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Investigating the Effects of Consumer Innovativeness, Service Quality and Service Switching Costs on Service Loyalty in the Mobile Phone Service Context

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Abstract: The objective of this study is to examine the effects of consumer innovativeness, service quality, service switching costs and service satisfaction on service loyalty among mobile phone service users. A cross sectional survey was employed which yielded 535 responses. Structural equation modelling using the AMOS version 2.0 was utilized to test study the hypotheses. Test results reveal that service satisfaction, service switching costs and service quality are the three antecedents that directly influence service loyalty. However, consumer innovativeness does not have any direct effect on service loyalty. Moreover, service satisfaction is found to be a partial mediator between 'service quality' and 'service loyalty'. Findings from this study will develop insights to enable policy-makers, managers and marketers to better strategize and effectively implement loyalty programs and prevent their customers from switching. This will enhance value creation for both their users and for the industry.

Abstrak: Tujuan penelitian ini adalah untuk menguji efek keinovatifan konsumen, kualitas layanan, biaya peralihan layanan dan kepuasan layanan pada loyalitas layanan di kalangan pengguna layanan telepon seluler. Survei *cross sectional* yang dilakukan mendapatkan 535 tanggapan. Pemodelan persamaan struktural menggunakan AMOS versi 2.0 digunakan untuk menguji hipotesis. Hasil pengujian mengungkapkan bahwa kepuasan layanan, biaya peralihan layanan dan kualitas layanan adalah tiga anteseden yang secara langsung mempengaruhi loyalitas layanan. Namun, keinovatifan konsumen tidak memiliki efek langsung pada loyalitas layanan. Lebih lanjut, kepuasan layanan ditemukan sebagai pemediasi parsial antara 'kualitas layanan' dan 'loyalitas layanan'. Temuan studi ini akan mengembangkan pilihan yang memungkinkan para pembuat kebijakan, manajer dan pemasar untuk merancang strategi yang lebih baik dan secara efektif mengimplementasikan program loyalitas dan mencegah pelanggan mereka beralih. Hal ini akan meningkatkan penciptaan nilai bagi para pengguna dan bagi industri.

Keywords: consumer innovativeness; mobile phone service users; service quality; service satisfaction; service switching cost; service loyalty

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Introduction

Achieving the *loyalty* of their customers has become the main concern for service industry managers, since it contributes significantly to their firms' profitability (Reichheld 2002; Reichheld and Sasser 1990; Rust and Zahorik 1993), survival and growth (Reichheld 1996), and for providing new referrals for their firms through positive word of mouth endorsements (Ganesh et al. 2000; Gremler and Brown 1996). However, retaining current customers and precluding them from switching is a very difficult task, due to the availability of alternative service providers (Habib et al. 2011; Quoquab et al. 2014; Tuu and Olsen 2013). This is more crucial for the telecoms' service industry (Adham and Said 2010; Said and Adham 2010; Narayana 2011). When consumers switch from their existing service provider, many established relationships with that service provider are likely to deteriorate and dissolve (Al-kwifi et al. 2014; Annala et al. 2013; Gustafsson et al. 2005). As a consequence, dissatisfied switchers can generate negative word of mouth reviews that can damage a firm's reputation and brand image (Lopez et al. 2006). In addition, the firm needs to spend money to attract new consumers through advertising and offering promotional or initial discounts (Lopez et al. 2006). In fact, some business analysts have indicated that the costs of gaining new consumers are five times more expensive than those of maintaining the current consumers (Keiningham et al. 2005; Mittal and Lasser 1998). Hence, the effort to retain current consumers is much more worthwhile than searching for new ones (Liu et al. 2014). Due to these serious problems, researchers and practitioners are very concerned about understanding the issues that relate to keeping consumers loyal and reducing the switching rate in their industries.

Past research has studied 'consumer innovativeness' in relation to variables such as: (i) *perceived risk* (Hirunyawipad and Paswan 2006), (ii) *product interest* (Robertson 1968), (iii) *self-congruence* (Cowart et al. 2008), (iv) *consumers personality traits* (Donnelly and Ivancevich 1974), (v) *product involvement* (Wang et al. 2006), and (vi) *purchase and consumption characteristics* (Taylor 1977). However, none of these studies examined the influence of consumer innovativeness on loyalty or switching behaviour. For the present study consumer innovativeness is considered as the user's intrinsic motivation to explore another service provider's network and/or to switch to an upgraded package (such as a SMART phone), even if it is offered by the same service provider, for example Maxis customers switching to its I-phone service offering, and/or switching to another new package. As such, consumer innovativeness can be stimulated not only by the network services but also by other embedded products and service offerings. Hence, innovativeness in the mobile phone service context and its link to service loyalty are issues worthy of research.

After introducing the 'Mobile Number Portability' (MNP) regulation in Malaysia on the 15th of October 2008, competition among the main players in the mobile phone service industries has become more intense (MCMC 2009). According to the IDC report (2007), it may cause an increase in consumer switching by up to 11.7 percent on a yearly basis. Although MNP lessened the barriers of service switching in the Malaysian mobile phone service market, other forms of switching costs still persist, such as loss costs, adaptation costs and move-in costs. Therefore, it is vital to examine the effects of service switching costs. However, this is an understudied issue in the Malaysian service context. Hence, this study tries to minimize this gap by veri-

fying the service switching costs effect on loyalty.

Considering this, the present study attempts to examine the effect of consumer innovativeness, service quality, service switching costs and service satisfaction on service loyalty among the mobile phone service users. The rest of the paper is four fold. In the next section a literature review and the hypotheses development is discussed. The following section discusses the methodology adopted in this study, followed by our findings and discussion. The last section draws conclusions and elaborates further on any implications and future research directions.

Theoretical Underpinning

Theory plays a great role in utilizing the hypothetic-deductive technique (Greenwald and Pratkins 1988). In this type of research, hypotheses are formulated on the basis of theoretical assumptions, and then the derived hypotheses are tested empirically (Kuhn 1962). As the present study has adopted the hypothetico-deductive method to achieve its research purpose, the Expectancy-Disconfirmation Theory (EDT) (Oliver 1980), as well as exploratory buyer behaviour theory (Baumgartner and Steenkamp 1996; Raju 1980) have been considered to support the proposed relationships among the study constructs.

The EDT suggests that consumer satisfaction is the consumers' overall evaluation of a product or service which derives from the comparison between the consumers' prepurchase expectations and the perceived service quality (Oliver 1980, 1997). According to Oliver (1997: 13), "Satisfaction is the consumer's fulfilment response". This fulfilled state is the function of the consumers' judgement of the overall service quality (Anderson and Sullivan 2003; Zeithaml and Bitner 1996). Under this theory, consumers modify and update their overall attitude towards the service quality based on their satisfaction of this instance of use, and this consequently leads to an intention to continue (or discontinue) the services (Oliver 1981; Yen and Lu 2008). Hence, service quality and satisfaction became the centre of research interest as the determinants of loyalty (see Khatabi et al. 2002; Mittal and Lassar 1998). Moreover, this theory gives rise to the idea that the repurchase intention occurred as a post satisfaction outcome (Oliver 1997). Hence, the present study considers service quality (performance) as an antecedent of service satisfaction and service satisfaction as an antecedent of service loyalty/switching.

Borrowed from the field of psychology, the exploratory buyer behaviour theory has received considerably research attention as the 'desire for exploration' is one of the most useful motivating factors to influence buying behaviour (Baumgartner and Steenkamp 1996). According to Berlyne (1963: 287), "The exploratory responses modify the stimulation from sources that are already represented in the stimulus field, and they introduce stimulation from sources that were not hitherto represented". This theory postulates that certain stimuli have 'arousal potential' and sometimes animals and people are engaged in such activities that help to obtain the optimum level of *arousal potential* (Berlyne 1960, 1963). If the arousal potential is less than the optimum level, it may cause boredom and thus to avoid the feeling of boredom, individuals tend to engage in seeking the stimuli which possess higher arousal potential (Raju and Venkatesan 1980). Moreover, exciting and novel experiences, the desire for change and variation as well as the

desire to fulfill one's curiosity, also lead the individual to explore new and/or different products and services (Berlyne 1978). One of the major applications of this theory is to justify consumers' innovativeness in product adoption (Mittelstaedt et al. 1976) and variety seeking in product purchasing behaviour (McAlister and Pessimier 1982). Although consumer innovativeness has received considerable research attention in the field of consumer goods, comparatively less empirical studies have been conducted on the topic in services. The present study assumes that due to the influence of the exploratory component, consumer innovativeness can reduce the magnitude of service satisfaction as well as service loyalty. Thus, consumer innovativeness is considered as another influential antecedent of service satisfaction and loyalty in mobile phone service usage.

Theoretical Framework and Hypotheses Development

Conceptual Framework

In this study it is proposed that service quality, service satisfaction, and service switching costs positively affect service loyalty, whereas, consumer innovativeness negatively affects service loyalty. Furthermore, service satisfaction mediates the relationship between service quality and service loyalty.

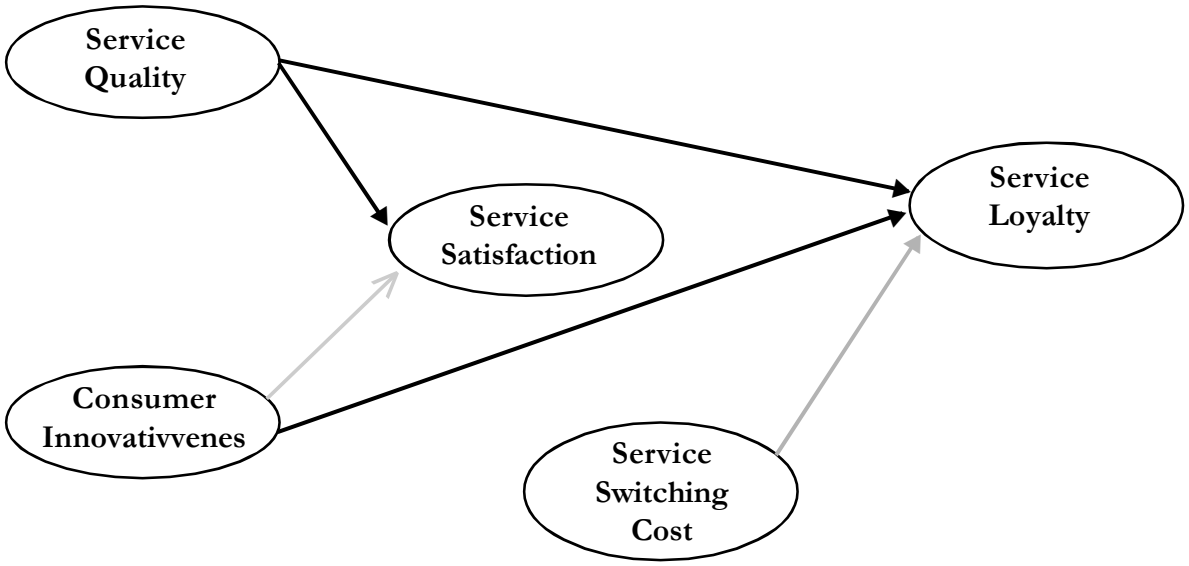
Service Loyalty

Since its inception in the 1940s (see Guest 1942, 1944), the term '*loyalty*' has received a considerable amount of research attention due to its various monetary and non-monetary benefits accruing to firms' growth. Gaining *competitive advantage* (Bharadwaj et al. 1993), *profitability*, *survival, success* and *growth*, (Reichheld 2002; Schultz 2005), and positive *word of mouth* (Woratschek and Horbel 2003; Zeithaml et al. 1996) are only the tip of the iceberg. Therefore, customer retention has become the holy grail in industries from airlines to wireless technologies (Bristow and Sebastian 2001; Coyles and Gokey 2005; Heskett 2002; Salegna and Goodwin 2005).

Guest (1944) and Churchill (1942) began to explore this phenomenon in the 1940s. Since then researchers have been trying to identify its nature, dimensions, antecedents, and consequences. Nowadays, many researchers perceive service loyalty as a multidimensional construct due to the importance and contribution of measuring service loyalty to greater depths. It is argued that the attitudinal-cognitive-conative-affective loyalty could strongly impact current and, more importantly, future consumer behaviour, which may be impossible to understand and difficult to predict without knowledge of these elements (Salegna and Goodwin 2005). Therefore, for the present study, service loyalty is conceptualized as a multidimensional construct guided by the definitions of Gremler and Brown (1996) and Oliver (1997).

Hence, this study conceptualizes service loyalty as 'the combination of behavioral, attitudinal, cognitive, affective and conative loyalty, while using the same mobile phone service provider's service for at least four months duration, and using one SP's services predominantly'. As four months of usage experience was found to be sufficient to establish reliable perceptions and opinions regarding the mobile phone service usage (Turel and Serenko 2006), the present study also considered this duration of usage experience to be loyal. In addition to this, in the context of other services (banks, credit card companies, firms that offer appliance repair

Figure 1. **Proposed Relationships among the Constructs**



and maintenance services), Parasuraman et al. (1988) considered three months worth of experience in using these services as the qualifying criteria for the respondents.

Consumer Innovativeness

As stated by Hirschman (1980, p. 283), "Few concepts in the behavioral sciences have as much immediate relevance to consumer behavior as consumer innovativeness". It changes consumers' routinized buying tendencies into a more dynamic behavior (Hirschman 1980, 1984). Although consumer innovativeness has been studied in different contexts, such as wine consumption (Goldsmith et al. 1998), high-tech durable products (Kim et al. 2001), home entertainment equipment (Cowart et al. 2008), clothing purchases (Fowler and Bridges 2010), and the like, the literature has mainly addressed it for new products' adoption and diffusion processes (see Cowart et al., 2008; Greenhalgh et al. 2005; Hirunyawipada and Paswan 2006; Hoffmann and Soyez 2010) and there is not much discussion in the service literature.

It is important to note that 'service/product innovativeness' and 'consumer innovativeness' are two totally different aspects of *innovativeness*. Another term for service/product innovativeness is the 'possession of newness' which takes a product perspective and refers to the goods/services acquiring some degree of 'newness' (Daneels and Kleinsmith 2001). On the other hand, consumer innovativeness or the 'consumption of newness' takes a consumer's perspective which implies a consumer's propensity to purchase new products or services frequently and rapidly (Midgley and Dowling 1978). The present study considers innovativeness exclusively from the consumers' perspective and defines it as the users' intrinsic motivation to explore different service offerings either from different service providers or even when offered by the same service provider.

Service Switching Cost

The service switching cost is the penalty that consumers have to pay for changing service providers (Aydin et al. 2005). This phenomenon has been discussed in several fields such as economics, psychology, employee relations and marketing (Lin and Chou 2004; Zhu et al. 2011). Theoretically as well as empirically it is proven that switching costs contribute to repeat choice behavior (Weiss and Heide 1993), help to attain competitive advantage (Dubé et al. 2009; Klemperer 1995; Porter 1985), and enhance customers' levels of price-tolerance and decreases consumers' sensitivity to the short-run fluctuations in customer satisfaction (Fornell 1992). Moreover, the switching cost is associated with higher profits (Beggs and Klempere 1992) and creates barriers to market entry (Karakaya and Stahl 1989). However, Fornell (1992) mentioned one potential disadvantage of the switching cost, that is the greater difficulty of capturing new customers when they are aware of the existence of barriers to them switching. Nonetheless, given its benefits, it seems that service firms need to manage their consumers' perception towards switching costs, and must utilize marketing activities to benefit from this switching penalty (Burnham et al. 2003).

Service Satisfaction

Consumer satisfaction has been the subject of many studies since the early 1970s (see LaTour and Peat 1979; Leavitt 1976). However, it is still the centre of attention for research into the field of marketing (Amin et al. 2013; Kursunluoglu 2014). Giese and Cote (2000) stated that consumer satisfaction is an emotive and/or cognitive response pertaining to a particular focus (expectations, product performance) which occurs after purchase, choice or product experience has occurred.

Satisfaction can be either cumulative (overall) or transaction-specific (Bodet 2008; Jones and Suh 2000). Transaction-specific satisfaction indicates consumers' satisfaction/dissatisfaction judgements of a single purchase experience or a particular service encounter (Anderson et al. 1994; Boulding et al. 1993). On the other hand, cumulative satisfaction/dissatisfaction is viewed as an overall evaluation of the total purchase experience, or all previous service encounters with a particular product or service (Jones and Suh 2000). According to many researchers (e.g., Anderson et al. 1994; Bitner and Hubbert 1994; Olsen 2007), as overall satisfaction represents the consumers' aggregate state of their level of satisfaction/dissatisfaction, rather than a specific transaction evaluation, overall satisfaction outweighs transaction specific satisfaction. In this way, it serves as a more appropriate and useful measure of a firm's past, present and future performance evaluation criterion (Johnson et al. 2001; Oliver 1997). Following this convention, this study also considers service satisfaction as a cumulative process.

Service Quality

Three unique characteristics of service, i.e., intangibility, heterogeneity, and inseparability made service quality an elusive phenomenon to study (Parasuraman et al. 1985). The quality of physical products can be measured objectively using indicators such as counting the number of defects or measuring the durability of the products (Garvin 1983). However, evaluating service quality is more difficult than evaluating product quality (Aydin and Ozer 2005; Parasuraman et al. 1988). Furthermore, it become more

complicated to evaluate since service quality is often linked with the service delivery process and its output (Cody and Hope 1999).

Service quality is a form of attitude which can be measured by assessing consumers' quality perceptions of service firms' efforts in fulfilling the service quality gaps. In addition, Gronroos (1984) defined service quality as what consumers receive (i.e., technical quality) and how they get the technical outcomes, i.e., functional quality. The nature of service quality differs in different service contexts, particularly, in the telecommunications service industry.

The term 'quality' began to receive wide attention from researchers in the 1980's (see Gronroos 1984; Parasuraman et al. 1985, 1988; Zeithaml 1988; Zeithaml et al. 1988) as it serves as a differentiating strategy for the service providers and helps in gaining and creating a competitive advantage (Leisen and Vance 2001). Ensuring a 'quality' service is equally important for telecommunications service providers, as well as for other service providers, to establish and to maintain loyal consumers (Izogo and Ogba 2015; Zeithaml 2000). It is more crucial for the technology-based services (Ahn et al. 2006; Habib et al. 2011; Kumar and Lim 2008; Lai et al. 2009) due to the fact that in the absence of a standard service quality, to sell the service is almost impossible (Seo et al. 2008). Moreover, in the telecommunications industry, service quality is considered as an essential performance measurement indicator (Shin and Kim 2008). Additionally, in this industry, the service delivery system has the ability to enable the service providers to get actual customer feedback, and to understand their levels of satisfaction with the delivered services (Johnson and Sirikit 2002). However, as service quality is abstract in nature (Parasuraman et al. 1985; Zeithaml and Bitner 2000), it is a great challenge for the telecommunications service providers to deliver high standard services in a consistent manner (Haque et al. 2007).

Hypotheses Development

Service Quality (Functional, Technical, Customer Relationship Competencies) and Service Loyalty

Although the direct link between service quality and loyalty has been investigated in the telecommunications industry (Aydin and Ozer 2005; Eshghi et al. 2008; Lai et al. 2009) and in other service contexts (Ehigie 2006; Dean 2002; Kondasani and Panda 2015), these studies yielded mixed results, especially in the telecommunications industry. For example, Abod Ali et al. (2002) with the Digital (leased) line II service offered by Telekom Malaysia Berhad (TMB), Eshghi et al. (2008) with the Indian telecommunications service, and Aydin and Ozer (2005) with the Turkish GSM mobile phone service, found support for this relationship, whereas Lai et al. (2009) and Mohd Rafi et al. (2010) obtained insignificant results. Perhaps cultural idiosyncratic characteristics generated such variations in patterns and strengths of relationships across cultures (Clark 1990; Lai et al. 2009). Hence, the present research examines this relationship for post-paid users in the Malaysian mobile phone service context. Moreover, as most studies have found positive links between these two constructs, the present study also assumes that high service quality will result in high mobile phone service loyalty.

Furthermore, most of the telecommunications literature considered a measured

service quality using the SERVQUAL dimension, ignoring the technical aspects of quality. It is argued that the structure of service quality measures varies depending on the nature and type of the different service industries (e.g., Babakus and Boller 1992; Cronin and Taylor 1992). Hence, taking a multi-dimensional perspective for service quality, based on the functional and technical aspects of quality, the present study hypothesized:

H_1: *The higher the (a) technical quality, (b) functional quality and (c) customer relationship competencies perceived by the mobile phone service users are, the more likely it is that they will be loyal to a particular service provider.*

Service Quality (Functional, Technical, Customer Relationship Competencies) and Service Satisfaction

In the field of consumer behavior, the expectancy-disconfirmation paradigm has contributed significantly in modelling customer satisfaction at the individual level, as well as on a national basis in Sweden (Fornell 1992), Canada (Turel and Serenko, 2006), USA (Fornell et al. 1996), and Turkey (Aydin and Ozer 2005). These models advocate considering service quality as an antecedent of service satisfaction. Using the EDT, Patterson (1993), Patterson et al. (1997), and Spreng et al. (1996), also support the use of performance perceptions (service quality) to measure satisfaction. Furthermore, on the basis of Chenet et al. (1999), Ennew and Binks (1999) and Woodruff's (1997) work, Lai et al. (2009, p. 981) suggested that "the more cognitively-oriented service quality and value appraisals may lead to emotive satisfaction."

Prior studies examined the link between service quality and service satisfaction and found support for this relationship across different cultures (see Brady and Robertson 2001; Chen et al. 2012; Davis-Sramek et al. 2009; Ehigie 2006; Ueltschy et al. 2007 Yuen and Thai 2015). However, past research did also yield mixed results when examining this relationship. For example, in studying the Greek banking sector, Athanassopoulos (1997) contended that perceived service quality results in service provider perceptions about customer satisfaction. Again, a study of a low-contact service context, which was servicing cars, Mittal and Lassar (1998) revealed that the service quality positively influenced customers' satisfaction. Similarly, Shin and Kim (2008) and Turkyilmaz and Ozkan (2007) found a significant direct association between service quality and customer satisfaction in the telecommunications industry. On the contrary, Harris and Goode (2004) found partial support, while Lai et al. (2009) and deRuyter et al. (1998) did not find any support for this relationship. Hence, to verify this relationship for mobile phone service usage, the present study hypothesized that:

H_2: *The higher the (a) technical quality, (b) functional quality and (c) customer relationship competencies perceived by mobile phone service users are, the more likely it is that they will be satisfied with a particular service provider.*

Service Satisfaction and Service Loyalty

In the EDT, Oliver (1997) suggested that satisfaction is linked to post-purchase attitudes and repurchase intentions. Service research echoes this finding by providing more empirical evidence (see Ball et al. 2006;

Cronin and Taylor 1992; Wang and Lo 2002). Although the positive relationship between satisfaction and loyalty has been proven to be true (Izogo and Ogba 2015; Kursunluoglu 2014; Mavri and Ioannou 2008; Quoquab et al. 2014; Yang and Peterson 2004), Mittal and Lassar (1998) raised an issue where a dissatisfied customer might still continue his/her patronage if there is no better product/service from alternative sellers, and satisfied customers might be willing to switch to competitors in the hope of gaining even more satisfying results. However, for the present study, considering the positive relationship between these two constructs it is hypothesized that:

H_3: *Hypothesis 3: The higher the service satisfaction is, the more likely it is that the mobile phone service users will be loyal to a particular service provider.*

Service Quality (Functional, Technical, and Customer Relationship Competencies), Service Satisfaction and Service Loyalty

According to Zeithaml and Bitner (1996), customers' overall evaluation of service excellence is the major antecedent of customers' satisfaction. On the other hand, satisfaction is proven to be a significant predictor in explaining customers' loyalty (e.g., Fornell et al. 1996; Kondasani and Panda 2015; Yang and Peterson 2004). As such, satisfaction exhibits a mediating influence between service quality and service loyalty. The EDT also supports this notion (see Oliver 1980, 1997). Under this theory, consumers modify and update their overall attitude towards service quality based on their satisfaction of its use, and consequently this leads to an intention to continue using the service (Oliver 1981; Yen and Lu 2008).

A mediator variable helps in explaining *how* or *why* a relationship persists between the predictor and outcome variable (Holmbeck 1997; Kim et al. 2001; Peyrot 1996). Therefore, it is more interesting to study a mediator variable, rather than studying the predictor variable alone (Bennett 2000). Hence, considering service satisfaction as a mediator between service quality and service loyalty, will generate a deeper understanding of the relationship by providing the answer to why or how this relationship exists.

The mediation effect of satisfaction between service quality and loyalty in the telecommunications industry (Turel and Seranko 2006) as well as in other studies (Caruana 2002; Cronin and Taylor 1992; Ishak et al. 2006) has already been examined. Moreover, the view of the mediating relationship of satisfaction between service quality and service loyalty is embedded in the Customer Satisfaction Index (CSI) models underlying the national satisfaction indices in several advanced countries (Aydin and Ozer 2005; Fornell et al. 1996; Turkyýlmaz and Ozkan 2007; Turel and Serenko 2006). However, it is not yet conclusive whether the mediating effect of satisfaction is also applicable in the Malaysian mobile phone service context. Moreover, most of these studies considered loyalty as a uni-dimensional construct and used SERVQUAL as a basis for measuring service quality. Therefore, considering loyalty as a multi-dimensional construct and combining technical, functional and customer relationship competency dimensions together, this study hypothesized that:

H_4: *Service satisfaction mediates the relationship between (a) technique quality, (b) functional quality, and (c) customer relationship competencies and service loyalty.*

Service Switching Cost and Service Loyalty

Switching costs are the economic, psychological, and social agents that pose barriers when considering switching service providers (Aydin and Ozer 2005; Matzler et al. 2015; Park et al. 2014). Such costs are incorporated in both the product and service sectors. They have significant influence on whether one should continue or stop patronizing the current service provider (Chea and Luo 2005; Lin and Chou 2004). Different economic cost models into consumer behavior support this view (Hauser and Wernerfelt 1990; Payne 1982). Moreover, switching costs have been empirically proven as the antecedent of loyalty in different service contexts (Dagger and David 2012; Yang and Peterson 2004, Yen 2010), as well as in telecommunications literature (Aydin and Ozer 2005; Ayding et al. 2005; Matzler et al. 2015). However, further studies need to be carried out to examine this relationship in the setting of different service industries and different countries. Furthermore, as the use of mobile phone services is voluntary, requires a long term relationship, and physical proximity is less necessary, it is necessary to examine the effect of service switching costs on service loyalty, in order to understand how it varies from other services such as car insurance (obligatory use), health, education or law services (where physical proximity is a must).

Even though MNP makes it easier to switch service providers (Lee et al. 2006; Shin and Kim 2008), there is evidence of other kinds of service switching costs in the telecommunications market (Lee et al. 2006; Shin and Kim 2008). Therefore, after the implementation of the MNP regulation in Malaysia in the middle of October 2008, it is necessary to examine the effect of service switching costs on consumers' loyalty patterns. The following is thus hypothesized:

H_5: *The higher the service switching costs are, the more likely it is that the mobile phone service users will be loyal to a particular service provider.*

Consumer Innovativeness and Service Loyalty

Based on the exploratory buyer behavior theory (Berlyne 1963), this research proposes that, 'consumer innovativeness' may have a negative influence on loyalty towards the service provider. It has been argued that innovative consumers are disposed to obtain more information and ideas about new products and services than others (Midgley and Dowling 1978). Not surprisingly, this type of consumer exhibits higher levels of aspiration for innovative and unique products and services and thus, they are likely to try new brands (Xie 2008). Cowart et al. (2008) also supported this view and stated that consumer innovativeness affects behavioral intentions for new products. Therefore, it is logical to assume that consumers who have a greater propensity to search for new ideas, information or 'newness' will become switchers, whereas those who have less or no propensity to search for 'newness' tend to be more loyal towards their brand or services. However, there is a dearth of research that examines the effect of consumer innovativeness on loyalty. Therefore, in an attempt to fill this gap, the following hypothesis is developed to verify its applicability in the context of mobile phone services:

H_6: *The higher the consumer innovativeness is, the less likely it is that the mobile phone service users will be loyal to a particular service provider.*

Consumer Innovativeness and Service Satisfaction

According to Midgley (1977), innovative-ness is an innate expression of a person's psychological or sociological characteristic. It is argued that, consumer innovativeness is the degree to which an individual makes innovative decisions independently of the communicated experience of others (Midgley and Dowling, 1978). As such, consumer innovativeness can be treated as a psychological characteristic that has a considerable effect on consumers' evaluation processes as well as their product/service choices.

The theory of exploratory buyer behavior suggests that the desire for exploration is one of the most useful motivating factors that influence buying behavior (Baumgartner and Steenkamp 1996; Raju 1980). Again, EDT advocates that expectations play a crucial role in the formation of a satisfaction judgement (Oliver 1980). In this process, disconfirmation occurs when there is a significant difference between an individual's initial expectations and the actual performance of the product/service (Jayanti and Jackson, 1991). Based on this argument, it can be assumed that individuals' whose innovativeness levels are high, are likely to explore more and expect more, and thus it is difficult to make them contented. Therefore, the following hypothesis is suggested:

H_7: *The higher the consumer innovativeness is, the less likely it is that the mobile phone service users will be satisfied with a particular service provider.*

Methods

As the objective of this study is to examine the service loyalty and switching behavior of mobile phone service users, indeed the population consisted of individuals. The results of a survey conducted by the Malaysian Communications and Multimedia Commission (MCMC) (2005, 2006, and 2009) generated the idea that a major portion of the mobile phone users fall in two major categories: employed users (about 53%) and students (almost 25%). Hence, this study tried to capture both categories of users, that is, students and employed individuals as the subjects for this study; more specifically, academic and non-academic staff (including administrative, managerial, clerical and technical staff) and postgraduate students.

This study employed the drop-off method (self-administered) to administer the questionnaire. 1,050 questionnaires were distributed in seven high ranked universities located in the Klang Valley area, which yielded 535 valid usable completed responses. All scales to measure the study's constructs were borrowed from past literature using a 5 point Likert scale, where 1= 'strongly disagree' and 5= 'strongly agree.'

The scale to measure the service loyalty construct was borrowed from Jones and Taylor (2007). For the present study, the service loyalty construct was considered as a multi-dimensional construct which consists of behavioral loyalty, attitudinal loyalty, affective loyalty, cognitive loyalty and conative loyalty. However, in order to reduce the model's complexity, an item parcelling technique was utilized as suggested by past researchers (Kline 2005; Little et al. 2002). Parcelling is a measurement practice that is used most commonly in multivariate approaches to psychometrics, particularly for use with latent-variable analysis techniques (Little et al. 2002). It is a total score across a set of homogeneous items (i.e., it is a mini scale) (Kline 2005). The decision whether or not to parcel depends on the researcher's

philosophical position (Little et al. 2002). This technique has received research interest due to its numerous benefits, such as (1) it may provide a useful approximation to continuous scales, (2) it provides a more stable result than is often obtained with item-based analyses, and (3) it creates indicators with greater reliability and more definitive rotational results (Cattell and Burdsal 1975)

In the present study, the item parcelling method was used for the *service loyalty* and *service switching* constructs due to three reasons: (1) to simplify the complex research model while maintaining the large number of items for the *service loyalty* construct (Garver and Mentzer 1999; Hair et al. 2006), (2) to avoid the distortion by idiosyncratic characteristics of individual items (Little et al. 2002), and (3) to make the data conform to the assumption of normality as required in an SEM estimation (Little et al. 2002). In essence, the main focus was to achieve a more parsimonious estimation by using this process.

In the present study, the parcelling procedure was carried out based on content similarity, rational grounds, observing the internal consistency, and factor loadings and the model's fit of the construct's measurement model. More clearly, once the content similarity and theoretical rational have been established, the internal consistency was proven to meet the required expectations ($\alpha > 0.7$), and the CFA results of the construct showed a good factor loading and overall model fit, the items were parcelled.

Researchers should be aware that parcelling requires items within each set to be uni-dimensional, which means that they are known to measure a single construct (Bandalos and Finney 2001). This knowledge may come from familiarity with the item domain (Hair et al. 2006; Kline 2005) or as the result of prior statistical analysis that indicates uni-dimensional measurements (Kline 2005). In this study, uni-dimensionality was assured from the cursory review of past literature. Moreover, as recommended by Hair et al. (2006), prior to our parcel, CFA was performed on the individual factors to check for uni-dimensionality, to see (1) whether the constructs were reflected by all the individual items related to the other constructs and (2) was a construct reflected by a smaller number of parcels. During this process, items with a low loading and cross-loading into the other variables were deleted to assure uni-dimensionality. After it was found that items were highly loaded (mostly 0.8 and above), item parcelling was performed.

The scale to measure technical quality and functionality was borrowed from Kim et al. (2004), whereas, the customer relationship competencies scale was borrowed from Lai et al. (2007). Lai et al.'s (2007) customer relationship competencies scale was developed based on Parasuraman et al.'s (1988) scale. Since Kim et al.'s (2004) scale does not cover all aspects of functional quality, Lai et al.'s (2007) scale was also incorporated, in order to address the greater number of service quality features. Additionally, the service switching costs and service satisfaction scales were adapted from Aydin and Ozer (2005). Lastly, the consumer innovativeness scale was borrowed from Raju (1980). All items to measure the study's constructs are shown in Table 1.

The Statistical Package for Social Science (SPSS) Version 17.0 (SPSS Inc. 1993-2007) for Windows statistical software and Structural Equation Modeling (SEM) using AMOS 20 were used to analyze the data. SPSS was used to compute the descriptive statistics and to perform reliability tests, whereas the Analysis of Moment Structures

Table 1. **Items to Measure the Study Constructs**

Constructs	Items
Service Loyalty	*Behavioural loyalty* ◆ I use only this SP.If XYZ SP were to raise the price by 10 percent, ◆ I would likely remain. ◆ I do not mind using more than one SP's services. (R)* *Attitudinal loyalty* ◆ I will encourage friends and relatives to do business with XYZ SP. ◆ I will recommend XYZ SP to someone who asks my advice. ◆ I say positive things about XYZ SP to other people. *Cognitive loyalty* ◆ I believe that the range of services of my SP is very suited to what I like. ◆ I believe that XYZ SP has the best offers at the moment. ◆ To me, this SP would rank first among the other SPs. ◆ XYZ SP provides superior service in every way. ◆ I believe that the overall quality of XYZ SP's service is of a very high standard. *Affective loyalty* ◆ I prefer XYZ SP to other SPs in this category. ◆ I have a positive attitude toward this SP. ◆ I like the performance and services of the SP. ◆ I like this SP's terms and conditions. ◆ The SP I use reflects a lot about who I am. *Conative loyalty* ◆ I consider myself to be highly loyal to XYZ SP. ◆ I will remain a customer of the SP I have chosen.
Service Quality	*Technical quality* ◆ I get a variety of value added services from my SP. ◆ The offered value added services are easy to use. ◆ The offered value added services are up-to-date. *Functional quality* ◆ Staff are friendly when subscribing to this SP. ◆ I get adequate customer support from my SP. ◆ The speed of complaint processing is satisfactory. ◆ It is easy to report my complaint to my SP. *Customer Relationship Competencies* ◆ The service provided by the company is prompt (low waiting time and quick response). ◆ Employees are efficient and competent, knowledgeable and skilful. ◆ Employees are courteous, polite and respectful. ◆ The company provides individual and personal attention to the customers. ◆ The operating hours are convenient for the customers.

Table 1. Continued

Constructs	Items
Service Satisfaction	◆ I am fully satisfied with XYZ SP. ◆ When I have experienced unforeseen or critical situations, XYZ SP has managed these in a satisfactory manner. ◆ This SP meets my pre-purchase expectations. ◆ I am happy with the efforts this SP is making towards regular consumers like me.
Service Switching Costs	◆ If I switch to a new SP, I would lose loyalty points, bonus Ringgits etc. that I have gained with my current SP. ◆ If I switch to a new SP, *with a technology upgrade,* I could not use some services until I learn to use the new phone and services effectively. ◆ If I switch to a new SMART phone offer, I could not use some services until I learn to use the new phone and services effectively. ◆ Comparing information regarding all SP's offerings with one another takes a lot of energy, time and effort.
Consumer Innovativeness	◆ I would get tired of using my SP for a long time because the SP does not have any good offers compared to other competitors' offers. ◆ I like to switch my SP to try something different. ◆ When I see that new features/options provided by other SPs are somewhat different from the usual, I intend to try it. ◆ I like to experience newness and change in my SP's services and offerings.

(AMOS) Version 5.0 (Arbuckle 1994-2003) with Maximum Likelihood Estimation (MLE) was utilized to perform Confirmatory Factor Analysis (CFA) and covariance structure analysis or SEM.

Findings and Discussion

Profile of the Respondents

The study sample comprised respondents who varied in gender, age, marital status, profession, income, ethnicity, and level of education. More than 50 percent of the respondents were female (59.8%). Most of the respondents ages (51%) were between 18 and 31 years. The majority of the participants were Malays (58.1%) and married (49.7%). With respect to their educational background, the bulk of the respondents have a master's degree (32.9%). And the results of the descriptive analysis show that 28 percent of the participants have a income ranging between RM 2001 and RM 3500 per month.

Correlation Analysis

In this study, correlation was used to assess the degree of association among the variables, and to detect bivariate multicollinearity. According Tabachnick and Fidell (1989), association values that exceed 0.9 indicate multicollinearity. Table 3 exhibits the bivariate correlation with a two-tailed test of significance $p<0.01$ and $p<0.05$ for all the variables involved in this study. The correlation results between variables show positive and negative significant associations at ($p<0.01$). Moreover, none of these values

Table 2. **Profile of the Respondents**

Demographics	Number Respondents (N=535)	Percentage (%)
Gender		
i. Male	215	40.2
ii. Female	320	59.8
Age		
i. 18 – 24 years	115	21.5
ii. 25 – 31 years	165	30.8
iii. 32 – 38 years	114	21.3
iv. 39 – 45 years	73	13.6
v. 46 – 52 years	38	7.1
vi. 53 years and above	30	5.6
Ethnicity		
i. Malay	311	58.1
ii. Chinese	141	26.4
iii. Indian	54	10.1
iv. Foreign	29	5.4
Marital status		
i. Single	251	46.9
ii. Married	266	49.7
iii. Divorced	14	2,6
iv. Widow/widower	4	0.7
Highest level of education achieved		
i. Doctorate degree	71	13.3
ii. Master's degree or equivalent	169	32.9
iii. Bachelor's degree or equivalent	158	28.8
iv. Diploma	58	11.6
v. STPM/HSC or equivalent	59	3.4
vi. SPM/MCE or equivalent	20	10.1

Demographics	Number respondents (N=535)	(%)
Highest level of education achieved		
i. Doctorate degree	71	13.3
ii. Master's degree or equivalent	169	32.9
iii. Bachelor's degree or equivalent	158	28.8
iv. Diploma	58	11.6
v. STPM/HSC or equivalent	59	3.4
vi. SPM/MCE or equivalent	20	10.1
Profession		
i. Professional (including lecturer, professor, etc.)	143	26.7
ii. Full time postgraduate student	131	24.5
iii. Administrative and managerial	124	23.2
iv. Clerical	93	17.4
v. Technical	28	5,2
vi. Others	16	3.0
Monthly income		
i. Below RM 500	76	14.2
ii. RM 501 – 2000	134	25.0
iii. RM 2001 – 3500	152	28.4
iv. RM 2501 – 5000	58	10.8
v. RM 5001 – 6500	50	9.3
vi. RM 6501 – 8000	41	7.7
vii. Above RM 8000	24	4.5

Table 3. **Correlation Results for Observed Variables**

	SL	SS	TQ	FQ	CRC	SSC	CI
Service Loyalty (SL)	1						
Service Satisfaction (SS)	0.437**	1					
Technical Quality (TQ)	0.411**	0.250**	1				
Functional Quality (FQ)	0.502**	0.434**	0.331**	1			
Customer Relationship Competencies (CRC)	0.477**	0.586**	0.321**	0.637**	1		
Service Switching Cost (SSC)	0.204**	0.217**	0.164**	0.149**	0.176**	1	
Consumer Innovativeness (CI)	-0.160**	-0.181**	-0.125**	-0.113**	-0.138**	-0.106*	1

*P<0.05, **p<0.01

exceed 0.90 which means multicollinearity was not a problem in this study.

Measurement Model

Analysis of the full measurement model was done by correlating all variables involved in the structural model. Every variable is assumed to be correlated with each other. Modification indices and the standardized residual were examined to see whether there was any misspecification in the model to fulfill the requirement for the uni-dimensionality of the constructs (Byrne 2010). The result of the goodness of fit measures indicates a well-fitting model with χ^2/ df = 2.689; GFI = 0.882; AGFI = 0.856; TLI = 0.924; CFI = 0.934; NFI = 0.901; IFI = 0.934; and RMSEA = 0.056.

Convergent Validity

From the inspection of the standardized regression weight, it was found that all the items were significantly loaded into their intended factors with standard loadings ranging from 0.467 to 0.946 (see Table 4) (Churchill 1979), which assures convergent validity. In CFA, the critical ratio for factor loadings is often used to assess convergent validity. Table 4 also indicates that the Critical Ration (CR) for all estimated parameters exceeded the ±1.96 benchmark (Arbuckle and Wothke 1999), which were also found to be statistically significant.

The results of the AVE calculation shown in Table 5 reveals that variance extracted for all the constructs ranged from

Table 4. **Testing Convergent Validity on the Basis of Factor Loadings**

Factors/Items	Standard Loading	Critical Ration	P Value
Conative Loyalty ← Loyalty	0.795		
Affective Loyalty ← Loyalty	0.920	23.950	***
Cognitive Loyalty ← Loyalty	0.746	18.591	***
Attitudinal Loyalty ← Loyalty	0.504	11.748	***
Behavioural Loyalty ← Loyalty	0.799	20.317	***
FQ59 ← Functional Quality	0.796		
FQ58 ← Functional Quality	0.790	19.182	***
FQ57 ← Functional Quality	0.724	17.308	***
FQ60 ← Functional Quality	0.826	20.167	***
SC77 ← Service Switching Cost	0.467		
SC75 ← Service Switching Cost	0.846	10.794	***
SC74 ← Service Switching Cost	0.832	10.744	***
SC73 ← Service Switching Cost	0.861	10.845	***
CI93 ← Consumer Innovativeness	0.783		
CI92 ← Consumer Innovativeness	0.929	21.777	***
CI88 ← Consumer Innovativeness	0.777	19.045	***
CI86 ← Consumer Innovativeness	0.538	12.438	***
SS85 ← Service Satisfaction	0.856		
SS84 ← Service Satisfaction	0.921	29.600	***
SS83 ← Service Satisfaction	0.901	28.412	***
SS82 ← Service Satisfaction	0.854	25.743	***
SQ71 ← CRC	0.628		
SQ70 ← CRC	0.818	15.169	***
SQ69 ← CRC	0.838	15.417	***
SQ68 ← CRC	0.823	15.228	***
SQ66 ← CRC	0.639	12.587	***
TQ53 ← Technical Quality	0.946		
TQ52 ← Technical Quality	0.901	35.331	***
TQ54 ← Technical Quality	0.899	35.122	***

Table 5. **Variance Extracted of Indicators**

Constructs	Variance extracted	Constructs	Variance extracted
Benchmark Value	**Threshold level ≥ 0.5**	**Benchmark Value**	**Threshold level ≥ 0.5**
Behavioural loyalty	0.841	Technical quality	0.838
Attitudinal loyalty	0.652	Functional quality	0.616
Cognitive loyalty	0.566	Customer relationship competencies	0.570
Affective loyalty	0.568		
Conative loyalty	0.723	Service Switching cost	0.605
Service satisfaction	0.763	Consumer innovativeness	0.593

0.558 to 0.841 which exceeded the recommended threshold level of 0.5 (Hair et al. 2006) These results show that variance due to measurement error was smaller than variance captured by the constructs and thus falls within the acceptable range of the validity of the constructs.

In assessing the reliability of the latent variables, utilizing the composite reliability is a better option than using only Cronbach's coefficient alpha, as it is argued that Cronbach's coefficient alpha ignores the unique contribution of each indicator variable and assumes the equal error variance for all the indicators of a construct (Cortina 1993). Therefore, in this study the results of the constructs' reliability (composite reliability), which is often used in conjunction with SEM models (Hair et al. 2006) are presented in Table 6, in order to prove that convergent validity exist for the constructs of the study.

Table 6. **Construct Reliability**

Constructs	**Composite Reliability**
Benchmark Value	**Threshold Level ≥ 0.5**
Behavioural loyalty	0.939
Attitudinal loyalty	0.848
Cognitive loyalty	0.866
Affective loyalty	0.855
Conative loyalty	0.840
Service satisfaction	0.927
Technical quality	0.940
Functional quality	0.954
CRC	0.866
Service Switching cost	0.855
Consumer innovativeness	0.850

Here, standardized loadings can be obtained from the AMOS output, and ε_j is the measurement error for each indicator. The measurement error is calculated as 1.0 minus the reliability of the indicator (the square of the indicator's standardized loading). The results given in Table 6 suggest that all composite reliability values were above the threshold level of 0.7. Hence, convergent validity and construct reliability were assured.

Discriminant Validity

Discriminant validity exists when unidimensionality is confirmed among the variables. In this regard, the results of the individual CFA and full measurement model indicate that all the items were significantly loaded into their intended factors with a standard loading. Moreover, following the suggestion of Jöreskog (1971) and Bagozzi and Phillips (1982), the chi-square difference tests were employed for an eight-factor model (the measurement model) which was compared against seven-factor, five-factor, four-factor, two-factor, and one-factor models. The results shown in Table 7 indicate the significant chi-square differences. The critical value ($\Delta\chi^2 > 3.84$, df = 1) is exceeded in all cases and hence assures the presence of discriminant validity.

The measurement model was treated as a seven-factor model. Again, in the five-factor model, all three service quality dimensions were loaded into one factor, while in the four-factor model, service satisfaction was loaded with service loyalty and service switching. Furthermore, in the two-factor model, service quality, service switching costs and consumer innovativeness were loaded together. Lastly, in the one-factor model, all the items were loaded into a single factor.

Table 7. **Test for Discriminant Validity - CFA Comparison of the Measurement Models**

Model	χ^2	df	$\Delta\chi^2$	Δdf	GFI	AGFI	TLI	CFI	NFI	IFI	RMSEA
7-Factor Model	1,174.808	413	-	-	0.873	0.847	0.917	0.927	0.892	0.927	0.059
5-Factor Model	2,821.078	424	1,646.27	11	0.739	0.695	0.746	0.769	0.740	0.770	0.103
4-Factor Model	3,789.638	428	968.56	4	0.646	0.590	0.648	0.676	0.650	0.677	0.121
2-Factor Model	5,724.572	433	1,934.93	5	0.550	0.484	0.452	0.490	0.472	0.491	0.151
1-Factor Model	6,411.624	434	687.052	1	0.518	0.449	0.382	0.423	0.408	0.425	0.161

Structural Model

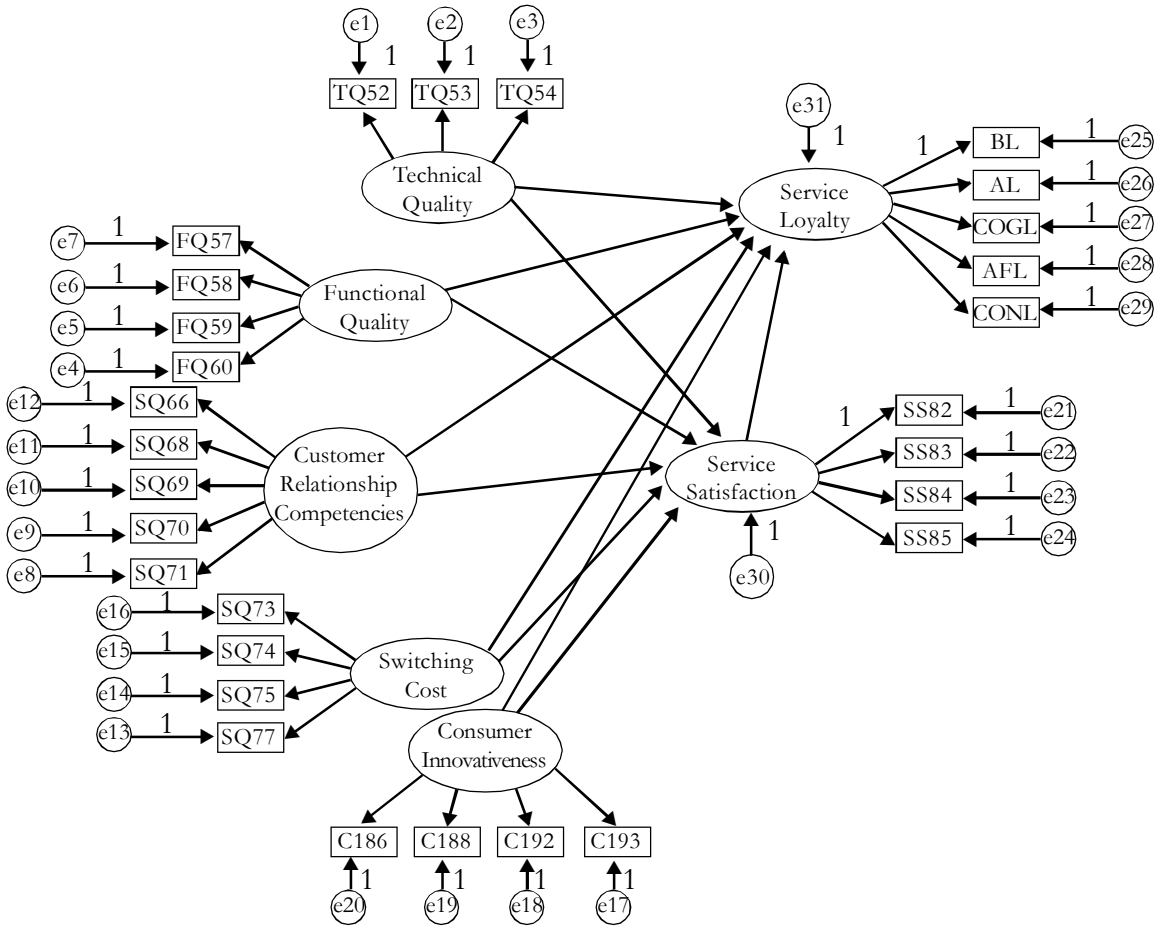
The structural model was tested after getting adequate information to allow us to proceed from the previous series of analyses, such as assessing the SEM requirement, examining the measurement models' fit, reliability tests, convergence and discriminant analysis, and mediation effect analyses. The hypothesized relationships of the structural model were tested based on the goodness of fit indices. The result indicates that the hypothesized model has an acceptable fit with χ^2/df = 2.491; GFI = 0.90; AGFI = 0.866; CFI = 0.942; TLI = 0.933; NFI = 0.907; IFI = 0.942; and RMSEA = 0.053. The structural model is shown in Figure 2.

A summary of the standardized path coefficients for the structural model is presented in In Table 1, the hypothesized relationships under examination for the present study, the standard errors of estimates, and the critical ratios for estimates that are associated with the *p*-values are presented. Following the common practices in the previous literature, to accept the hypotheses, *p*-values < 0.001 (considering 99.9% confidence interval and denoted as ***), $p < 0.01$ (considering 99% confidence interval and denoted as **), $p < 0.05$ (considering 95% confidence interval and denoted as *), and $p < 0.1$ (considering 90% confidence interval and denoted as †) are considered (see Ahn et al. 2006; Bagozzi and Yi 1988; Shin and Kim 2008).

Mediation Effect Test

The first three mediation tests were conducted to examine the relationship among functional quality → service satisfaction → service loyalty, and technical quality → service satisfaction → service loyalty and CRC → service satisfaction → service loyalty. In short, service satisfaction was treated as the mediator in the relationship between the three dimensions of service quality and service loyalty. The results in Tables 8, 9 and 10 show the mediation test results among the stated relationships. For all three tests, the results indicate a significant improvement of fit from the partially mediated model to fully mediated model ($\Delta\chi^2$ = 42.716, $\Delta\chi^2$ = 71.595, $\Delta\chi^2$ = 9.622 respectively) and also a significant improvement between the partially-mediated model and the non-mediated model ($\Delta\chi^2$ = 66.786; $\Delta\chi^2$ = 28.716; $\Delta\chi^2$ = 34.198 respectively). Since all comparisons showed a significant improvement, an examination of

Figure 2. **Structural Model**



χ^2/df = 2.491; GFI = 0.9; AGFI = 0.866; CFI = 0.942; TLI = 0.933; NFI = 0.907; IFI = 0.942; RMSEA = 0.053

Note: *** significant at p<0.001, ** significant at p<0.01, * significant at p<0.05,
† significant at p<0.1.
ns: not significant, e: error term, and res: residual.

Table 8. **Technical Quality → Service Satisfaction → Service Loyalty**

Model	χ^2	df	$\Delta\chi^2$	GFI	AGFI	TLI	CFI	NFI	IFI	RMSEA
Model 1 (FM)	293.286	50	42.716*	0.915	0.867	0.937	0.952	0.943	0.952	0.095
Model 2 (PM)	250.570	49	—	0.928	0.885	0.947	0.960	0.951	0.961	0.088
Model 3 (NM)	317.350	50	66.786*	0.916	0.868	0.931	0.947	0.938	0.948	0.100

the goodness of fit of the nested model needed to be done to identify the best model. Based on an examination of the result of the goodness of fit indices, it is ascertained that service satisfaction partially mediates the relationship between technical quality and service loyalty, and also between functional quality and service loyalty, whereas it fully mediates the relationship between CRC and service loyalty.

Table 8. **Technical Quality → Service Satisfaction → Service Loyalty**

Model	χ^2	df	$\Delta\chi^2$	GFI	AGFI	TLI	CFI	NFI	IFI	RMSEA
Model 1 (FM)	293.286	50	42.716*	0.915	0.867	0.937	0.952	0.943	0.952	0.095
Model 2 (PM)	250.570	49	—	0.928	0.885	0.947	0.960	0.951	0.961	0.088
Model 3 (NM)	317.350	50	66.786*	0.916	0.868	0.931	0.947	0.938	0.948	0.100

Table 9. **Functional Quality → Service Satisfaction → Service Loyalty**

Model	χ^2	df	$\Delta\chi^2$	GFI	AGFI	TLI	CFI	NFI	IFI	RMSEA
Model 1 (FM)	316.238	62	71.595*	0.917	0.878	0.932	0.946	0.934	0.946	0.088
Model 2 (PM)	244.643	61	—	0.933	0.901	0.950	0.961	0.949	0.961	0.075
Model 3 (NM)	273.359	62	28.716*	0.929	0.896	0.943	0.955	0.943	0.955	0.080

Table 10. **CRC → Service Satisfaction → Service Loyalty**

Model	χ^2	df	$\Delta\chi^2$	GFI	AGFI	TLI	CFI	NFI	IFI	RMSEA
Model 1 (FM)	336.913	74	9.622*	0.918	0.883	0.936	0.948	0.934	0.948	0.082
Model 2 (PM)	346.535	73	—	0.913	0.875	0.932	0.946	0.932	0.946	0.084
Model 3 (NM)	380.733	74	34.198*	0.909	0.870	0.925	0.939	0.926	0.939	0.088

Discussion

All the hypotheses and their test results are shown in Table 11. The results suggest that only two dimensions of service quality (technical and functional) are positively and significantly related to service loyalty (β = 0.184, $p < 0.001$ and β = 0.361, $p < 0.001$ respectively). Hence hypotheses H_{1a}, H_{1b} are supported. On the other hand, customer relationship competency is not significantly related to service loyalty thus, H_{1c} (β = 0.015, p = 0.829) is rejected. The plausible explanation for this may be due to the reason that, unlike pre-paid users, post-paid users may feel very little need for customer relationship competencies from their SPs, as they seldom interact with the mobile phone service staff. Furthermore, customer support and convenient procedures (functional quality) seem to be more important to them, instead of responsiveness, assurance and empathy. This finding is also supported by Lai et al. (2009). They reported that SERVQUAL dimensions did not substantiate the quality-loyalty relationship in the Chinese telecommunications context.

Table 11. **Summary of the Hypotheses Test Results**

No.	Relationships	Expected Direction	Estimate	Pvalue	Result
H_{1a}	TQ – L	+ve	0.184	***	Supported ***
H_{1b}	FQ – L	+ve	0.361	***	Supported ***
H_{1C}	CRC – L	+ve	0.015	0.829	Not supported
H_{2a}	TQ – Sat	+ve	0.111	0.007	Supported **
H_{2B}	FQ – Sat	+ve	0.112	0.072	Supported †
H_{2C}	CRC – Sat	+ve	0.515	***	Supported ***
H_3	Sat – L	+ve	0.222	***	Supported ***
H_5	SC – L	+ve	0.094	0.023	Supported *
H_6	CI – L	-ve	-0.038	0.343	Not supported
H_7	CI – Sat	-ve	-0.161	***	Supported
		Indirect relationships			
H4a	TQ – Sat – L		Table 8		Partial mediation
H4b	FQ – Sat – L		Table 9		Partial mediation
H4c	CRC – Sat – L		Table 10		Full mediation

Note: *** significant at p<0.001
** significant at p<0.01
* significant at p<0.05
† significant at p<0.1

All three hypotheses related to service quality dimensions and service satisfaction (H_{2a}, H_{2b} and H_{2c}) are supported ($\beta = 0.111$, $p < 0.05$, $\beta = 0.112$, $p < 0.1$ and $\beta = 0.515$, $p < 0.001$ respectively). In addition, service satisfaction is positively related to service loyalty. Thus, H_3 ($\beta = 0.222$, $p < 0.001$) is accepted. These findings are in accordance with the EDT which suggests that product/ service performance positively affects consumers' satisfaction states which ultimately leads to customer retention.

Evidence shows that service switching costs are positively related to service loyalty which supports H_5 ($\beta = 0.094$, $p < 0.05$). Table 11 also shows that service satisfaction is positively and significantly related to service loyalty ($\beta=0.222$, $p>0.01$), which provides support for H_3. Consumer innovativeness is not significantly related to service loyalty. Hence, H_6 is rejected ($\beta= -0.038$, $p = 0.343$). For the present study, the plausible explanation for not having a significant effect between consumer innovativeness and service loyalty can be due to the existence of the switching costs. In support of this view, in the Korean mobile phone market, Kim and Yoon (2004) found spuriously loyal consumers who were not willing to defect just because of the switching costs.

As expected, hypothesis 7 is supported by the data which indicates that consumers' innovativeness significantly and negatively affects the consumers' service satisfaction ($\beta= -0.161$, $p<0.01$). This finding is in line with the theory of exploratory buyer behaviour. It is understood that the consumers with a high exploratory component tend to be dissatisfied since it is embedded in their characters to explore more and to seek for newness.

In testing the mediation effect of service satisfaction, the results reveal that service satisfaction partially mediates the relationship between '*technical quality* and *service loyalty*' (Table 8) and '*functional quality* and *service loyalty*', (Table 9). On the other hand, service satisfaction fully mediates the relationship between '*CRC* and *service loyalty*'. (Table 10) Thus, H_{4a}, H_{4b}, H_{4c} are supported.

Conclusion, Limitations and Future Research Directions

The objective of this study was to shed some light on the service loyalty issue in the Malaysian mobile phone service industry. The study's results found that for enhancing service loyalty, service satisfaction plays the most influential role, followed by technical quality, functional quality, and service switching costs. However, consumer innovativeness does not affect service loyalty. Moreover, satisfaction mediates the relationship between service quality and service loyalty.

This study contributed significantly to the present theory and practices. Theoretically this is a pioneer study that examined the influence of consumer innovativeness on service satisfaction, loyalty and switching behaviour. Furthermore, this study examined the direct and indirect relationships between the variables, in a new research context. This is likely to enhance the knowledge related to customers' satisfaction, switching behaviour, and service loyalty in non-western cultures like Malaysia. Practically, this study contributes to the issue of service switching in the mobile phone service industry which, by its nature, deals with *contractual, voluntary* and *long-term relationship* characteristics. Furthermore, other communication-related service opera-

tors (e.g., Internet, e-mail) can also benefit from the present study's findings. This research comprises the important work of examining the service switching costs effect on service loyalty/switching under the MNP policy, along with the presence of other contributing factors in mobile phone service usage.

These findings provide an important basis for practitioners in formulating their service quality, service satisfaction, and service switching cost building strategies to minimize switching behaviour, as they will lead to better user retention. It was expected that the higher the level of *service switching costs*, the greater would be the likelihood that service satisfaction would lead to greater service loyalty/lower service switching. It is evident that it influences service loyalty directly. This finding implies that service satisfaction/dissatisfaction poses a stronger effect on service loyalty/switching rather than service switching costs. Moreover, while MNP has lessened the switching barrier effect, it does not eliminate it altogether. Hence, the service providers in a mature market, like the mobile phone service usage one, should develop strong service switching costs related to 'adaptation costs' and 'benefit loss costs' as well as other service switching costs (e.g., customer lock-in and creating high economic costs involved in switching to a new service provider, etc.) as the switching barrier to retain their users as a short term retention strategy. Consequently, it will help to support the breadth strategy. Furthermore, it is evident that service satisfaction is very crucial to building service loyalty. Thus, developing customer reward programs that concretely compensate customers, such as mileage programs and price discounts, in order to increase service satisfaction as well as loss costs, can be another important strategy to consider. It is also important to emphasize improving proper service quality elements to ensure long term loyalty, to maintain the growth of the industry (breadth strategy) as well as to contribute to the depth of usage. In this regard, service providers need to focus more on the technical, as well as the functional dimensions (as these two dimensions influence service loyalty both directly and indirectly) rather than customer relationship competencies to enhance service loyalty.

Although this research has provided relevant and interesting insights into the understanding of service loyalty and service switching, it is important to recognize some limitations associated with this study. Overcoming these limitations will open new avenues for future research. The analysis of this study relies on *cross-sectional* data. Thus, to provide a more accurate causal interpretation of the relationship among the study variables, additional future research can be *longitudinal* in nature, in which exogenous factors are captured (e.g., satisfaction, perceived service quality, service switching cost, consumer innovativeness) before data on endogenous criteria are collected (e.g., loyalty and switching). Moreover, the present study's scope is confined to the mobile phone service industry only, and therefore, replication of this study on a wider scale with different industries is essential for testing the greater generalization/applicability of the findings to contribute to the empirical literature. For example, future studies can examine the effects of service switching costs, service satisfaction, service quality and consumer innovativeness involving service encounters that require greater and closer interactions and exchanges among network players (including consumers and service providers), such as health care services, education, hospitality/travel services and financial services.

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