Customer Perceptions of Switching Barriers: A Study of Mobile Telecommunication Subscribers in Sri Lanka

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Abstract

Mobile telecommunications is one of industries faced drastic changes due to technological developments in the recent past. These changes were caused to change the whole environment that they operate, especially to their subscribers' behaviors. Thus, this study aims to investigate current status of switching barriers since it is one of major concerns of vendors. Three basic components of switching barriers namely; perceived switching cost, alternative providers' attractiveness and interpersonal relationship were mainly studied, and the behavioral changes of these components on subscribers' age, relationship age and their monthly mobile spending were also analyzed. For the study, primary data was obtained by conducting a survey from randomly select mobile subscribers in Sri Lanka. For the data analysis purpose, descriptive statistics, correlation analysis and mean variance analysis methods followed by the post-hoc tests were mainly used. Through the analysis, different subscriber groups' behaviors were studied and implication of relationship age was identified as a key factor to insist higher level of switching barriers. Furthermore, presence of the greater level of switching barriers even in technologically advancing environment was identified which can be a fascinating factor for vendors. Further, subscribers' favorable behavior even in customer locked-in market environment would be an interesting finding. Based on these, further recommendations were made accordingly to track the value of switching barriers when setting promotional strategies.
Keywords: *Switching barrier, switching cost, alternatives' attractiveness, interpersonal relationship, mobile telecommunication, relationship age, customer locked-in*

1. INTRODUCTION

The switching barrier refers to the difficulty of switching to another provider that is encountered by a subscriber who is dissatisfied with the existing service, or to the financial, social and psychological burden felt by a customer when switching to a new carrier (Fornell, 1992). It implies that, the more a subscriber is forced to remain with their existing service provider, when the switching barrier is higher **(**Kim, Park & Jeong, 2004). Such switching barriers were commonly seen in the mobile telecommunication industries in the past decades. Higher the switching barrier creates a favorable environment for the service providers to set customer locked-in scenarios. By setting these types of customer locked-in effects, firms prevent customer movements to another service provider even there are attractive competitors in the market place. As a result, all most all service providers are highly interested to erect switching barriers and also to maintain prevailing level of switching barrier within the industry they operate. In the recent past, these type of customer locked-in strategies were become common to many industries and similarly, these were heavily adopted in the continuous markets like mobile telecommunication. Usually, these customer locked-in effects create a favorable environment for both customers and for firms since it brings benefits by been with the same service provider for longer period of time.

However, it also created an unfavorable environment for another set of customers as they don't get chances to link with other attractive service providers due to locked-in status in the market. This may feel to subscribers that they are trapped in a particular network. As a result, due to unpleasant environment that they attached with, these locked-in strategies may not favor to create a long-term sustainability (Johns &Sasser, 1995). In such scenario, subscribers may pass negative word of mouth regarding their service provider which can be great lost to the firm.

From another perspective, switching barrier helps to strengthen and to continue relationship between customer and company over the time. For this, both parties must be benefited through such relationship (Chang & Chen, 2007; Marzo-Navarro et al., 2004). Even in locked-in environment. However, even there are many studies have focused on this long-term customer-firm relationship, very few studies have been discussed the implications of switching barrier on customer-firm relationship as most studies focused on firm's perspective. According to the Jones et al. (2000) study, loss of personal relationships established with service providers is another form of switching barrier as it could bring larger benefits to both parties with the time. To institute such personal relationship among these two parties, customers should enjoy superfluous benefits beyond the basic company offerings.

On the other hand, many studies have shown that higher the customer satisfaction create favorable environment for them to get loyal to the company offerings (Oliver,1997). These loyal customers are always willing to have a healthy relationship with service provider. Hence, after having linked with certain period of time, these customers see it costly to switch to another product or to service provider. Thisalso indicates the presence of switching barrier and the relationship among customer loyalty and customer satisfaction with switching barrier .But as the switching barriers play different roles in different industries, industry focused studies are need to be carry out to study its' different behaviors.

Hence, for this study, the mobile telecommunication industry is selected since it is one of major industries which have shown drastic changes in the past few decades. New technological innovations and their adoptions were mainly key for such changes. As well as these technologies were used by many service providers to set up switching barriers to locked-in their customers within the networks.But in today's market place, the same technology has become a key for the customers to get rid of these locked-in environments. Therefore, identification of the way customers' weight on switching barriers in the mobile telecommunication industry would be an interesting investigation both from a theoretical and a managerial perspective.

Switching barriers can be characterized based on several variables identified in past studies. Gwinner et al. (1998) developed and identified sets of facts which make it more difficult or costly for customers to change providers and these were named as confidence, social, and special treatment benefits. These added values can be used to retain firm customers with the company offerings. In other words, these facts act as switching barriers when they want to change service provider. These perceived benefits based on categorical model was further developed by Chang and Chen (2007) in their study on switching barriers.On the other hand, Jones et al. (2000) has also examined three such barriers namely interpersonalrelationships, perceived switching costs, and the attractiveness of competing alternatives. Furthermore, Balabaniset al. (2006)have noted seven indicators of switching barriers with special focus to electronic commerce present

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environment. Apart from these, Patterson and Smith (2003), Ping (1999),Fornell (1992) and Johnson (1982),have studied on switching barrier and have come up with different set of variables to measure it based on the environment they studied. For this study, model based on three factors developed by Jones et al. (2000)and which was adopted by Kim et al.(2004) in their empirical study in the mobile telecommunication industry was selected.

According to the selected research model, the switching barrier made up of the switching cost, the attractiveness of alternatives, and the interpersonal relationships. This is to examine presence of personal bonds in between the service provider and the customer which cause to strengthen relationship, costs associate with changing supplier (time, money and effort related psychological cost) and implication of available alternative suppliers' attractiveness. In summary, higher degree of these three facts can create higher level of switching barrier in the market. To measure these three different variables, previous studies in the mobile telecommunication industry were mainly refereed.

According to the Jones et al. (2000), perceived switching costs are consumer perceptions of the time, money, and effort associated with changing service providers. Basically these costs may result from searching and leaning costs of service alternatives. One part of the switching cost can be measured as it directly linked with measurable monetary costs. Rest of the switching cost pertain customer specific, non-quantifiable financial values which occurs due to the uncertainty in searching and adopting a new, unknown service provider (Aydin & Özer, 2005; Klemperer, 1987). As these depend on customer perceptions, values may differ from one customer to another.

Relates to the mobile telecommunications, switching costs are the cost that a subscriber faces when changing a service provider. These costs can include direct financial costs and more general, practical costs which can be converted to cash such as time and effort. It means that switching costs include all the costs involving with their decision making of changing service provider to the implementation of that decision. This process enables to identify operational measures of the switching cost.According to Aydin & Özer (2005), they are perceived monetary costs, perceived uncertainty costs, perceived evaluation costs, perceived learning costs and perceived set-up costs. Furthermore, Customer locked-in markets are also generally characterized with switching costs (Aydin & Özer, 2005).

Alternative service provider's attractiveness indicates several aspects of the service offering firms where customers can replace current service provider since the alternative competitors are superior or they perfectly suit your requirements than currently attached one (Kim, Park & Jeong, 2004). According to Nguyen (2011), when the alternative attractiveness is insufficient regards to attached service provider, service provider gets a relatively positive environment to retain their subscribers with the network, even though their core services were below average. Such insufficient level can be seen when the attached service provider is having a differentiated services, or a same level of services or if the market consists of few alternative competitors (Bendapudi & Berry, 1997). On the contrary, if the subscribers feel higher level of attractiveness from their competitors, they are frequently tend to find issues with service provider (Park et al., 2010).

Psychological and social relationship that manifests itself as care, trust, intimacy and communication is meant by the interpersonal relationship (Gremler, 1995). Most of the times, higher the interpersonal relationship and repeated interactions are facilitate to develop solid foundation which leads to the long-term relationship. In firm's perspective long-term relationship is beneficial to the firm in long run. Even customers are also willing to have strong relationship as it brings value and convenience to them (Gwiner et al.,1998). Therefore, relationship-specific investment helps increase customers' dependence, and thus magnifies the switching barrier (Jones et al., 2000).

With reference to the components representing switching barrier, this study focus on investigate current status of switching barrier based on customers' perceptions in the mobile telecommunication industry in which drastically changed due to advancements of the technologies.

2. METHODOLOGY

Research methodology mainly comprises the research framework and the primary and secondary data collecting sources. For the study, quantitative approach was followed through a survey to find out the consumer perceptions of switching barrier in the mobile telecommunication industry. The identified constructs of the model were measured using a multiple-item measurement scale. Five-Point Likert-type

scale format was used which ranged "strongly agree" to "strongly disagree". Measurement items were designed considering previous literature especially focusing on studies carried out in the mobile telecommunication industry. Study was carried out in Sri Lankan content, thus the designed English language questionnaire was professionally translated into the local language (Sinhala)and then it was translated back to ensure conceptual equivalence (Mullen, 1995).

To measure overall impact of switching barrier, model developed by Jones et al. (2000) based on three factors namely switching cost, interpersonal relationship and attractiveness of alternatives was selected. To measure switching cost, the seven-item scale developed by Aydin & Özer (2005) was adapted to the Sri Lankan mobile telecommunication sector. Accordingly, the operational measures of switching cost's reliability were confirmed (Cronbach's α = 0.814)through a statistical analysis. Interpersonal relationship with the service provider was measured using the four-item scale developed by Kim et al., (2004) was adapted. Scale reliability was statistically validated in the Sri Lankan mobile telecommunication context (Cronbach's α = 0.838). Other part of switching barrier, alternative service provider's attractiveness was also measured using the scale used by Kim et al., (2004) in their study carried out in the telecommunication industry. Scale consists of three items and its' reliability was statistically analyzed (Cronbach's α = 0.818) and confirmed the applicability in the Sri Lankan mobile telecommunication sector.

3. DATA COLLECTION AND ANALYSIS

Primary data was obtained by conducting a survey from randomly select mobile subscribers in Sri Lanka. A total of 800 questionnaires were distributed among mobile subscribers over sixweek period. Among that amount, 734 completed survey forms were returned which indicate 91.75% response rate. Among the collected data set, excluding those with omissions or with randomly repeated answers, therewere a total of 691 valid survey responses for the data analysis.

For the data analysis purpose, many statistical techniques were used. To get an idea on sample profile, descriptive statistics was basically used. According to the descriptive, sample consists 40% of male and 60% of female mobile subscribers. Among this group, 26% of mobile subscribers are using post-paid connections while the rest use pre-paid connections. This proportion is almost equal to the country profile. Further, the sample consists recently get use mobile subscribers as well as the users who attached with particular service provider more than eight years from a variety of occupations. From the education perspective, sample compromise 49% mobile subscribers who have completed their secondary education (Advanced level examinations) or below and the rest, 51% are having diploma, degree or above.

Through the correlation analysis, correlation among three components of switching barrierwas identified. Pearson r correlation analysis revealed moderate positive correlation among switching cost and interpersonal relationship, r = 0.559, moderate positive correlation with switching cost and alternative attractiveness, r = 0.556 and similarly moderate positive correlation among alternative attractiveness and interpersonal relationships, r = 0.509.

As this study focus on examine consumer perception of switching barrier with regards to identified grouping categories, mean variance analysis methods (ANOVA)followed by the post-hoc tests were used. Apart from that, for the validation purposes, Levene's *F* test results, clinical significance values, observed power and Cohen's d values were examined.

Level of switching barrier in the mobile telecommunication and components of switching barrier were examined separately with regard to customer's monthly mobile spending, relationship age with current mobile service provider and with subscriber's age. Finally based on the findings, recommendation and conclusions were made.

4. TESTING OF HYPOTHESIS

As an initial step, implications of monthly mobile spending, relationship age and subscriber's age were examined with the subscriber's perceptions of switching barriers. For this purpose, null hypothesis and alternative hypothesis were designed and tested.

i. Mobile user perceptions of switching barrier

H1a: Selected subscriber's monthly mobile spending category is having their perceptions of switching barrier's mean equalant to all the other monthly spending categories.

The independent between groups ANOVA yielded a statistically significant effect, $F(3,686) = 4.565$, $p = 0.004$, $\eta^2 = 0.020$. Thus, the null hypothesis of no differences on between means was rejected as the significant level is less than 0.05 ($p = 0.004$). It indicates that customer's perceptions of switching barriers is significantly different based on their monthly spending over mobile communication. On the other hand, the assumption of homogeneity of variance was tested and satisfied based on Levene's F test, $F(3,686) = 2.376$, $p = 0.069$. This indicates switching barrier is having equal variance across the monthly mobile spendinggroups. Furthermore, analysis results indicate weaker clinical significance ($\eta2 = 0.020$) and observed power 0.887 indicates strong level of accuracy and adequate power in the analysis.

To evaluate the nature of the differences between four groups, further analysis was followed up with Scheffe post-hoc test which allowed making multiple comparisons among several means. According to the post hoc results, customers' perceptions of switching barriers were statistically significant only among the lowest (less than 500LKR) and the highest (over 1500 LKR) monthly spending consumers, $p = 0.010$, $d = -0.375$. Cohen's d value ($d = -0.375$) indicates medium level of difference among these two groups.

H1$_b$: Selected subscriber's relationship age is having customers' perceptions of switching barrier's mean equalant to all the other relationship age categories.

The independent between groups ANOVA yielded a statistically significant effect, $F(5,684) = 13.891$, $p = 0.000$, $\eta^2 = 0.092$. Thus, the null hypothesis of no differences on between means was rejected as the significant level is less than 0.05 ($p = 0.000$). It indicates that customer's perceptions of switching barriers are significantly different based on relationship age with particular service provider. On the other hand, the assumption of homogeneity of variance was tested and satisfied based on Levene's F test, $F(5,684) = 2.041$, $p = 0.071$. This indicates switching cost is having equal variance across all the usage based grouping categories. Further, analysis results indicate weaker clinical significance ($\eta^2 = 0.092$) and observed power 1.000 indicates strong level of accuracy and adequate power in the analysis.

To evaluate the nature of the differences between six relationship age groups, further analysis was followed up with Scheffe post-hoc test which is used to make multiple comparisons among several means. As per the post hoc results, customers' perceptions of switching barriers attached to the particular service provider were statistically significant among the recently connected subscribers (less than one year of usage period) and the subscribers who attached with the current service provider more than four year. On the other hand, descriptive statistic indicates higher level of switching barrier when relationship age is getting higher.

H1$_c$: Selected subscriber's age category is having their perceptions of switching barrier's mean equalant to all the other age categories.

To test above hypothesis, the independent between groups ANOVA was employed. The test results yielded a statistically significant effect, $F(5,684) = 3.197$, $p = 0.007$, $\eta^2 = 0.023$. Since the significant level is less than 0.05 ($p = 0.007$), the null hypothesis of no differences on between means was rejected. It implies that subscribers' perceptions of switching barriers are significantly different based on their age. In other words, mobile subscribers in Sri Lanka rate their perceptions of switching barrier on service provider depending on their age category that they belong. Even though, the analysis results show a weaker clinical significance ($\eta^2 = 0.023$). On the other hand, the assumption of homogeneity of variance was tested and satisfied based on Levene's F test, $F(5,684) = 0.510$, $p = 0.769$. This indicates switching barrier is having equal variance across the subscribers' age categories. On the other hand, observed power 0.887 indicates higher level of accuracy in the analysis.

To evaluate the nature of the differences between six groups further, analysis was followed up with Scheffe post-hoc test which used to make multiple comparisons among several means. According to the post hoc results, customers' perceptions of switching barrier were statistically significant only among the subscriber's age less than 21 years and over 40 years, $p = 0.017$, $d = -0.554$.

Due to the statistical significant among all three factors identified above, further analysis was carried out to identify the level of impact towards each components of switching barrier namely, perceived switching cost, alternative service provider's attractiveness & interpersonal relationship. For this purpose, separate hypotheses were designed for each grouping category based on three selected demographic characteristics namely; subscriber's age, relationship age and their monthly spending over mobile communication.

ii. Behavior of components of the switching barrier (switching cost, alternative's attractiveness & interpersonal relationship) with regards to subscriber's monthly mobile spending

$H2_a$: Selected subscriber's monthly mobile spending category is having their perceptions of switching costs' mean equalant to all the other monthly spending categories.

The independent between groups ANOVA yielded a statistically significant effect, $F(3,686) = 2.864$, $p = 0.036$, $\eta^2 = 0.012$. Thus, the null hypothesis of no differences on between means was rejected as the significant level is less than 0.05 ($p = 0.036$). It indicates that customer's perception of switching cost is significantly different based on their monthly spending over mobile communication. In other words, mobile subscribers in Sri Lanka rate their perceptions of switching cost depending on their monthly mobile expenditure. On the other hand, the assumption of homogeneity of variance was tested and satisfied based on Levene's F test, $F(3,686) = 2.034$, $p = 0.108$. This indicates switching cost is having equal variance across the monthly mobile spending groups.

To evaluate the nature of the differences between four groups further, analysis was followed up with Scheffe post-hoc test which allows making multiple comparisons among several means. As per the post hoc test results, customers' perceptions of switching cost was statistically significant only among the lowest (Less than 500LKR) and the highest (Over 1500 LKR) monthly spending consumers. On the other hand, observed power 0.686 indicates average level of accuracy in the analysis.

$H2_b$: Selected customer's monthly mobile spending category is having their perceptions of attractiveness of alternatives' mean equalant to all the other monthly mobile spending categories.

The independent between groups ANOVA yielded a statistically insignificant effect, F(3,686) = 1.978, p = 0.116. Thus, According to the test results, there is not enough evidences to rejects the null hypothesis of no differences on between group means as the significant value is greater than 0.05. Even though test results indicates gradual increase of mean value of subscribers' perceptions towards alternative's attractiveness (Less than 500 LKR μ = 0.2089; 500-1000 LKR μ = 0.2708; 1000-1500 LKR μ = 0.3542; Over 1500 LKR μ = 0.4085).

$H2_c$: Selected customer's monthly mobile spending category is having their perceptions of interpersonal relationships' mean equalant to all the other monthly mobile spending categories.

The independent between groups ANOVA yielded a statistically significant effect, $F(3,686) = 4.477$, $p = 0.004$, $\eta^2 = 0.019$. Thus, the null hypothesis of no differences on between means was rejected as the significant level is less than 0.05 ($p = 0.004$). It indicates that customer's perception of switching cost is significantly different based on their monthly spending over the mobile communication. In other words, mobile subscribers in Sri Lanka rate their perceptions of interpersonal relationship with the attached to the service provider depending on their monthly mobile spend. On the other hand, the assumption of homogeneity of variance was tested and satisfied based on Levene's F test, $F(3,686) = 1.469$, $p = 0.222$. This indicates interpersonal relationship is having equal variance across the monthly mobile spending groups.

To evaluate the nature of the differences between four groups further, analysis was followed up with Scheffe post-hoc test. This allowed to make multiple comparisons among several means and according to the post hoc results, customers' perceptions of interpersonal relationship was statistically significant only among the lowest (Less than 500LKR) and the highest (Over 1500 LKR) monthly spending consumers, $p = 0.032$, $d = -0.344$. Cohen's d value ($d = -0.344$) indicates medium level of difference among these two groups. On the other hand, observed power 0.880 indicates strong level of accuracy in the analysis.

iii. Behavior of components of the switching barrier (switching cost, alternative's attractiveness & interpersonal relationship) with regards to the relationship age with currently attached mobile service provider

$H3_a$: One group of current mobile service usage duration is having customers' perceptions of switching costs' mean equalant to all the other relationship age categories.

The independent between groups ANOVA yielded a statistically significant effect, $F(5,684) = 6.283$, $p = 0.000$, $\eta^2 = 0.044$. Thus, the null hypothesis of no differences on between means was rejected as the significant level is less than 0.05 ($p = 0.000$). It indicates that customer's perception of switching cost is significantly different based on duration that they attached with particular service provider. In other words, mobile subscribers in Sri Lanka rate their perceptions of switching cost depending on their usage period of particular mobile service. On the other hand, the assumption of homogeneity of variance was tested and

satisfied based on Levene's F test, $F(5,684) = 1.099$, $p = 0.359$. This indicates switching cost is having equal variance across all the usage based grouping categories. Further, analysis results indicate weaker clinical significance ($\eta^2 = 0.044$) and observed power 0.997 indicates strong level of accuracy and adequate power in the analysis. Furthermore, according to the descriptive analysis, test results indicate gradual increase of mean values of subscriber's perceptions of switching cost and the results have shown below in Table 1.

Table 1: Mean distribution of switching cost regards to subscriber's relationship age

	Relationship Age					
	< 1 Year	1-2 Years	2-4 Years	4-6 Years	6-8 Years	> 8 Years
Mean Value (μ)	1.97322	2.22935	2.30304	2.68199	2.67342	2.76763

Further, Scheffe post-hoc test which is used to evaluate the nature of the differences between groups was applied and the test results indicate a statistically significant difference among the recently get use customers (less than one year of usage period) and the users who attached with the current service provider more than four year. The result summary of this analysis has given below in Table2.

Table 2: Switching cost post-hoc results of relationship age significant groups

(I) Relationship Age	(J) Relationship Age	Sig.	Cohen's d	95% Confidence Interval	
				Lower Bound	Upper Bound
Less than a year	4-6 years	.015*	-0.58545	-1.33762	-.07991
	6-8 years	.047*	-0.53842	-1.41091	.01051
	More than 8 years	.004*	-0.59247	-1.43084	-.15797

According to the above Table 2, Cohen's d value indicates medium level of difference among these two groups in all three cases. Further, as there are no overlapping indicates very consistent differences among the recently connected subscribers' perception and the subscribers who attached several years with particular service provider. In means, 95% of all the other groups collected from this population, there is always be a difference between these groups.

H3$_b$: Selected group of relationship age is having customers' perceptions of attractiveness of alternatives' mean equalant to all the other relationship age categories.

The independent between groups ANOVA yielded a statistically significant effect, $F(5,684) = 9.331$, $p = 0.000$, $\eta^2 = 0.064$. Thus, the null hypothesis of no differences on between means was rejected as the significant level is less than 0.05 ($p = 0.000$). It indicates that customer's perception of attractiveness of alternativeis significantly different based on duration that they attached with particular service provider. In other words, mobile subscribers in Sri Lanka rate their perceptions of alternative service provider's attractiveness depending on their usage period of particular mobile service. On the other hand, the assumption of homogeneity of variance was tested and satisfied based on Levene's F test, $F(5,684) = 1.321$, $p = 0.253$. This indicates alternative service provider's attractiveness is having equal variance across all the usage based grouping categories. Further, analysis results indicate weaker clinical significance ($\eta^2 = 0.064$) and observed power 1.000indicates strong level of accuracy and adequate power in the analysis. According to the descriptive analysis, test results indicate gradual increase of mean values of subscriber's perceptions of alternative service provider and the results have shown below in Table 3.

Table 3: Mean distribution of attractiveness of alternatives regards to subscriber's relationship age

	Relationship Age					
	< 1 Year	1-2 Years	2-4 Years	4-6 Years	6-8 Years	> 8 Years
Mean Value (μ)	-0.0565	0.0374	0.1603	0.3885	0.4693	0.5012

To identify further differences among these six groups and to make multiple comparisons among means, Scheffe post-hoc test was carried out. As per the post hoc test results, customers' perceptions of alternative service provider's attractiveness with regard to the attached to the service provider was statistically significant among the recently connected subscribers (less than one year of usage period) and the users who attached with the current service provider more than four year. The summary of this output has given below in Table4.

Table 4: Attractiveness of alternatives post-hoc results of significant groups of current mobile service usage duration

(I) Relationship Age	(J) Relationship Age	Sig.	Cohen's d	95% Confidence Interval	
				Lower Bound	Upper Bound
Less than a year	4-6 years	.012*	-0.45859	-.8314	-.0587
	6-8 years	.007*	-0.52478	-.9624	-.0892
	More than 8 years	.000*	-0.56911	-.9487	-.1667

According to the above Table 4, Cohen's d value indicates medium level of difference among these two groups in all three cases. Furthermore, non-presence of overlapping indicates very consistent differences among the recently get use customers' perception. In means, 95% of all the other groups collected from this population, there is always be a difference between these groups.

H3$_c$: Selected group of relationship ageis having subscribers' perceptions of interpersonal relationships' mean equalant to all the other relationship age categories.

The independent between groups ANOVA yielded a statistically significant effect, $F(5,684) = 17.540$, $p = 0.000$, $\eta^2 = 0.114$. Thus, the null hypothesis of no differences on between means was rejected as the significant level is less than 0.05 ($p = 0.000$). It indicates that customer's perception of interpersonal relationship that they have with current service provider is significantly different based on duration that they attached with particular service provider. In other words, mobile subscribers in Sri Lanka rate their perceptions of interpersonal relationship with service provider depending on their usage period of particular mobile service. On the other hand, the assumption of homogeneity of variance was tested and satisfied based on Levene's F test, $F(5,684) = 1.093$, $p = 0.363$. This indicates interpersonal relationship that they have with current service provider is having equal variance across all the usage based grouping categories. Further, analysis results indicate weaker clinical significance ($\eta^2 = 0.114$) and observed power 1.000 indicates strong level of accuracy and adequate power in the analysis.

The nature of the differences between four groups was evaluated further following Scheffe post-hoc test. This allows to make multiple comparisons among several means and according to the post hoc results, customers' perceptions of interpersonal relationship attached to the service provider was statistically significant among the recently get use customers (less than one year of usage period) and the users who attached with the current service provider more than four year. The summary of this output has given in Table5.

Table 5: Interpersonal relationship post-hoc results of significant relationship age categories

(I) Relationship Age	(J) Relationship Age	Sig.	Cohen's d	95% Confidence Interval	
				Lower Bound	Upper Bound
Less than a year	2-4 years	.001	-0.6778	-2.08484	-0.32513
	4-6 years	.000	-1.0001	-2.63412	-0.86335
	6-8 years	.000	-1.0139	-2.91861	-0.91737
	More than 8 years	.000	-1.2016	-2.96609	-1.17398
1-2 years	4-6 years	.002	-0.5760	-1.68245	-.22499
	6-8 years	.002	-0.6490	-1.98806	-.25788
	More than 8 years	.000	-0.7826	-2.01668	-.53336
2-4 years	More than 8 years	.003	-0.5052	-1.53567	-.19443

According to the above Table 5, Cohen's d value indicates strength level of difference among two groups. In this instant, very strong level of differences have shown in recently get attached ones with the customers who are using mobile service more than four years. Further, non-presence of overlapping indicates very consistent differences of users' perceptions of interpersonal relationship among the recently connected one with old customers. In means, 95% of all the other groups collected from this population, there is always be a difference between these groups.

iv. Behavior of components of the switching barrier (switching cost, alternative's attractiveness & interpersonal relationship) with regards to subscriber's age

In order to test the hypothesis that level of customers' age group had an effect on their perception of switching barrier in mobile telecommunication, a between groups ANOVA was performed.

H4$_a$: Selected subscriber's age category is having their perceptions of switching costs' mean equalant to all the other age categories.

The independent between groups ANOVA yielded a statistically insignificant effect, $F(5,684) = 2.155$, $p = 0.057$. Thus, According to the test results, there is not enough evidences to rejects the null hypothesis of no differences on between group means as the significant value is greater than 0.05.

H4$_b$: Selected subscriber's age category is having their perceptions of Attractiveness of Alternatives' mean equalant to all the other age categories.

The independent between groups ANOVA yielded a statistically insignificant effect, $F(5,684) = 2.182$, $p = 0.054$. Thus, according to the test results, there is not enough evidences to rejects the null hypothesis of no differences on between group means as the significant value is greater than 0.05. However the mean value of subscribers' perceptions of alternative's attractiveness is gradually increase with the subscriber's age category. The test results are given below in Table 6.

Table 6: Mean distribution of attractiveness of alternatives regards to subscriber's age

	Relationship Age					
	< 20 Year	21-25 Years	26-30 Years	31-35 Years	36-40 Years	> 40 Years
Mean Value (μ)	0.1667	0.1967	0.3114	0.3121	0.4167	0.4375

H4$_c$: Selected subscriber's age category is having their perceptions of Interpersonal Relationships' mean equalant to all the other age categories.

The independent between groups ANOVA yielded a statistically significant effect, $F(5,684) = 3.516$, $p = 0.004$, $\eta^2 = 0.25$. Thus, the null hypothesis of no differences on between means was rejected as the significant level is less than 0.05 ($p = 0.004$). It indicates that subscriber's perception of interpersonal relationship is significantly different based on their age category. In other words, mobile subscribers in Sri Lanka rate their perceptions of interpersonal relationship on service provider depending on their age category that they belong. Even though, this is statistically significance, analysis result shows weaker clinical significance ($\eta^2 = 0.25$). On the other hand, the assumption of homogeneity of variance was tested and satisfied based on Levene's F test, $F(5,684) = 1.954$, $p = 0.083$. This indicates interpersonal relationship is having equal variance across the age groups.

Further analysis was carried out using Scheffe post-hoc test, to evaluate the nature of the differences between six groups. As per the test results, subscribers' perceptions of interpersonal relationship with the attached to the service provider was statistically significant only among the subscriber's age group less than 21 years and over 40 years, $p = 0.007$, $d = 0.59$. On the other hand, observed power 0.918 indicates higher level of accuracy in the analysis.

5. RESULTS AND DISCUSSION

Initial analysis was carried out to determine whether there is a difference exists between the mean subscribers' perceptions of overall switching barrier with regards to selected demographic factors namely, subscribers' monthly mobile spending, relationship age with particular service provider and subscriber's age. The results of these analysis were used to test designed hypotheses in each step.

According to the test results, a significant difference between means was identified among subscribers' monthly spending level on their perceptions of switching barrier. In other words, mobile subscribers in Sri Lanka rate their perceptions of switching barrier depending on their monthly mobile

expenditure. Thus, the null hypothesis was rejected. Subscribers' perceptions of switching barrier were statistically significant only among the lowest (less than 500 LKR) and the highest (over 1500 LKR) monthly spending consumer groups. Also, further analysis on subscribers monthly spending was helped to identify a significant difference relates to switching cost and interpersonal relationship. Subscribers' perceptions of switching cost and interpersonal relationship were significantly difference only among the lowest (Less than 500LKR) and the highest (Over 1500 LKR) monthly spending subscribers. Further, these analysis results indicate that the higher level of switching barrier when mobile spending is getting higher.

From subscribers' relationship age perspective, a significant difference of subscribers' perception of switching barriers was identified. This indicates that subscriber's perceptions of switching barriers are depending on their relationship age with particular service provider. Furthermore, results indicated that the subscribers' perceptions of switching barrier attached to the service provider was statistically significant among the recently get use subscribers (less than one year of usage period) and the users who attached with the current service provider more than four year. This indicates higher level of switching barrier when the usage period is getting larger. Further, all three components of switching barrier have shown significantly different perception based on the duration that they attached with particular service provider. This implies that the mobile subscribers in Sri Lanka rate their perceptions of switching cost, interpersonal relationship and attractiveness of alternatives depending on relationship age with a particular service provider. On the other hand, interestingly all these statistically significant differences were shown among the recently get use subscribers (less than one year of usage period) and the users who attached with the current service provider more than four year. Furthermore, very consistent differences among the recently connected one with old subscribers' perception were identified.

From subscriber's age point of view, subscriber's perception of switching barrier is significantly different based on their age category. In other words, different age groups of mobile subscribers are having different level of perceptions of switching barrier and these groups' behaviors towards switching barriers are unique. This statistically significant difference was identified only among the subscriber's age group less than 21 years and over 40 years. That is, among the oldest and youngest subscribers. Interestingly, this difference can only be seen in their perceptions of interpersonal relationship with service provider. However, higher level of switching barrier has shown by older subscribers.

6. CONCLUSIONS AND IMPLICATIONS

This paper has examined the mobile users' perceptions of switching barrier regards to three different user characteristics namely subscriber's age, relationship age and their monthly spending over mobile. Switching barriers are one of main concerns of mobile service providers since it helps to retain their customers within the network. As a result, many strategies have been adopted by service providers to set higher level of switching barriers within the industry they operate.

The analysis indicates that longer the period they attached with particular service provider increases user attachments which caused to higher level of switching barriers with regards to switching cost, alternative's attractiveness and interpersonal relationship with the service provider. Also, results specify a very consistent difference of users' perceptions of switching barriers among recently connected mobile subscribers and users with higher relationship age. On the other hand, since customer locked-in markets are also generally characterized with switching costs (Aydin & Özer, 2005), the gradual increase of switching cost regards to customers' relationship age implies a market locked-in scenario even in the today's market place. From monthly mobile spending perspective, subscribers' perceptions of interpersonal relationship and switching cost were statistically significant only among the lowest and the highest monthly spending consumers. Mobile subscribers with lower level of monthly expenses are having comparatively low rating on switching cost and interpersonal relationships with compared to highly spending mobile subscribers. On the other hand, mobile user's age does not make a superior difference on their perceptions of switching barriers. The youngest and the oldest users are only showing statistically significant difference in switching barrier and their perceptual differences on interpersonal relationships with service provider is the main reason for this.

Moreover, it is interesting that elder mobile user who are making higher spending and who have been using same connection longer period of time have highest switching barrier in the market place. In this drastically changing market, mobile service providers will get greater opportunities to gain future

opportunities if they can have larger subscriber base. Thus, even in technologically advanced environment, still mobile service providers can insist higher level of switching barriers for their subscribers if the service provider can retain them for a longer period rather attracting new ones. It indicates the current subscribers are more valuable for the firm than new subscribers. In other words, there is a possibility of shifting new subscribers to the competitor's product in shorter period of time. Higher level of technological acceptance among younger generation may be a reason for that too. However, among the newly joined subscribers, their spending pattern and their age can be considered as an identification tool when establishing strategies to have highly bonded subscribers towards the firm. On the other hand, presence of greater level of switching barriers even in technologically advancing environment would be a fascinating factor for the service providers. Therefore, introduction of specific promotional plans targeting these characteristics would be beneficial for the firm's future profit generation.

Furthermore, without an argument, it is obvious that the mobile telecommunication industry is one of the most aggressively competing industries in today's' market since the market is already saturated. All service providers are competing each other to grab competing service provider's customers to their network while retaining their customer base. The way particular subscriber sees alternative service providers' offerings is key to understand this behavior. According to the analysis, subscribers with the higher level of relationship age are having less attractiveness towards alternative service provider's products. This implies subscribers' loyalty towards the service provider. Thus, it makes clear that subscribers' have become loyal with the service provider even in the market place where the higher level of switching barriers existing setups such as locked-in market environments. Furthermore, similar behavior can be understand regards to subscribers' spending pattern as well as their age. Since customer locked-in strategies are very common in the mobile telecommunication, evidences found in here on their behavior would be a very interesting identifications for firm's policy makers. Therefore, the future study related to switching barriers and customer loyalty would be a really interesting investigation in today's mobile telecommunication market.

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