for Monitoring of Progress, Reporting of Adverse Events, and Variations to the Approved Protocol as detailed below.

PLEASE NOTE:
In the case where the HREC has "noted" the approval of an External HREC, progress reports and reports of adverse events are to be submitted to the External HREC only. In the case of Variations to the approved protocol, or a Renewal of approval, you will apply to the External HREC for approval in the first instance and then Register that approval with the University's HREC.

- **Monitoring of Progress**

  Other than above, the University is obliged to monitor the progress of research projects involving human participants to ensure that they are conducted according to the protocol as approved by the HREC. A progress report is required on an annual basis. Continuation of your HREC approval for this project is conditional upon receipt, and satisfactory assessment, of annual progress reports. You will be advised when a report is due.

- **Reporting of Adverse Events**

  1. It is the responsibility of the person first named on this Approval Advice to report adverse events.

  2. Adverse events, however minor, must be recorded by the investigator as observed by the investigator or as volunteered by a participant in the research. Full details are to be documented, whether or not the investigator, or his/her deputies, consider the event to be related to the research substance or procedure.

  3. Serious or unforeseen adverse events that occur during the research or within six (6)
months of completion of the research, must be reported by the person first named on the Approval Advice to the (HREC) by way of the Adverse Event Report form (via RIMS at https://rims.newcastle.edu.au/login.asp) within 72 hours of the occurrence of the event or the investigator receiving advice of the event.

4. Serious adverse events are defined as:
   - Causing death, life threatening or serious disability.
   - Causing or prolonging hospitalisation.
   - Overdoses, cancers, congenital abnormalities, tissue damage, whether or not they are judged to be caused by the investigational agent or procedure.
   - Causing psycho-social and/or financial harm. This covers everything from perceived invasion of privacy, breach of confidentiality, or the diminution of social reputation, to the creation of psychological fears and trauma.
   - Any other event which might affect the continued ethical acceptability of the project.

5. Reports of adverse events must include:
   - Participant's study identification number;
   - date of birth;
   - date of entry into the study;
   - treatment arm (if applicable);
   - date of event;
   - details of event;
   - the investigator's opinion as to whether the event is related to the research procedures; and
   - action taken in response to the event.

6. Adverse events which do not fall within the definition of serious or unexpected, including those reported from other sites involved in the research, are to be reported in detail at the time of the annual progress report to the HREC.

- **Variations to approved protocol**

If you wish to change, or deviate from, the approved protocol, you will need to submit an
Application for Variation to Approved Human Research (via RIMS at https://rims.newcastle.edu.au/login.asp). Variations may include, but are not limited to, changes or additions to investigators, study design, study population, number of participants, methods of recruitment, or participant information/consent documentation. Variations must be approved by the (HREC) before they are implemented except when Registering an approval of a variation from an external HREC which has been designated the lead HREC, in which case you may proceed as soon as you receive an acknowledgement of your Registration.

**Linkage of ethics approval to a new Grant**

HREC approvals cannot be assigned to a new grant or award (ie those that were not identified on the application for ethics approval) without confirmation of the approval from the Human Research Ethics Officer on behalf of the HREC.

Best wishes for a successful project.

Professor Allyson Holbrook

Chair, Human Research Ethics Committee

For communications and enquiries:

Human Research Ethics Administration

Research Services
Research Integrity Unit
The Chancellery
The University of Newcastle
Callaghan NSW 2308
T +61 2 492 17894
F +61 2 492 17164
Human-Ethics@newcastle.edu.au

Appendix C : Participant Information Sheet

Information Statement for the Research Project:
Impacts of antecedents of brand loyalty in Hong Kong smartphone market
Document Version 2; dated 12/02/14

You are invited to participate in the research project identified above which is being conducted by Holly Ng, student researcher from the Faculty of Business and Law of Newcastle Business School at the University of Newcastle.

The research is part of Holly Ng’s studies at the University of Newcastle, supervised by Dr. Ameet Pandit and Dr. Sonia Vilches-Montero from the Newcastle Business School at the University of Newcastle.

Why is the research being done?
The purpose of the research is to examine the impact of service quality, customer satisfaction, brand trust, and brand loyalty on repurchase intention in the Hong Kong smartphone market.

Who can participate in the research?
We are seeking Hong Kong residents who are aged 18 years or above and are smartphone users to participate in this research.
If you are not smartphone users, or aged under 18, or not Hong Kong residents, then unfortunately you are not eligible to participate.

What choice do you have?
Participation in this research is entirely your choice. Only those people who complete the questionnaire will be included in the project. Whether or not you decide to participate, your decision will not disadvantage you.

What would you be asked to do?
If you agree to participate, you will be asked to complete a questionnaire about different factors that might contribute to your repurchase intention towards smartphone brand you are using.

How much time will it take?
The questionnaires should take about 10 minutes to complete.

What are the risks and benefits of participating?
There will be no risk for you as the survey is anonymous and you will not be identified from the
answers. There is no direct benefit to participants. However, the findings of the study will be useful for the smartphone market practitioners to develop effective customer driven strategies which can help build and sustain their brand loyalty. In return, the participants will be able to enjoy more tailor-made offers from the smartphone companies which target to build loyalty from them.

**How will your privacy be protected?**
The filled digital questionnaires will be stored on a secure UoN network drive accessible only to supervisor and student researcher. Data will be stored electronically on the student researcher’s password protected computer and on the before mentioned secure UoN network drive. Data will be erased five years after the approval of DBA qualification to the researcher.

**How will the information collected be used?**
Information collected will be used in the thesis to be submitted for Holly Ng’s degree.

As it is anonymous survey, individual participants will not be identified in any reports arising from the project. However, participants can obtain a summary of the research results by emailing the researcher.

**What do you need to do to participate?**
Please read this Information Statement and be sure you understand its contents before you consent to participate. If there is anything you do not understand, or you have questions, contact the researcher.

If you would like to participate, please tick the Agreement box below and you will be directed to the page of questionnaire. This will be taken as your informed consent to participate.

**Further information**
If you would like further information please contact Dr. Ameet Pandit or Dr. Sonia Vilches-Montero, the Chief Investigators of the research project. Their email addresses are Ameet.Pandit@newcastle.edu.au and Sonia.Vilches-Montero@newcastle.edu.au respectively.

Thank you for considering this invitation.

________________________________________________________________________
Holly Ng                        Ameet Pandit / Sonia Vilches-Montero
Student researcher                        Chief Investigators

**Complaints about this research**
This project has been approved by the University’s Human Research Ethics Committee, Approval No. H-2014-0039.

Should you have concerns about your rights as a participant in this research, or you have a complaint about the manner in which the research is conducted, it may be given to the researcher, or, if an independent person is preferred, to The Hong Kong Management Association, 16/F Tower B Southmark, 11 Yip Hing Street, Wong Chuk Hang, Hong Kong, telephone (852) 2526 6516, email degree.newcastle@hkma.org.hk or to the Human Research Ethics Officer, Research Office, The Chancellery, The University of Newcastle, University Drive, Callaghan NSW 2308, Australia, telephone (02) 49216333, email Human-Ethics@newcastle.edu.au.
Appendix D: Data Analysis Procedure

Stage 1
Descriptive statistics
- Understand characteristics of sample
- Compare means and standard of each multi-item scale

Stage 2
Reliability Tests
Factor Analysis
- Assess the inter-item consistency
- Conduct factor analysis on the measurement

Stage 3
Hypotheses Testing
- Conduct regression analysis to confirm the relationship among variables
- Test of H1: Service quality has positive effect on customer satisfaction.
- Test of H2: Customer satisfaction will mediate the relationship between service quality and attitudinal loyalty
- Test of H3: Customer satisfaction has positive effect on attitudinal loyalty.
- Test of H4: Attitudinal loyalty has positive effect on repurchase intention.
- Test of H5: Service quality has positive effect on brand trust
- Test of H6: Brand trust has positive effect on attitudinal loyalty.
- Test of H7: Brand trust has positive effect on repurchase intention
- Test of H8: Brand trust will mediate the relationship between service quality and attitudinal loyalty.