Towards the investigation of the effect of customer satisfaction and customer experience on behavioural intention in mobile telecommunication services in Australia

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Towards the Investigation of the Effect of Customer Satisfaction and Customer Experience on Behavioural Intention in Mobile Telecommunication Services in Australia

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Abstract—Mobile services become more pervasive and complex, customer experience is becoming a key competitive differentiator. Given that intense rivalry in the mobile telecommunication service industry, customer experience and customer satisfaction have become a vital concern for the mobile service providers. However, determinants of behavioural intention such as customer experience and customer satisfaction are overlooked in many studies. Extensive literature review indicated that the nine factors influencing behavioural intention and repurchase behaviour are: the facilitating conditions, effort expectancy, performance expectancy, social influence, customer satisfaction and customer experience. Therefore, this paper examines key antecedents effect on behavioural intention. An online survey has been conducted with 364 valid responses in Australia. The study results indicate that the customer experience has a positive influence on customer satisfaction. The results from this empirical study revealed that customer satisfaction, social influence, effort expectancy and facilitating conditions have positive direct impact on behavioural intention. This study contributes to the body of knowledge in the fields of service marketing, business, and customer relationship management. A heuristic solution method is developed to cope with the complex customer repurchase behaviour problem.

Keywords—Telecommunication; customer satisfaction; customer experience; behavioural

I. INTRODUCTION

The mobile services are expanding with the introduction of new technologies in the market. Mobile users are increasing due to increase mobile penetration in Australia. The increase in the data services’ speed due to the advance technology is attracting more and more customer in mobile service adoption. The global mobile data traffic in 2013 increased more than 81 percent [1]. This increase resulted over years to 1.5 exabyte (i.e., 1.5 million terabyte) per month. According to Cisco [1] forecasting, there will be 11.6 billion mobile connected devices by 2020.

According to a recent report Lancaster [2], there has been a very high mobile penetration in Australia for past few years. Now, there is a slow-down in subscriber growth seen in recent quarters in 2016. The mobile penetration approached 142% by mid-2016. While there are substantial proportion of subscribers making use of multiple phones or SIM cards, the growth is stimulated by a steady increase in the country’s population. Therefore, some service providers can also expect to benefit from further migration among consumers from fixed-line to mobile telecommunication service. According to TIO [3], there are mobile complaints included in the annual report such as (e.g., call drop, billing, data issues. Internet, contract and service quality). There is an evidence in reports News [4] of customer moving from one mobile service provider to other. Optus mobile subscribers fell overall, from about 9.43 million users in March to 9.38 million in June [4]. In another report Ramli [5], Optus’ mobile subscriber base has fallen by 54,000 to 9.38 million amid rising competition from Telstra and Vodafone Hutchison Australia, its parent company's first-quarter financial year 2016 results showed. This study aims to investigate the relationship between customer satisfaction and behavioural intention. Also, in this study the impact of customer experience on behavioral intention of mobile service customer is investigated.

II. LITERATURE REVIEW

In the past two decades, several researchers have examined the determinants of customer behavioural intention for multiple industries [6-13]. A considerable amount of literature has been published on customer satisfaction[14-18]. The significance of customer satisfaction in literature Ahmad, et al. [19] has shown an immense amount of impact on companies future earnings. Previous studies [14, 19] use econometric models to prove that customer satisfaction is also deemed as an important factor associated with company revenue. Similarly, the improved customer experience in service industry is highly important as experience is replacing service quality [20]. Maklan and Klaus [20] argued that most firms use customer satisfaction, or NPS which is deemed as customer satisfaction derivative, to assess the customer’s experience.

Maklan and Klaus [20, p.228] defined customer Experience as “the customer’s cognitive and affective assessment of all the direct and indirect encounters with the firm relating to their purchase behaviour”. Moreover, this definition is derived from the previous studies [21-23] and it is highly consistent with the
conceptualization of these researches. The most interesting findings of Maklan and Klaus [20] study was that customers’ experience perceptions have a significant impact on customer satisfaction. The results of this study also indicate that customer experience also has significant impact on loyalty intention and customer behavioural intention.

Customer satisfaction develops when the customers compare the actual performance of a product with the perceived expected performance of a product or service. “Satisfaction is defined as the degree to which a business’ product or service performance matches up to the expectation of the customer. If the performance matches or exceeds the expectation, then the customer is satisfied, if the performance is below par then the customer is dissatisfied” Roberts-Lombard [24, p. 84]. Kotler [25, p.36] defines satisfaction as “a person’s feeling of pleasure or disappointment resulting from comparing a product’s perceived performance or (outcome) in relation to his or her expectations”. There are different aspects of satisfaction which make the definition more complex, primarily as it is related to complete customer experience [26].

Customer satisfaction is defined as a “consumer’s fulfilment response or a judgement that a product or service feature, or the product or service itself, provided a pleasurable level of consumption-related fulfilment, including level of under- or over fulfilment ” [26]. Therefore, customer satisfaction is linked with customer’s expectations. Moreover, the lower the gap between the customer’s expectations and the actual service or product performance, the higher is the customer’s satisfaction [27].

The main variable of concern for this study is behavioural intention to repurchase mobile service. Previous studies, such as [6, 28-30] determined that behavioural intention is the most significant measure of actual behaviour. The mediating role of customer satisfaction is not very well investigated in the mobile telecommunication service context[16, 31]. So, this study endeavors to compensate this empirical research gap through investigating the mediating role of customer satisfaction in context of telecommunication industry. In addition, there is no research found that has measured the role of moderating factors such as age, gender and length of service usage on the relationship between customer satisfaction and customer behavioural intention. Similarly, no research has been found that investigated the relationship between customer experience and customer behavioural intention in context of mobile phone service customers in a country like Australia.

Information system research has confirmed the importance of planned and adaption theories [32, 33]. For this purpose, UTAUT model (Unified Theory of Acceptance and Use of Technology) is used as a baseline research model by [34]. The extended theoretical framework is also supported by marketing mix theory as marketing research has confirmed the importance of customer psychological decision making [35]. In the UTAUT theory, the role of performance expectancy, effort expectancy, social influence and facilitating condition is tested with the dependent variable behavioural intention in the information system context.

Based on the above discussion there are two main objectives of this research are as follows:

- To investigate factors that influence customer behavioural intention in telecommunication sector.
- To study the effect of customer experience, customer satisfaction and customer behavioural intention to purchase the mobile service.

To achieve this objective, the research will develop and empirically test a theoretical framework. In doing so, the study intends to investigate the following.

Q1- What are the factors influencing customer behavioural in the Australian telecommunication sector?
Q2- To what extent do customer satisfaction and customer experience affect the customers’ behavioural intention to stay with their mobile service provider?
Q3- What is the influence of age, gender and experience as a moderating factor between antecedents and dependent variable in the extended Unified Theory of Acceptance and Use of Technology model?

III. RESEARCH FRAMEWORK AND HYPOTHESES

The theoretical framework for this study is underpinned by Unified Theory of Acceptance and Use of Technology (UTAUT2) model, marketing mix theory and expectation confirmation theory. This study focuses on the relationship of customer satisfaction, customer experience, performance expectancy, effort expectancy, social influence, facilitating conditions and behavioural intention of the mobile phone service customers in Australia. The major objective of this study is to determine the relationship between customer satisfaction, customer experience and customer behavioural intention for mobile service purchase. Furthermore, this study investigated the moderating effect of age, gender and length of usage on the relationship of customer satisfaction with the behavioral intention as well as the moderating effect of age, gender and length of usage on relationship of performance expectancy, effort expectancy, social influence and customer experience with behavioural intention for mobile phone service customers in Australia. This study aimed to test the following hypotheses.

H1- There is a positive effect of facilitating conditions on customer behavioural intention to repurchase.
H2- There is a positive effect of effort expectancy on customer behavioural intention to repurchase.
H3- There is a positive effect of social influence on customer behavioural intention to repurchase.
H4- There is a positive effect of performance expectancy on customer behavioural intention to repurchase.
H5- There is a positive effect of customer experience on customer behavioural intention to repurchase.
H6- There is a positive effect of customer experience on customer satisfaction.
H7- There is a positive effect of customer satisfaction on customer behavioural intention to repurchase.
H8- There is a moderating effect of age, gender and length of usage on the relationship between customer satisfaction and customer behavioural intention.
H9- There is a moderating effect of age, gender and length of usage on the relationship between customer experience and behavioural intention.
H10- There is a moderating effect of age, gender and length of usage on the relationship between performance expectancy and behavioural intention.

H11- There is a moderating effect of age, gender and length of usage on the relationship between social influence and behavioural intention.

H12- There is a moderating effect of age, gender and length of usage on the relationship between effort expectancy and behavioural intention.

H13- There is a moderating effect of age, gender and length of usage on the relationship between facilitating conditions and behavioural intention.

After analysis of results, some practical implications are suggested which may be helpful in determining the factors of customer satisfaction, customer experience and customer behavioural intention to repurchase the service for mobile service users in Australia. To support the research objective above mentioned hypotheses are constructed.

A. Research Methodology

Quantitative approach is adopted to conduct this study. An online survey is done with Australian mobile consumer over the age of 18 through a marketing research company Research Now. The sample size for this study was 1985. The valid and complete responses for this study are 364. The response rate for this study is 18.34%. Questionnaires were distributed to various customers with national representation of sample distribution though a marketing company and one week time was given to complete this survey. In order to attain the reliable results, there is a recommendation that the sample should include at least 100 observations, and that the sample size should at least be 5 to 20 times the number of parameters being estimated or measured [36]. In another study there is an argument that the desired sample size is affected by data normality and estimation methods used by researchers [37]. Therefore, for every free parameter there is an accepted value of 10 participants for adequate analysis results. Moreover, there is general consensus by many researchers discussed above that as a rule of thumb, in order to obtain sufficient statistical power for data analysis there should be sample size above 200. In another study, Hair [36], suggested that there should be a minimum five observations per parameter. Although, according to the normal distribution theory the ratio of sample size to the number of free parameters should be minimum 5:1 to get consistent parameter estimates [38]. Questionnaires were formed through utilisation of 6-point scale e.g., (1 for Strongly Disagree and 6 Strongly Agree). There were 180 female respondents (49.5%) and 184 male respondents (50.5%). The respondents age 18 to 25-year-old represents 15.1 percent. Another 18.1 percent of respondents were 26 to 35-year-old, 17.6 percent between 36 and 45, and almost 17 percent were between 46 and 55 and 16.2 percent were between 56 and 64. Similarly, 15.9 percent respondents were over the age of 65. The qualification of respondents presents, around 24.2 percent respondents were bachelor degree holder, 23.2 percent were high school graduate, 21.4 percent respondents were diploma holder, 15.7 percent participants were postgraduate degree holder, around 14 percent respondents were certificate IV and below, and 0.8 percent respondents were never gone to school.

Data management and analysis were performed using SPSS V24 and multivariate analysis through Smart PLS (Partial Least Square) V3.0. The first reliability of data was tested through Cronbach-α. The measurement model is tested in pls and then hypothesis testing is done. Multivariate analysis was done to test and investigate the effect of all independent variables on dependent variables as well as the effect of moderating variables on relationships between independent variables and dependent variables. Convergent and discriminant validity (Fornell Larcker Criterion) for items were analysed. The Heterotrait-Monotrait Ratio HTMT criterion for discriminant validity was also tested to support discriminant validity.

B. Findings and Conclusions

In the first approach, the measurement model validity is assessed without moderating effects or a reference model using standard measures as used by Brown, et al. [39], Venkatesh, et al. [40] and Amin and Afandi [41]. Some tests such as reliability, convergent validity and discriminant validity are employed to assess the measurement model at this stage.

The second step is the assessment of structural path without moderating effects by path coefficient using a bootstrap resampling procedure [42-44] and R-square coefficient determination. This step helps in evaluating the model through the path coefficient analysis between variables. Hence, the validity of the model can be statistically analysed using PLS-PM analysis technique. In this analysis, there will be an inclusion of moderator variables such as age, gender and length of experience. In this step, the significance of path coefficients between different variables and the coefficient determination R-square will be assessed [42]. Furthermore, these analyses will help in conducting the hypotheses testing of the research proposed model. Hence, this will help in making statistical inferences and conclusions about the research model for this study.

In previous studies [42, 45], for a good reliability of item variables, the threshold value should be a minimum of 0.7, which supports the root value of at least 50% of the item variance that should be explained by primary construct. Moreover, depending upon the research theoretical framework and research background or context, an item loadings of 0.5
Facilitating Conditions (FC)- There are six indicators for facilitating conditions for this study. Only FC3 did not meet the requirement of convergent validity via outer loadings. The remaining items have factor loadings greater than the threshold value of 0.5. There are five items appeared to be the best measurements of the construct convergent validity. Of the customer experience items measured, only CE1, CE3 and CE4 did not meet the requirement of convergent validity via outer loading. Hence, these items are eliminated from further analysis. The remaining six items appeared to be the best measurements of the construct and these items are retained in more refined model.

Customer Satisfaction (CS)- There are six items for measuring the customer satisfaction construct. All six items have factor loading greater than the threshold value of 0.5. But there is one item CS6 which has unclear wording, this item is very generic and its clarity is not at optimum level. So, this item is dropped due to the content validity issue. Due to the measure or item being reflective, the elimination of this item did not affect the content validity [47-49].

Social Influence (SI)- The results showed that all items for the construct SI are the best measure for SI, and no item is dropped. Therefore, SI1, SI2, SI3, SI4, SI5 and SI6 are converging on the construct SI.

Performance Expectancy (PE)- The analysis of constructs PE shows that all items are loaded higher than 0.5, therefore, it shows an evidence of converging on the construct of PE.

Effort Expectancy (EE)- The analysis of the construct EE shows that it can be evidently seen that factor loading of all the seven items is greater than 0.5 threshold value. Hence, all the indicators appeared to be the best measure for EE and are retained in the refined research model.

Average variance extracted measures the amount of variance that a constructs obtain from its manifest variables or items with respect to the amount due to the measurement error [43]. The AVE of the construct/latent variable should be greater than 0.5. Average Variance Extracted (AVE) is the sum of squared multiple correlations divided by the number of items. Moreover, as a rule of thumb there should a value of AVE higher than 0.5 suggests adequate convergence [36]. All constructs have AVE values higher than 0.5, meaning that the research constructs have adequate convergence validity. The Cronbach’s alpha values are assessed by using the values ranges from 0.0 to 1.0 with the higher value meaning the higher correlations, and vice versa. Hence, the values range from 0.804 to 0.922, which indicates that all constructs have a high correlation to each other.

The hypotheses testing shows that twelve hypotheses have supporting the current literature. Below mentioned table shows the result of hypotheses testing. The table shows that facilitating conditions, effort expectancy, social influence, customer satisfaction have positive influence on behavioural intention. Moreover, customer experience is positively associated with customer satisfaction. Furthermore, moderating factors such as age has positively influenced the relationships (i.e. CE->BI, EE->BI, and FC->BI) and length of usage has positively influenced the relationship (i.e. CE->BI, EE->BI, and SI->BI). Similarly, gender has moderated the relationship between EE and BI.

Table1: Structural Model Hypotheses Testing

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1 FC-&gt;BI</td>
<td>S @ p&lt;0.01</td>
</tr>
<tr>
<td>H2 EE-&gt;BI</td>
<td>S @ p&lt;0.1</td>
</tr>
<tr>
<td>H3 SI-&gt;BI</td>
<td>S @ p&lt;0.01</td>
</tr>
<tr>
<td>H4 PE-&gt;BI</td>
<td>NS</td>
</tr>
<tr>
<td>H5 CE-&gt;BI</td>
<td>NS</td>
</tr>
<tr>
<td>H6 CS-&gt;BI</td>
<td>S @ p&lt;0.01</td>
</tr>
<tr>
<td>H7 CE-&gt;CS</td>
<td>S @ p&lt;0.01</td>
</tr>
<tr>
<td>H8-a age x CS x BI</td>
<td>NS</td>
</tr>
<tr>
<td>H8-b gender x CS x BI</td>
<td>NS</td>
</tr>
<tr>
<td>H9-c length of usage x CS x BI</td>
<td>NS</td>
</tr>
<tr>
<td>H9-a age x FC x BI</td>
<td>S @ p&lt;0.01</td>
</tr>
<tr>
<td>H9-b gender x FC x BI</td>
<td>NS</td>
</tr>
<tr>
<td>H9-c length of usage x FC x BI</td>
<td>S @ p&lt;0.01</td>
</tr>
<tr>
<td>H10-a age x PE x BI</td>
<td>NS</td>
</tr>
<tr>
<td>H10-b gender x PE x BI</td>
<td>NS</td>
</tr>
<tr>
<td>H10-c length of usage x PE x BI</td>
<td>NS</td>
</tr>
<tr>
<td>H11-a age x SI x BI</td>
<td>NS</td>
</tr>
<tr>
<td>H11-b gender x SI x BI</td>
<td>NS</td>
</tr>
<tr>
<td>H11-c length of usage x SI x BI</td>
<td>S @ p&lt;0.01</td>
</tr>
<tr>
<td>H12-a age x EE x BI</td>
<td>S @ p&lt;0.01</td>
</tr>
<tr>
<td>H12-b gender x EE x BI</td>
<td>S @ p&lt;0.01</td>
</tr>
<tr>
<td>H12-c length of usage x EE x BI</td>
<td>S @ p&lt;0.01</td>
</tr>
<tr>
<td>H13-a age x FC x BI</td>
<td>S @ p&lt;0.01</td>
</tr>
<tr>
<td>H13-b gender x FC x BI</td>
<td>NS</td>
</tr>
<tr>
<td>H13-c length of usage x FC x BI</td>
<td>NS</td>
</tr>
</tbody>
</table>

Table 1: Structural Model Hypotheses Testing

The assessment of the structural model is done by evaluation of the effect size as mentioned by Cohen [50]. The calculation of R2 is dependent upon the increase in the amount of variance that remains unexplained in the endogenous construct[51]. The impact of a selected predictor construct that can affect the R2 values of an endogenous construct is measured by f2 effect size[42]. According to Cohen [50] and Chin [44], the effect size f2 values of 0.02, 0.15, and 0.35 respectively are observed as small, medium and large effect sizes of the predictive construct. The f2 value for this model for all independent variable are between 0.02 and 0.15. Another quality criterion for the structural model is known as Stone-Geisser’s Q2, which shows that the capability of a model for prediction of endogenous latent variables. Q2 determines the predictive relevance using the blindfolding procedures in SmartPLS [42, 52, 53]. For this model, the predictive relevance Q2 for behavioural intention is 0.394 (large predictive).

IV. DISCUSSION AND CONCLUSION

The current study used to formulate and validate the user acceptance model UTAUT towards the customer behavioural
intention in mobile telecommunication services in Australia. The in-depth literature review and previous studies revealed the importance of behavioural intention to stay loyal with a service. For this study, the theoretical framework model has been developed with the inclusion of unified theory of acceptance and use of technology, confirmation expectation theory, and marketing mix theory. The UTAUT model has been used with addition of two more constructs such as customer satisfaction and customer experience. To operationalise this research model, the indicators have been defined for each latent variable or construct. The antecedents for the behavioural intention have been formulated and data from mobile customers was acquired through an online survey questionnaires. The UTAUT model is chosen from eight previous models to develop a theoretical framework for this study. The UTAUT model is the amalgamation of previous eight research models. As, it captures the integration of the fragmented theory and information technology into Unified model of acceptance and use of technology [30]. The motivation for this current study is driven from the telecommunication industry ombudsman (TIO) reports [3] and customer retention reports[4, 54]. These reports have highlighted the problems related to customer service, network operations, billing and contractual problems. Moreover, these reports highlighted the customer’s migration from their current service providers to other service providers. This study has highlighted the issues which lead to customer intention to either stay loyal with network or move to other service provider. This research provides a solution to all prominent problems related to the customer service by presenting a research framework which has tailored the information according to the businesses interest. Therefore, the literature defined behavioural intention and the issues related with customer experience with the mobile service as critical for businesses.

Based on this research framework, research instrument in form of an online survey was developed. The research instrument for this study has been adapted and modified using previous literature and studies. The significance of measuring behavioural intention was examined from three perspectives: (1) Customer intention to recommend services to the other mobile service users in future, (2) Customer intention to continue or repurchase the service showing commitment, and (3) positive word of mouth in form of enjoying introducing mobile service to other users. The other theories such as confirmation expectation theory and marketing mix theory have supported the argument from customer experience and customer satisfaction angle. The model is evaluated in two steps: 1) Measurement model and 2) structural model assessment model. The model validation was done with some empirical conclusions by using PLS-PM technique. In final step, hypotheses were tested followed by conclusion with empirical conclusions by using PLS-PM technique. In final step, hypotheses were tested followed by conclusion with empirical conclusions by using PLS-PM technique.

This study adds to the current UTAUT research a framework that investigates the factors influencing customer behavioural to continue with their current service provider. The future researchers will be able to get new ways by dint of this research framework and this model can benefit industries if applied in their businesses. There are few constraints for this study, such as this study is based in Australia only. In future, the same theoretical model can be tested with some other demographics and samples. This study focusses only on the data gathered from customer end due to the limited access to company’s data bases. Moreover, for future studies this model can be replicated in other regions for future investigation.

**REFERENCES**
