The impact of product performance on brand loyalty mediated by customer satisfaction: Study in Sudanese service industry

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1. Introduction

Over the last few years, the number of mobile phones in the world has increased at an exponential rate, with many developed countries reaching 60% ownership rates. The reasons for this are numerous. However, low prices and the availability of new technology mean that even children now own and regularly use mobile phones. Furthermore, the number of mobile phones in the word has already passed the number of fixed landlines and the revenue from mobiles will soon exceed that of fixed landlines. The main objective of this study is to determine the factors influencing brand loyalty in the telecommunications service sector. The study focuses on the main product performance variables (price, network, other services and customer service) and how these variables influence brand loyalty through customer satisfaction.

2. Literature review

Brand loyalty is of great interest for marketing researchers, managers and academics. Brand loyalty is a key issue for many marketing managers; companies spend millions of dollars each year tracking brand loyalty levels through marketing research organizations. Many marketing research companies detail brand loyalty research as a key business area, reflecting the importance of this concept for brand management (Bennett and Rundle-Thiele, 2005).

In the competitive business environment of modern marketing, there are many brand choice alternatives for the consumer. Managers must keep competitors from taking their customers through an accurate method of measuring and predicting brand loyalty.

According to Datta (2003), in a highly competitive market, along with the major brands, own label brands have a considerable market share and even small changes in market share can have a significant financial impact on company sales. In the face of such competition, having a brand loyal consumer not only increase sales, but also reduces marketing costs.

Companies often plan marketing strategies to win more brand loyal customers who will help them not only to build strong market share but also to gain higher profits. Brand loyalty also leads to other marketing advantages, such as developing favourable responses by word of mouth and providing greater resistance against competitors (Dick and Basu, 1994).
Brand loyalty is a complex concept. However, it has been uniquely defined and operationalized in the marketing literature. Aaker (1991), cited in Severi and Ling (2013) defined brand loyalty as follows: “symbolizes a constructive mind set toward brands that leading to constant purchasing of the brand over time”. Brand loyalty has been viewed, for example, as repeat purchase, as a preference, a commitment and as retention and allegiance (Ehrenberg, 1988; Guest, 1994; Hawkes, 1994; Thiele and Mackay, 2001). Despite the large volume of research and the large amount of money spent, marketing managers are still not clear on how to build and maintain brand loyalty. There are various aspects of brand loyalty, such as behavioural and attitudinal brand loyalty (Gounaris and Stathakopoulos, 2004).

Brand loyalty has been an important topic in the marketing literature since Brown (1953) identified it. It has also been considered a fundamental concept in strategic marketing and various studies have focused on factors influencing brand loyalty. There may be some theoretical debate concerning the extent of the phenomenon, but for the consumer it is clear that loyalty is a concept of major importance (Jacob and Chestnut, 1978). Given this, it is not surprising that much of the consumer behaviour literature is concerned with the sources of loyalty and the mechanisms through which it comes about.

Brand loyalty has become an important concept for marketing practitioners for a number of reasons: (i) firms are interested in selling to achieve maximum profit levels; (ii) brand extension is an increasingly preferred vehicle for new product launches; (iii) loyalty rates have been shown to increase with market share and market share in turn has been shown to be associated with higher rates of return on investment; (iv) loyalty provides fewer reasons for consumers to engage in extended information search among alternatives; (v) purchase decisions based on loyalty may become simplified and even habitual in nature; (vi) brand loyalty has been identified as a major determinant of brand equity.

There are several definitions and measures of brand loyalty; some focus on the attitudinal dimension and others focus on the behavioural aspect (Gee et al., 2008; Oliver, 1997). Jacoby and Chestnut (1978) stated that “If brand loyalty is ever to be managed, not just measured, it will have to be elaborated in a much more detailed description of cognitive activities rather than focusing only on behavioral aspects (e.g., repeat purchase)”. This statement implies that previous studies of brand loyalty have mostly focused on the measurement issue of brand loyalty by investigating the repeat purchase of a brand. Cognitive aspects of brand loyalty make it possible to predict what purchase behaviour would be followed by a certain cognitive response. For example, a bad attitude towards a certain brand would result in switching behaviour.

Many studies on brand loyalty have only measured behavioural aspects (e.g. repeat purchase) without considering the cognitive aspects. For example, Fader and Schmittlein (1993) investigated the advantage of high-share brands and revealed that have significantly higher loyalty than low-share brands. They measured brand loyalty only in terms of the behavioural aspect of repeat purchase, not considering the cognitive aspects. Bayus (1992) also operationalized brand loyalty as the behavioural management of the probability of purchasing the same appliance brand as the one previously owned.

3. Hypotheses

In this study, three main hypotheses were developed to test the relationship between product performance and customer satisfaction; it also includes the relationship between customer satisfaction and brand loyalty. Furthermore, the dominant effect of customer satisfaction on the relationship between product performance and brand loyalty has also been considered.

According to Zeithaml (1988) and Datta (2003), there are extrinsic and intrinsic cues for evaluating a product. A positive relationship is expected between performance quality and customer satisfaction, in line with rational expectation theory (Yi, 1990) and as well documented in several studies, such as Fornell (1992) and Cronin and Taylor (1992). Fornell (1992) found in a survey of Swedish customers, a correlation between perceived quality and satisfaction. Al-Tit (2015) investigated the relationship between service quality and customer satisfaction in limited service restaurants in Jordan. Cronin and Taylor (1992) found a strong and positive casual path between overall service quality and satisfaction. To satisfy a customer consistently, it is of crucial that consistent quality be ensured in each activity and each process through the implementation of a well-defined quality management system covering all functions of the organization (Oliver, 2009). Based on the above discussion, the following hypothesis is proposed:

H1: Product performance variables positively influence customer satisfaction.

Anderson et al. (1994) stated that customer satisfaction will positively influence customer retention and repeat sales. According to Kotler (1994), high satisfaction may create an emotional attraction to the brand, not just a rational preference, thus creating high brand loyalty. Fornell (1992) examined 27 different businesses and established a strong correlation between satisfaction and loyalty. Evidence from Pakistan confirmed the positive impact of customer satisfaction on brand loyalty (Ahmed, 2014). Al-Msallam (2015) analysed data collected from the hotel industry in Syria to explore the relationship between customer satisfaction and brand loyalty. Datta (2003) found that if customers are highly satisfied, this induces them to be loyal to the brand. Thus, the following hypothesis is proposed:

H2: Customer satisfaction positively affects brand loyalty.

The function of customer satisfaction with the performance of the brand can also affect customer
loyalty. Customer satisfaction positively manipulates customer preservation and increasing sales (Anderson et al., 1994). Moreover, level of satisfaction is a function of the difference between perceived performance and expectations: if performance falls short of expectations, the customer will be dissatisfied; if performance exceeds expectations, the customer will be highly satisfied (Kotler, 1994). High satisfaction may build an affective fellow feeling with the brand, not just a normal preference, thus resulting in high brand loyalty (Kotler, 1994).

A high level of product performance leads to a high level of brand loyalty. Also, a high level of product performance yields a high level of customer satisfaction, which translates into a high level of brand loyalty. Increasing customer satisfaction leads to an increase in brand loyalty. According to the above argument, a high level of product performance and customer satisfaction leads to a favourable attitude towards the brand. Hence:

H3: Customer satisfaction mediates the relationship between product performance variables and brand loyalty.

4. Research design

4.1. Data collection

A total of 400 questionnaires were distributed to respondents through a personal administered questionnaire. A total of 251 questionnaires were collected, giving an overall response rate of 62.75%; the usable response rate was 59.25%. Respondents were asked to express their degree of satisfaction related to a set of performance issues and their overall feeling towards the services on a five-point scale. The target population of this study was mobile phone customers, particularly those of Zain and MTN. Purposive sampling was used to collect the data.

4.2. Instrument

The measures of product performance and customer satisfaction were adopted from Selnes (1993), who measured performance quality with indicators reflecting various aspects of service. The measure of brand loyalty, adopted from Choong (1998), does not reflect a simple uni-dimensional concept, but a very complex multi-dimensional concept. To ensure the goodness of fit of the measurement, exploratory factor analysis (principal components analysis) was conducted on product performance, customer satisfaction and brand loyalty. In addition, reliability testing (Cronbach’s alpha) was employed to measure the internal consistency of the items used in the questionnaire. These two methods were very important in assessing the fitness of the measures (Sekaran and Bougie, 2013).

4.2.1. Factor and reliability analysis of product performance and other services

The factor analysis gave a Kaiser–Meyer–Olkin (KMO) result of .79 and Bartlett’s test of sphericity was significant, both indicating a sufficient number of significant inter-correlations for factor analysis. Table 1 shows the two loading factors, ranging from 0.79 to 0.71. These two factors cumulatively captured about 57% of the total variance in the data. Thus the original names for the two factors were retained. The reliability values for price and network were 0.84 and 0.75 respectively.

Table 1: Factor and reliability analysis of product performance

| Price                       | Factor loading |
|-----------------------------|----------------|
| Price of the same company   | 0.79           |
| Price of international call | 0.73           |
| Price for the telephone     | 0.71           |
| Price of call for the same company | 0.71 |
| Price of message for the other companies | 0.69 |
| Price of call for the other company | 0.64 |
| Price of using internet     | 0.62           |

| Network                   | Factor loading |
|---------------------------|----------------|
| Satisfaction with clearness of call in case of moving | 0.87 |
| Satisfaction with clearness of call in network coverage | 0.82 |
| Satisfaction with areas covered | 0.71 |

| Dropped items              |                |
|---------------------------|----------------|
| Price of prepaid and post paid |            |
| Price of international message |             |
| Satisfaction with number of trials |          |
| Satisfaction with network performance in using the internet |  |

Table 2 presents the results of the factor analysis of other services and customer care. Table 2 shows two factors, the third factor having been dropped due to high cross loading. The KMO was .78 and Bartlett’s test of sphericity was significant, again indicating a sufficient number of significant inter-correlations for factor analysis. The two factors loading ranged from 0.84 to 0.85, explaining more than 72% of the total variance in the data. The results of the factor analysis were consistent with the original names of the dimensions. The corresponding reliability for the two factors was 0.81 and 0.88 respectively.

4.2.2. Factor and reliability analysis of customer satisfaction

Table 3 shows the results of the factor analysis of customer satisfaction. Five questions measuring customer satisfaction attained a value for measures of sampling adequacy (MSA) above 0.50 and a KMO of .85; Bartlett’s test of sphericity was significant. There was only one component in the customer satisfaction variable. This factor cumulatively
captured about 71% of the total variance in the data. The result of reliability analysis resulted in one item being dropped in this factor. As this factor contained the original items, the same name was retained. The reliability for this factor was 0.89.

### Table 2: Factor and reliability analysis of other services and customer care

| Factor Loading | F1 | F2 |
|----------------|----|----|
| Satisfaction with waiting services | 0.84 | |
| Satisfaction by showing the number | 0.80 | |
| Satisfaction with credit transformer services | 0.77 | |
| Satisfaction with credit card services | 0.94 | |
| Satisfaction with customer care | 0.90 | |
| Satisfaction with other services | 0.85 | |
| Percentage Variance Explained | 46.43 | 25.56 |
| Eigenvalue | 3.25 | 1.79 |
| Reliability | 0.81 | 0.88 |

### Table 3: Factor and reliability analysis of customer satisfaction

| Factor Loading | Brand Loyalty |
|----------------|---------------|
| Satisfied in general with the services | 0.89 |
| The chosen company is the best | 0.87 |
| The company is succeeding in telecommunication | 0.86 |
| Compared with other company chosen is best | 0.82 |
| Percentage Variance Explained | 46.43 |
| Eigenvalue | 3.25 |
| Reliability | 0.89 |

#### 4.2.3. Factor and reliability analysis of brand loyalty

Table 4 displays the results of the factor analysis of brand loyalty. The results show that the value of KMO was 0.88 and Bartlett’s test of sphericity was significant. The original questionnaire included a single question for attitude related to behaviour, three questions for subjective norms and four questions measuring behaviour. The results of the factor analysis showed one factor instead of three factors. As the factor contained the original items for the three factors, the original name was retained as brand loyalty. The factor cumulatively captured more than 66% of the variance in the data. The reliability for the factor was 0.77.

### Table 5: Multiple regressions: Product performance and customer satisfaction

| Variables | Brand Loyalty |
|-----------|---------------|
| Price | 0.43** |
| Network | 0.25** |
| Other Services | 0.16* |
| Customer care | 0.38 |
| $R^2$ | 0.37 |
| Adjusted $R^2$ | 0.37 |
| F | 35.48* |

Significant levels: **p<0.01; *p<0.05

To determine the impact of customer satisfaction on brand loyalty ($H_3$), a hierarchical regression was estimated, as displayed in Table 6. The results show that customer satisfaction significantly affects brand loyalty ($β = 0.78$) and thus $H_3$ is accepted.

### Table 6: Simple regression: Customer satisfaction and brand loyalty

| Variables | Brand Loyalty |
|-----------|---------------|
| Customer satisfaction | 0.78** |
| $R^2$ | 0.61 |
| Adjusted $R^2$ | 0.61 |
| F | 367.05 |

Significant levels: **p<0.001

A mediating variable surfaces as a function of the independent variable and helps to explain the influence of the independent variable on the dependent variable (Sekaran and Bougie, 2013). After fulfilling the mediation conditions and assumptions (Baron and Kenney, 1986), the test of mediation was run.

Table 7 shows the results of the hierarchical regression testing the mediating effect of customer satisfaction on the relationship between product performance (price, network and other services) and brand loyalty. In model 1, the results indicate that price and network significantly influence loyalty ($β =
0.48 and β = 0.20 respectively). In model 2, the extent of customer satisfaction significantly changes the variance explained by price, network and services, as the beta coefficients for price, network and other services differ (β = 0.21, β = 0.04 and β = 0.04 respectively). This result demonstrates that customer satisfaction plays a mediating role between product performance and customer loyalty (Δ R²= 0.26) and thus H₃ is accepted.

### Table 7: Multiple Regressions: Mediation of customer satisfaction

| Variables       | Brand Loyalty |       |       |
|-----------------|---------------|-------|-------|
|                 | Model 1       | Model 2|
| Price           | 0.48**        | 0.21**|
| Network         | 0.20*         | 0.04  |
| Services        | 0.07          | 0.04  |
| Customer care   | 0.02          | 0.05  |
| Customer Satisfaction | 0.65**    |       |
| R²              | 0.39          | 0.65  |
| Adjusted R²     | 0.38          | 0.64  |
| Δ R²            | 0.26          |       |
| F change        | 37.240        | 154   |

Significant levels: **p<0.01; *p<0.05

### 6. Discussion

The results of this study show that a high emphasis on price, network and other services leads to higher customer satisfaction. This finding is consistent with previous research (e.g. Al-Tit, 2015; Datta, 2003; Gustafsson and Johnson, 2002), which has reported that product performance is positively correlated with customer satisfaction. This result is also similar to the previous study by Olsen (2002), which reported a positive relationship between quality and satisfaction.

In the mobile phone market, one could argue that customer satisfaction is likely to be dependent on both attribute importance judgments related to the physical product and on attribute importance judgments related to the services offered by the service provider (Mittal and Tsiros, 1999). This research does not report a significant relationship between customer services and satisfaction, thus differing from previous research. However, Checket-Hanks (2006) stated that “customer service is a competitive business weapon, especially in markets where customers have come to expect little or no good services.

Customer services are not an abstract concept, but a philosophy on how we treat people”. The insignificant impact of customer services in this study seems to be inconsistent with previous studies. This can be explained by the nature of this particular service industry (mobile telephony), which depends on information technology (IT) as the basis for providing services to customers. Customers do not need a direct relationship with the staff of the service provider to obtain the service: all operations depend upon the network and the cost in terms of service provision, which supports the significant correlation of price, network and other services with satisfaction. In other services (e.g. health care, education and insurance), which depend on staff to get the benefits of the service, it is important to have a direct relationship with the service provider. This is supported by the results of Salik and Balta (2006) study of customer satisfaction and loyalty derived from the perceived quality of individual banking services in relation to automatic telling machines (ATM).

### 6.1. Determinants of loyalty

One of the aspects addressed in this research is how satisfaction affects brand loyalty. This study followed reasoned action theory as a guide for explaining brand loyalty. This considers behavioural and attitudinal aspects as resulting in the complex term of brand loyalty. There are different ways of measuring brand loyalty, according to its different definitions and aspects. This study found a significant relationship between customer satisfaction and customer loyalty, consistent with previous studies. Fornell (1992) examined 27 different businesses and reported a strong correlation between satisfaction and loyalty. In addition, Cronin and Taylor (1992) examined four types of business and reported a significant relationship between satisfaction and loyalty. However, it is expected that the passive effect of satisfaction on loyalty will be greater when the effect of brand reputation is controlled.

### 6.2. Theoretical implications

This research found that the product performance variables price, network and other services are important for building customer satisfaction. This result implies that improving quality can increase satisfaction. Darsono and Junaedi (2006) stated that satisfaction and dissatisfaction are strongly related to specific characteristics of customers, with different characteristics leading to different satisfaction thresholds. The result also indicates that customers’ overall feeling and product variables can lead to understanding of customer satisfaction or dissatisfaction in relation to product performance.

This study provides interesting insights for understanding the impact of customer satisfaction on loyalty. The positive impact of satisfaction on loyalty highlights the importance of considering satisfaction to build strong loyalty. It also highlights that brand loyalty concerns not only behavioural aspects, but both behavioural and cognitive aspects. It also supports the role and effect of satisfaction when building customer loyalty within the service industry.

### 6.3. Managerial implications

This study has several implications for managers to consider when offering a service, such as price, network and other services, all of which are important variables in mobile phone service...
provider because they affect customer satisfaction. From this perspective, managers must follow up on the quality of the service provided as a guide to determining customer satisfaction. In this service industry, efforts must be made to improve the network and the area covered, ensure the costs of making calls are reasonable and introduce new services. Mobile phone services have a strong relationship with IT and the introduction of new technology in this sector can affect customer satisfaction. Although customer care has no significant impact on satisfaction in this study, it should not be neglected as the nature of the mobile phone industry is such that customer care can be built into the system.

7. Conclusion

The objective of this study has been to examine the impact of product performance on customer satisfaction and loyalty in the mobile phone service industry in Sudan. It is clearly important that satisfaction and product performance contribute to loyalty development. However, there are several limitations to this study that can be covered by more in-depth research. Future studies can examine other factors associated with product performance and brand reputation, brand name and behaviour. Studies can also replicate the research model in other service industries. Moreover, conducting longitudinal studies may offer more understanding of the effect of time on customer loyalty.

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