CrossMark

An adaptive nonlinear approach for estimation of consumer satisfaction and loyalty in mobile phone sector of India

T. Rahul *, R. Majhi [1]

School of Management, National Institute of Technology, Warangal 506004, India

ABSTRACT

To facilitate business growth assessment of customer's, satisfaction and loyalty levels in mobile sector are two important issues which need in-depth investigation. These two levels of customers are nonlinearly related to their corresponding attributes. The past studies have mostly assumed linear relation and have mostly used regression based models for estimation of these levels and the results are not encouraging. To overcome this limitation, the present study has developed simple nonlinear models for accurate estimation of these two parameters using their related key factors and results obtained are shown to be much better. This paper has also observed the positive effect of satisfaction on the loyalty estimation of customers. Employing the proposed nonlinear adaptive models, the service provider can also predict the satisfaction and loyalty levels of each of its customers which help the organization to determine the number of possible future churners.

1. Introduction

India is the second largest and fastest growing mobile market in the world. The tele-density at the end of March 2011 reached to 70.89 when compared to 52.74 in March 2010 (TRAI annual report 2010–11). The number of mobile phone users in the country is expected to reach around 1.26 billion by the end of 2014 with a penetration of 97% (report from iSuppli mobile industry forecasts). The significant rise in mobile phone use is partially attributed to the presence of one of the largest young population in the world. Hence, India is a profitable market place for mobile phone service providers. But this penetration in market is below the EU average which implies that still there is tremendous scope of expansion of business in this area. Currently more than fifteen service providers are operating in Indian mobile phone sector. These service providers are attracting customers by providing competitive offers. However retaining customers have become a great challenge for the companies after the government has introduced features like mobile number portability. The ability to provide high degree of satisfaction is crucial for differentiating themselves from their competitors (Deng et al. 2010) specifically in telecommunications market. Therefore satisfying a customer requirement and understanding the level of customer loyalty are two important aspects of a company and need

an in-depth study. Customer satisfaction has a direct influence on customer retention (Choi et al., 2008; Hansemark and Albinsson, 2004). Hence it is important to understand the level of customer satisfaction and loyalty to improve the competitiveness of the firm.

The rest of the paper is organized as follows: Section 2 reviews the literature on customer satisfaction and loyalty studies. Sections 3, 4 and 5 provide the research gap, sampling and instrument. In Section 6 the development of adaptive models for satisfaction and loyalty are dealt in-depth. Finally in Section 7 the managerial implications and in section 8 the limitations of the study are presented.

2. Review of literature

2.1. Customer satisfaction

Customer satisfaction refers to psychological state resulting when the emotions surrounding disconfirmed expectations are coupled with consumers' prior feelings about consumption experience (Oliver, 1981). It is often considered as an important determinant of repurchase intention (Liao et al. 2009) and customer loyalty (Eggert and Ulaga, 2002). It is a burning important research topic in the information system area (Au et al., 2008). The ability to provide a high degree of customer satisfaction services is crucial to service providers in differentiating themselves from their competitors. If the customer have good experiences in using mobile phone services, then he/she will have cumulative customer

* Corresponding author. Tel.: +91 8978264848.
E-mail addresses: rahulkitss@gmail.com (T. Rahul),
ritanjalimajhi@gmail.com (R. Majhi).
[1] Tel.: +91 870 2462852.

satisfaction. Since the customer satisfaction reflects the degree of a customers' positive feeling for a service provider in a mobile phone context, it is important for them to understand the customer's opinion about their services. The literature review reveals that long-term success of a firm is based on its ability to respond to changing customer needs and preferences (Narver and Slater, 1990; Webster, 1992). Higher customer satisfaction leads to stronger competitive position resulting in profitability of a firm (Fornell, 1992) and also helps in lowering the business cost and the cost involved in attracting new customers (Chien et al.,2003). Satisfied users will have higher usage level of mobile services than those who are not satisfied and they are more likely to possess stronger continuous intention and recommend to their friends and relatives (Zeithaml et al., 1996).

2.2. Customer loyalty

Customer loyalty is company's important asset. By maintaining customer loyalty, a firm develops long term mutually beneficial relationship with customers (Pan et al., 2012). It is found to be a key determinant of a long term viability of a brand (Krishnamurthi and Raj, 1991). In addition, compared to loyal customers, the others are much more influenced by negative information about the products or services (Donio et al., 2006). Therefore retaining existing customers and strengthening customers' loyalty appear to be very crucial for mobile service providers to gain competitive advantage. In increasingly competitive markets, building strong relationship with customers i.e., developing loyalty with consumers is considered as one of the key factors in winning market share and developing competitive advantage (Laurn and Lin, 2003; Nasir, 2005). Loyal customers are crucial for business survival (Semejin et al. 2005) because attracting new customers is considerably more expensive than retaining old ones (Reichheld and Schefter, 2000). In a recent study, authors (Deng et al., 2010) have measured the customer loyalty as the customer's behavioral intention to continuously use mobile instant message with their present service providers, as well as their inclinations to recommend the mobile instant message (MIM) tool to other people. If a service provider can satisfy the needs of the customer better than its competitors, it is easier to develop loyalty (Oliver, 1999).

2.3. Linkage between satisfaction and loyalty

In the last decade, research on customer satisfaction and customer loyalty has gained increasing importance in both online and off-line business. Therefore enterprises attempt to increase their market share by maximizing customer retention (Tsoukatos and Rand, 2006). The potential and opportunity value of customers earned over a long period is another advantage to maintain existing customers (Seo et al., 2008). A high level of customer's satisfaction has positive impact on customer loyalty (Mittal et al., 1998). According to the findings (Sivadass and Baker-Prewitt, 2000), customer loyalty is the ultimate objective of customer satisfaction measurement. Further with the advancement of information technology customers are becoming more and more open to understand the brand, thus satisfaction alone may not be adequate to retain a long term relationship (Kassim and Abdullah, 2008). Accordingly, it is important for the service providers to identify appropriate factors that impact users' satisfaction and loyalty which would help to take proper measure to retain them.

Perceived service quality and customer value serve as drivers of customer satisfaction (Lim et al., 2006). It is expected that this relationship may also be significant in the context of telecom service providers of India. The mobile phone users often choose the providers they trust to deal with. Trust can also be seen as a

critical factor for consumers to build and maintain relationships with providers (Semejin et al., 2005). Satisfaction has always been viewed as the main input for the customer loyalty. However, the satisfied users may switch to another brand because of the low switching costs (Lam et al., 2004). As a result customer's satisfaction is one of the important predictors of customer loyalty of service providers. Other moderate influences on loyalty are due to customer characteristics such as age, gender, usage and experience.

Fornell (1992) has opined that high customer loyalty is mainly caused by high customer satisfaction whereas Clarke (2001) proposed that effective satisfaction must be able to create loyalty amongst customers. Previous studies have also shown that customer satisfaction positively affects customer loyalty (Choi et al., 2008) or negatively affects switching intention (Walsh et al., 2006). If a customer is dissatisfied with a service provider because of low service quality or other such factors, then he/she would more likely change to another. A few satisfied customers may complain of poor service experience but would not switch. Satisfaction and loyalty are not surrogates of each other (Oliver, 1999). It is possible for a customer to be loyal without being highly satisfied and vice versa. Firms need to gain a better understanding of the relationship between satisfaction and loyalty which would help to distribute their marketing efforts between satisfaction initiatives and loyalty programs. For instance if the firms find that loyalty is associated with increased satisfaction then they can directly focus on enhancing their loyalty programs (Gerpott et al., 2001; Kim et al., 2004; Lai, 2004; Lin and Wang,2006; Turel and Serenko, 2006; Wang and Liao, 2007).

In the recent past several studies have been conducted to understand customer satisfaction and loyalty particularly on mobile services customers. Most of these studies emphasize that analysis of factors affecting customer satisfaction are important for the success of mobile service firms. Furthermore they have reported that customer satisfaction is the main important goal for mobile service providers to obtain economic success.

Because of tremendous potentiality of business in this sector, the academic interests in mobile phone usage have also increased significantly. These includes contribution to social life, user preferences and organic features; examination of users' motivation (Dedeoglu, 2004; Ozcan and Kocak, 2003), mobile phone selection (Isiklar and Buyukozkan ,2007) and brand loyalty (Simsek and Noyan, 2009) etc. The users' perception of satisfaction and loyalty in India is different from that found in other countries. Therefore there is a need to explore factors influencing customers' satisfaction and loyalty of telecom service providers particularly in Indian scenario. Some authors have used structural equation modeling (SEM) (Kim et al., 2004) and neural networks (Goode et al., 2005) for similar studies. However the authors who have used neural networks have used multilayer artificial neural network based models for prediction purpose. Such models offer more computational complexity and consume more training time. Hence, there is a need to develop lower complex artificial neural network based models for prediction of satisfaction and loyalty which is more accurate and offer lesser training time.

3. Research gap

Existing literature survey reveals that satisfaction and loyalty are highly correlated and satisfaction plays a positive influence on customer loyalty. Further the customer satisfaction primarily relies on connectivity, consumer service, customization and branding attributes of the customers. Similarly it has been demonstrated that the loyalty of customers is mainly influenced by reliability and trust factors. For achieving their results the authors have employed some conventional methods such as structural equation