THE IMPACT OF SERVICE QUALITY, PROMOTIONS AND CUSTOMER ENGAGEMENT IN DETERMINING CUSTOMER LOYALTY IN THE THAI MOBILE NETWORK INDUSTRY[α]

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Abstract

Past studies are still insufficient and have failed to fully explore the role of customer engagement in enhancing customer loyalty. This paper addresses this problem, aiming to find a better understanding of the impacts of customer engagement in retaining current customers and gaining new ones in the telecommunication sector. Quota sampling was used, with a total sample of 798, collected among both prepaid and postpaid customers in Thailand. Data were analyzed and tested using t-Test, EFA, CFA and SEM. The findings show that there is a significant difference between prepaid and postpaid customers in terms of online customer engagement. The study also suggests that technical service quality is one of the important dimensions for continuous subscription, stimulating customer engagement and customer loyalty.

Keywords: Service quality, Customer engagement, Customer loyalty

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[α]The current study is an extended study based on the authors' earlier paper published in (IBEC) - Chile 2017 conference titled "Building Customer Loyalty Through Service Quality, Customer Engagement and Commitment in Thai Mobile Network Service".

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1. INTRODUCTION

1.1 Rationale

This study provides useful guidelines for mobile network providers, regarding the fact that customers put a higher weighting on the importance of technical service quality in comparison to functional service quality; this influences both offline and online customer engagement and affects continuous subscription behavior. It is important to note that competition among Thai mobile networks regarding customer loyalty has intensified for two reasons. First, the mobile network industry is an oligopolistic market dominated by 3 major companies (Srinuan, Tsani Annafari, & Bohlin, 2011) with the greatest market share of 44.3% being held by Advanced Info Service plc (AIS), followed by Total Access Communication Public Company Limited (DTAC) with 27.4%, and True Move with a market share of 26.2% in 2016. Other small players include CAT and TOT with a total market share of approximately 2%[1]. At present, the Thai mobile market has reached 934 million subscriptions (Solutions, 2020), with a 186% penetration rate due to multiple SIM ownership (De Rosbo, 2020). The mobile network industry is thus under pressure to maintain a loyal customer base as keeping loyal customers is more profitable than acquiring new customers in the long run (Thaichon, Lobo, & Mitsis, 2014). The revenue of the Thai mobile network industry is expected to increase by only 0.5% during the year of 2019 (De Rosbo, 2020). Furthermore, customer switching costs in the mobile network industry have reduced by 8.5% (Sujarittanonta, 2017) indicating the necessity for service providers to find new ways to maintain customer loyalty.

Second, as the market is mature, customer loyalty is vital to sustain business growth and profitability (Santouridis & Trivellas, 2010). The mobile market has now reached 89.97million subscriptions, down from 93.4mn at the end of 2019. This is primarily because of a slump in tourist arrivals resulting from the pandemic (Report, 2021), and also due to the fact that Thai mobile subscriptions reached the maturity stage of 159% in 2019 with an average penetration growth rate of 1.1% (Budde, 2020).

In addition, Thai telecom industry accounted for 3% of the country's GDP in 2014 (Tortermvasana, 2014). Mobile networks have become very important due to growing online business in Thailand, with smartphones now being a key device for accessing most Internet services (Pornwasin, 2015).

1.2 Problem Statement

Today, customers pay little attention to customer loyalty due to

[1] http://www.yozzo.com/news-and-information/mvno-mobile-operator-s/mobile-market-shares-thailand-2016

the increased similarities in loyalty programs among telecom companies (Raja Irfan Sabir, 2013). Due to intense competition in the mature Thai mobile network market, investigating how mobile network providers could maintain customer loyalty in the long term is essential. Furthermore, regarding the prevalence and growing importance of customer engagement related studies in marketing literature, additional examination is necessary to enhance understanding of customer engagement and its antecedents. In the process of technological change, factors of the service dimension influencing customer engagement have received much less attention. Hence, it is necessary and crucial to identify and investigate the factors influencing customer loyalty towards mobile network providers in Thailand.

2. LITERATURE REVIEW

2.1. Customer Engagement

Customer engagement enhances experiential quality through social media interactions (Y. Lee, Joonhwan, & Lee, 2020), easing use through technical features in both offline and online interactions (Kang, Lu, Guo, & Zhao, 2020), which are crucial to retaining customer loyalty. Bravo, Martínez, and José Miguel (2019) stressed that in order to enhance customer loyalty, customer engagement must be relevant, valuable, and supportive to customers' needs, with superior online and offline service perceptions. However, most companies did not sufficiently facilitate engagement with customers (Jones, 2010). Customer engagement activities can be either online or offline. Due to the rapid development of the internet and social media, there is an emergence of online business communities where customers conveniently engage via online means as there are less constraints on location and time, low costs, possible anonymity, and less moral responsibility (Wirtz, Orsingher, & Cho, 2019). Customer engagement activities after purchase are often found in the form of word of mouth, co-creation, and complaint behavior (Javornik & Mandelli, 2012), providing recommendations, or helping other customers, both by writing reviews and also possibly engaging in legal action (Doorn et al., 2010; Zhang, Hu, Guo, & Liu, 2017).

2.2. Service Quality

Previous literature indicates that service quality enhances the favorable behavioral intentions of customers and reduces unfavorable intentions (Dhasan & Aryupong, 2019; Zeithaml, Berry, & Parasuraman, 1996). In the telecommunication service sector, service dimensions such as technical and functional quality (Bamert & Wehrli, 2005; Johnson & Anuchit, 2002), value-added services (Hosseini, Zadeh, & Bideh, 2013), and SERVQUAL developed by Parasuraman (1988), are widely adopted by researchers (Leisen & Vance, 2001; Negi, 2009).

However, not all quality-related factors contribute to customers' perceived service quality and customer satisfaction (Wang, Lo, & Yang, 2004). This may be due to the fact that the importance felt towards individual dimensions of service quality perception differs culturally (Ladhari, Ladhari, & Morales, 2011). Johnson and Sirikit (2002) also did not find strong links between service quality and behavioral intentions in the telecommunication sector, giving the reason that the service quality dimensions (SERVQUAL) do not include "technical quality", which is important in the telecommunication sector, where network coverage, signal, and speed of internet, are crucial.

Recently, modified SERVQUAL and service quality dimensions for the telecommunication sector include both functional and technical aspects of service quality and their impact on customer loyalty (Bedi, 2015; Gautam, 2015)

2.3. Customer Loyalty

Customer loyalty is defined as the commitment to rebuy or repatronize a preferred product or service consistently in the future (Oliver, 1999) and is often measured in terms of repeat purchases, lack of switching behavior, or positive word of mouth communication (Mattila, 2004; Santouridis & Trivellas, 2010).

Recently, cross-buying behavior has also been considered as a part of customer loyalty and is of great concern in the financial service sector due to the reduction in money spent on new customer acquisitions when customers' are more likely to stay with the same company (Jones, 2010). Most studies on cross-buying behaviors have been focused on the financial sector (Jung- Kee & You-il, 2012; Ngobo, 2004; Tung & Carlson, 2015b). When measuring customer loyalty, cross-buying behaviors rather than repurchase intentions are more applicable in the mobile network businesses, as customers who have subscribed to a mobile network are less likely to repurchase another SIM card (Karunarathne & Jing, 2017).

3. RESEARCH METHODOLOGY

3.1. Conceptual Development

Johnson and Sirikit (2002) identified the need to regularly reassess service quality dimension scales for the Thai telecommunication sector. A qualitative research interview was conducted among 15 Thai mobile users, in favor of adaptation of the service dimension scales, in order to better understand Thai customer insights. The data collected via interview provided insights to explore, and identified the important factors for the study (Hair, Wolfinbarger, Ortinau, & Bush, 2008). The interview protocol included 34 open-ended questions, with 15 interviews conducted by either the authors or their research assistants; selection was based on a convenience sampling technique with 2 interviews taking place in

Chiangmai, 4 in Chanthaburi, and 9 in Bangkok. The data were later transcribed for subsequent analysis and the findings from the interviews were applied to develop the research propositions.

A qualitative interview method was used to explore customer experiences in service quality, promotional packages, and customer engagement, due to the lack of past studies relevant to the mobile network market in Thailand. As there were insufficient direct studies of the relationships between promotional price structure and customer engagement, this study initially explored the concept using a qualitative method and subsequently conducted the quantitative study. The interview results revealed that customers place emphasis on competitive service fees, promotional packages, and affordable price structures, as components of service quality. The interview results also revealed a lack of influence between service quality and customer behavior once respondents become subscribers of a mobile network provider. Hence spending behavior was excluded during the development of the conceptual framework.

Based on the interview results, the sub-themes of customer engagement, customer loyalty, and service quality, were merged, together with an additional dimension, competitive promotional packages. Additionally, two main types of service quality emerged from the interview results. These were technical service quality and functional service quality.

Table 1: Respondents' profiles

No.	**Gender**	**Age**	**Occupation**	**User status**	**Network providers**	**Switching behaveor**	**Cross buying**	**Spending behav-ior**	**Engage-ment**	**No. of SIM**
R1	Female	40	Real estate lawyer	Post-paid	DTAC	No	No	More	No	1
R2	Male	24	University student	Post-paid	TRUE	Yes	No	Less	Yes	1
R3	Female	46	Human resource manager	Post-paid	TRUE	Yes	No	Same	Yes	1
R4	Male	36	Engineer	Post-paid	AIS	Yes	Yes	Same	Yes	1
R5	Female	39	Small Business owner	Post-paid	DTAC	No	Yes	Same	Yes	2
R6	Male	24	Business manager	Post-paid	TRUE	No	Yes	Less	No	1
R7	Female	30	MBA student	Post-paid	TRUE	Yes	Yes	Less	Yes	2

R8	Male	31	Private company employee	Prepaid/ postpaid	True/ DTAC	Yes to DTAC and No to True	Yes	Less	Yes	3
R9	Female	26	Freelancer	Prepaid	True	No	No	Less	Yes	1
R10	Female	26	Student/ part-time employee	Prepaid	DTAC	No	No	Same	Yes	1
R11	Female	22	Student	Prepaid	DTAC	No	Yes	More	Yes	1
R12	Female	25	Employee	Prepaid	True	No	Yes	Less	No	2
R13	Male	19	Cashier	Prepaid	True	No	No	Less	No	1
R14	Male	31	Teacher	Postpaid	DTAC	No	Yes	Same	Yes	1
R15	Male	43	Lecturer	Postpaid	True	Yes	No	Less	Yes	1

R = Respondent

Antecedents of Customer Loyalty

A previous study found that the level of mobile service quality drives customers to purchase more services in the future and reduces switching behavior (Malhotra & Malhotra, 2013), while technical service quality dimensions such as network coverage and customer service also have an impact on customer loyalty (Aydin & Özer, 2005; Santouridis & Trivellas, 2010). Similarly, the functional service quality provided by service employees, such as their willingness to help, and their courtesy, has a positive impact on customer loyalty (Kaura, Prasad, & Sharma, 2015). Consistent with previous literature, the interview results in the present study suggested that those who are happy with the service quality offered by mobile network providers are more likely to be loyal customers.

"I will not switch for sure because I like the numbers, the services provided, variety of promotions, and good Internet signal" (Respondent 8).

"They are knowledgeable, friendly, polite, and courteous. I feel like we're a good friend. I won't switch to others. I will use XXX. I like XXX" (Respondent 5)

Hence, the following hypothesis is stated.

Hypothesis1: There is a positive relationship between service quality (technical and functional service quality) and customer loyalty.

Even though this study initially focused on the impact of service quality on customer engagement and customer loyalty, thirteen of the fifteen respondents stressed the

importance of competitive service fees, the variety of promotional packages, and an affordable price structure. For example:

> *"I have subscribed to this company for internet usage because I need to use LINE and Whatsapp (social media) for my work's communication. It is cheaper to use post-paid, and I choose the cheapest package" (Respondent 8).*

> *"My contract is finally up in the next 2 months. I may move back to XXX if XXX has no interesting promotion and attractive Internet packages" (Respondent 4).*

These promotional packages and price offers tend to influence customers' willingness to continue using a service. Previous studies also found a relationship between perceived price fairness and customer loyalty (Kaura et al., 2015; Santouridis & Trivellas, 2010). Hence, it is hypothesized that:

Hypothesis 2: There is a positive relationship between competitive promotional packages and customer loyalty.

Regarding customer engagement, respondents discussed two types of customer engagement, namely provider-initiatives and customer-initiatives. This study focuses on customer-initiative engagement activities, as they are more direct and relevant for measuring customer loyalty. The interview results show that eight respondents who recommended their brands to others were not likely to switch brand or engage in cross-buying behavior. This finding is consistent with the study of Vivek et al., (2012) in which customer engagement was believed to influence customer loyalty and cross-buying behavior.

> *"I recommend the package I am using to my friends. I think it is cheap, and I want them to experience a decent service at reasonable price as I do". "I will not switch because of a suitable and cheap internet package" (Respondent 11).*

> *"I will not switch, and I will even recommend it to others" (Respondent 10).*

A recent study also found that engaged customers of internet service providers are more likely to be loyal customers (O'Brien, Jarvis, & Souta, 2015). Therefore, hypothesis 3 was developed as follows:

Hypothesis 3: There is a positive relationship between customer engagement and customer loyalty.

The Antecedents of Customer Engagement

In a study of low-cost carriers, perceived service quality was found to trigger customer feedback (Theingi, Darwin, & Suwanna, 2017), thereby increasing the chance of customer engagement. A previous study also indicated that functional service

quality, rather than technical quality, is more likely to encourage positive word of mouth communication (Ng, David, & Dagger, 2011). The interview results also indicate that customers tend to share their service experience with their family and friends, as well as with the service provider. The following quotations also show that service quality is an antecedent of customer engagement behaviors.

> "*I recommend XXX to my friends who asked for advice because I found that the service provided by XXX such as speed, stable signal and coverage was alright compared to the fees I paid*" (Respondent 9).

> *"Since I had experienced the problems they were complaining (bad and slow signal), and I now found the right network, I then wanted to recommend XXX to them, I could even watch movie, listen to music and share WiFi hotspot without slow signal"* (Respondent 10).

Hence, it is hypothesized that:

Hypothesis 4: There is a positive relationship between service quality and customer engagement.

Most of the previous studies have investigated the relationship between competitive price offers and customer loyalty (Kaura et al., 2015; Santouridis & Trivellas, 2010), or the indirect relationship between perceived price unfairness and negative word of mouth or switching intentions (Santos & Basso, 2012). Hence, studies investigating the direct relationship between price structure and customer engagement are few to none. Despite the lack of previous literature, the interview findings indicate that most respondents prefer promotional packages that help them save money, for example 200 baht (~ 6 US$) for 20 days unlimited call or 79 baht (~ 2 US$) per week package. Moreover, many respondents are likely to engage with other potential customers upon receiving competitive promotional packages offered by mobile service providers, as seen in the following quotations:

> *"I used to share my experience to my friends on Facebook and Instagram. At that time, I really appreciated and liked its offers. XXX gave me 8 months free usage I feel so good and I just want to tell everybody that I'm really happy. I pay not more than 20 baht a month" (Respondent 5).*

> "*I recommended my family and friends to switch from XXX to YYY because it is cheaper to call among those with the same network*" (Respondent 8).

Hence the following hypothesis was developed:

Hypothesis 5: There is a positive relationship between competitive promotional packages and customer engagement.

Based on the previous literature and the interview results, the main

antecedents of customer engagement are identified as service quality (technical and functional), and competitive promotional packages, while customer loyalty is identified in terms of switching intentions and cross-buying behavior. Even though past spending behavior was initially thought to be part of customer loyalty, the interview results show that good service quality and customer engagement behavior may not influence spending behavior, as once respondents become subscribers of a mobile network provider, they tend to choose the promotional packages that suit their lifestyle to limit their spending on a mobile bill. Hence, spending behavior was excluded as an indicator of customer loyalty behavior in the mobile network business and the following conceptual framework was developed.

3.2 Research Design

A descriptive research design was employed to conduct a cross-sectional study using a self-administered survey. The survey questionnaire was first developed in English, based on the literature review and exploratory study, and was later translated into Thai by one of the authors. The authors collected 120 questionnaire responses for use in pretesting. Each student respondent was given a notebook, while non-university public respondents were given 50 Baht as a token of appreciation from Assumption University. The pretest respondents in the study consisted of 60 prepaid and 60 postpaid Thai customers in Bangkok who were 18 years and older.

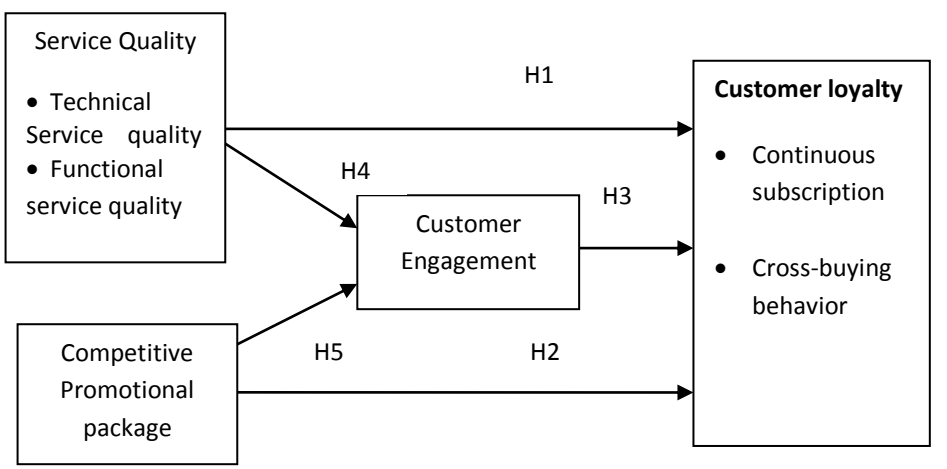

Figure 1. Conceptual Framework

Exploratory Factor Analysis was performed on service quality, customer engagement, and customer loyalty, with Cronbach's alpha values ranging from 0.76 to 0.95 indicating the high reliability of the questionnaire items, representing that the corresponding constructs were at an acceptable level (Hair, Anderson, Tatham, & Black, 1998).

The questionnaire items and statements were developed based on the previous literature and exploratory study using a 7-point Likert scale (1 = strongly disagree, and 7 = strongly agree) as mentioned in the following table.

Table 2. Operationalization of variables

Constructs (conceptual definitions)	**Measurement items**	**Adaption from previous study**
Technical Service Quality	• Good quality of signal • Fast internet speed • Wide range of network coverage • Latest technology used in providing services	Developed based on exploratory study
Functional Service Quality	• Prompt service from customer service staffs • Willingness to help customers • Politeness • Not busy to respond to customers quickly • Product knowledge • Ability to solve problems	Adapted from Johnson (2002) and exploratory study
Competitive promotional packages	• Variety of promotional packages • Attractive promotional packages • Changing/upgrading of promotional packages • Offering more competitive promotional packages than other network providers	Developed based on exploratory study
Customer engagement	• Say positive things about my network provider to other people • Recommend my network provider to someone who seeks my advice • Encourage friends and relatives to subscribe to my network provider	Zeithaml (1996)
	• Download my network provider's stickers from LINE shop • Visit my network provider's Facebook • Visit my network provider's website	Developed based on exploratory study

	• Share the information about service provider with other people online.	
Switching intention/ Continuous subscription	• Continue with the same service provider even if it increases the call rate. • Use more services from the same provider in the next few years • Will continue using the same network provider	Zeithaml (1996)
Cross-buying Intention	• I will accept the offer when my network provider proposes new/additional services to me • I will seriously consider the offer when my network provider proposes new/additional products and services to me • I will buy new offerings of products and services in the near future.	Tung (2015b)

3.3 Sampling and Data Collection

As the list of prepaid and postpaid customers in Thailand is hard to access, this study used non-probability sampling, and quota sampling, to select a representative sample. A total of 809 questionnaires were collected (28 University staff collected about 600 questionnaire responses from outside the university, while the two authors collected 200 questionnaire responses from the parents, friends, and relatives, of Assumption University students). Firstly, a frequency analysis was run on all questionnaire items to identify typing errors and missing values, and 11 questionnaire responses were deleted from the total of 809 respondents, leaving a final total sample size of 798. Data collectors were instructed with the following guidelines:

1. Respondents must be aged 18 and over

2. The respondents must be those who are responsible for the service bill

3. Data collectors must collect data from an equal number of prepaid and postpaid customers

4. It is suggested that data collectors note down the phone number of the respondent on the questionnaire

5. Data collectors must not collect data from students or staff at Assumption University

4. DATA ANALYSIS

4.1 Descriptive Analysis

The descriptive analysis included general information on mobile phone, type of service, payment method, usage behavior, and personal information of the respondents. The usable sample size was 798, with the majority of respondents (36.3%) subscribed to AIS, followed by 34%

subscribed to TRUE, and 29.7% subscribed to DTAC. This finding represents the respective network provider's market shares for Thailand, which was mostly AIS (44.3%), followed by DTAC (27.4%), and TRUE (26.2%) in 2016[2]. The most common payment channel for prepaid customers was via a prepaid card in the store or convenience store (28.9%), followed by self-payment via machine, kiosk, online, or ATM (12.7%), and finally payment at the counter service of the mobile network provider (2%).

Table 3 Descriptive Analysis on Type of Service and Payment Method

Type of mobile network provider	
AIS	36.3%
TRUE	34.0%
DTAC	29.7%
Average Duration of Network Subscription	6 years and 5 months
Main reasons for choosing the current network provider	
Good network coverage	25.4%
Long-term use of the same network	21.6%
Competitive call rate/price	13.3%
Same networks with friends and/or family	13.3%
Attractive discount and promotion	12.5%
Good internet connection	9.8%
Other reasons	1.8%
Type of service	
Prepaid	44.1%
Postpaid	55.9%
Subscription to any promotional package	
Yes	70.9%
No	29.1%

[2] http://www.yozzo.com/news-and-information/mvno-mobile-operator-s/mobile-market-shares-thailand-2016

Payment method for Prepaid customers	
Via prepaid card (in the store or convenience store)	28.9%
Self-payment (via machine, kiosk, online, ATM service)	12.7%
Counter service of network provider	2.0%
Others	
Postpaid customers	
Counter service of network provider	27.3%
Via counter services at convenience store	11.0%
Direct debit via bank account/Credit card	8.4%
Self-payment (via machine, kiosk, online, ATM service)	7.1%
At a Bank	0.9%
Others	1.1%

N = 798

Regarding mobile network usage behavior, the data shown in Table 4 indicates that the majority of respondents (60.4%) spent an average of less than 30 minutes on phone calls per day, while 25% of respondents spent between 31 and 59 minutes. However, the majority of respondents (35%) spent four to six hours on the internet via their phone, while 27.7% of them spent one to three hours. Thirty-three percent of respondents spent 300 to 499 baht on last month's bill, while only 8.3% spent less than 100 baht.

Table 5 summarizes the personal information of respondents.

Table 4. Descriptive Analysis on Mobile Usage Behavior

Time spent on phone calls	
Less than 30 minutes	60.4%
31- 59 minutes	25.0%
1-2 hours	8.2%
More than 2 hours	6.4%
Time spent on internet via mobile phone	
Less than one hour	20.3%
1 – 3 hours	27.7%

4 – 6 hours	35.0%
7 – 9 hours	8.6%
10 hours or more	8.3%
Last monthly bill on mobile network	
Less than 100 baht	8.3%
100 baht to 299 baht	21.3%
300 baht to 499 baht	33.0%
500 baht to 699 baht	19.8%
700 baht to 899 baht	8.5%
More than 900 baht	9.1%
Switching behavior	
Ever switched mobile network provider	45.7%
Never switched mobile network provider	54.3%

N = 798

Table 5. Descriptive Analysis on Personal Information of Respondents

Age	
18 – 23	32.1%
24 – 29	14.9%
30 – 35	12.9%
36 – 41	12.0%
42 – 47	13.0%
48 or older	15.0%
Gender	
Male	38.3%
Female	61.7%
Education	
High School	32.3%
Bachelor's degree	59.3%
Master's degree or higher	8.4%
Monthly Personal Income	
20,000 baht or less	65.8%
20,001 baht – 39,999 baht	24.9%

40,000 baht – 59,999 baht	5.5%
60,000 baht – 79,999 baht	1.3%
80,000 baht – 99,999 baht	0.8%
100,000 baht and over	1.8%
Occupation	
Student	31.0%
Company employee	29.5%
Government employee	5.0%
Own business	10.6%
General workers	17.3%
Others	6.5%

N =798

4.2 Exploratory Factor Analysis

Exploratory Factor Analysis (EFA) was performed using SPSS 20 by employing Principal Component Analysis (PCA) with Varimax rotation on all questionnaire items. As expected, two factors, namely, technical service quality and functional service quality, were extracted from the EFA based on Eigen value (See Table 6), and the total variance explained by these two factors was found to be 70.9%. The reliability of technical and functional service quality was 0.92 and 0.85 respectively. On the other hand, competitive promotional packages was extracted as a single factor when performing the EFA with 72.7% variance explained and a Cronbach's alpha of 0.88

Another EFA was also performed on the questionnaire items measuring customer engagement, and two factors were extracted based on the Eigen value, namely, online customer engagement, and offline customer engagement. Total variance explained by customer engagement was 79.6%, and the Cronbach's alpha value of online and offline customer engagement was 0.93 and 0.89 respectively (Table 7). Lastly, questionnaire items measuring customer loyalty were put into EFA and only one factor was extracted. The Cronbach's alpha values for continued subscription and cross-buying behavior were 0.87 and 0.75 respectively (Table 7). In conclusion, the results from the EFA indicate that all factors in the study had good explanatory power with the Cronbach's alpha values ranging from 0.75 to 0.93, indicating good reliability (Table 6 and 7).

Table 6. Results from Exploratory Factor Analysis (Part I)

Questionnaire items	**Factor Loadings**	**Factor Loadings**	**Factor Loadings**
Functional Service Quality of customer service staff			
Their willingness to help customers	0.84		
Their politeness	0.82		
Their ability to solve problems	0.81		
Their quick Response	0.80		
Their knowledge about product information	0.80		
Their prompt service	0.76		
Technical Service Quality of network provider			
Internet Speed		0.81	
Signals		0.79	
Network Coverage		0.79	
Latest Technology		0.76	
Competitive Promotional Package			
Attractive promotional package			0.88
Variety of promotional package			0.87
Changing and upgrading promotional package			0.85
More competitive promotional package than other network providers			0.81
Eigen Value	5.71	1.38	2.91
Variance explained	41.94%	29.01%	72.7%
Cronbach's alpha	0.92	0.85	0.88

Note: EFA was performed on service quality resulting in functional and technical service quality. Another EFA was performed on competitive promotional packages with only one factor extracted.

Table 7. Results from Exploratory Factor Analysis (Part II)

Questionnaire items	**Factor Loadings**	**Factor Loadings**	**Factor Loadings**	**Factor Loadings**
Online Customer Engagement				
Writing comments on Facebook	0.93			
Visiting network provider's Facebook page	0.88			
Visiting network provider's website	0.87			
Sharing information about network provider	0.86			
Downloading network provider's stickers	0.70			
Offline Customer Engagement				
Recommending network provider to people		0.91		
Saying positive things about network provider		0.88		
Encouraging friends and relatives to subscribe network provider		0.86		
Cross-Buying Behavior				
Considering when network provider proposes new/additional products and service			0.89	
Accepting the offer about new/additional services			0.84	
Buying new offerings of products and service in the future			0.81	
Continued Subscription				
Using the same network provider even if it increases the call rate.				0.87

Using more services from the same providers in the next few years				0.82
Continuing the service offered by the same network provider				0.55
Eigen Value	4.8	1.6	3.5	0.93
Variance explained by each factor	46.9	32.6	41.8	32.00
Cronbach's alpha	0.93	0.89	0.87	0.75

Note: Two separate EFAs were performed on customer engagement, extracting online and offline customer engagement, and on customer loyalty, resulting in continued subscription and cross-buying behavior.

4.3 Confirmatory Factor Analysis

Table 8 shows the results from the CFA (measurement model) indicating that the Chi-square statistic of the measurement model was significant ($\chi^2_{(329)} = 1359.17$, $p < 0.001$), but other fit indexes (Normed Fit Index [NFI] = 0.91; Tucker-Lewis index [TLI] = 0.92; Comparative Fit Index [CFI] = 0.93; and Root Mean Square Error of Approximation [RMSEA] = 0.06) were within the acceptable range (Byrne, 2001). The measurement model also showed that there were significant t-statistics for each path, providing some evidence of convergent validity among the items (Anderson & Gerbing, 1988). Moreover, inter-correlation values between 0.27 and 0.72 indicate that there was no multicollinearity problem, and show discriminant validity among all constructs (Kline, 1998) (see Table 9). After performing the CFA, all constructs for composite reliability were calculated and ranged from 0.75 to 0.92, which is sufficiently high when compared to the lower limit of 0.70 (Hair et al., 1998).

According to the mean value of the constructs, respondents are more likely to conduct offline customer engagement (mean = 4.8) than online customer engagement (mean = 3.6) (Table 9). Table 9 also shows that the correlation between online customer engagement and functional and technical service quality, as well as competitive promotional packages is quite weak.

Structural Equation Modeling (SEM) was performed, with the results as shown in Table 10. The squared multiple correlations for online engagement and offline engagement were 0.148 and 0.512, indicating that only 14.8% of changes in online engagement are explained by service quality and competitive promotional packages, while 51.2% of changes in offline engagement are explained by the same constructs. In

addition, 29.1% of cross-buying intentions and 42.4% of continuous subscriptions are explained by service quality, competitive promotional packages, and customer engagement.

Table 8. Results from Measurement Model

Constructs and Items	**t-Value**	**Standardized regression weights**	**Composite reliability**
Functional Service Quality			0.92
Their willingness to help customers	27.79	0.85	
Their politeness	26.22	0.82	
Their quick response	26.19	0.82	
Their ability to solve problems	26.09	0.81	
Their prompt service	*	0.80	
Their knowledge about product information	25.08	0.79	
Technical Service quality			0.85
Network coverage	21.97	0.78	
Latest technology	21.94	0.78	
Signal	*	0.77	
Internet speed	20.21	0.72	
Competitive Promotional Packages			0.87
Attractive promotional packages	28.37	0.85	
Variety of promotional packages	*	0.84	
Changing and upgrading promotional packages	24.58	0.77	
More competitive promotional packages than other network providers	22.64	0.72	
Online Customer Engagement			0.92
Writing comments on Facebook	0.92	23.56	
Visiting network provider's Facebook page	0.87	23.46	
Visiting network provider's website	0.87	23.45	
Sharing information about network provider	0.86	23.30	
Downloading network provider's stickers	0.70	*	
Offline Customer Engagement			0.87
Recommending network provider to other people	0.90	31.33	

Saying positive things about network provider	0.84	*	
Encouraging friends and relatives to subscribe to network provider	0.83	28.32	
Cross-Buying Behavior			0.84
Accepting offers about new/additional services	0.85	*	
Considering when network provider proposes new/additional products and services	0.82	26.19	
Buying new offerings of products and services in the future	0.81	25.7	
Continued Subscription			0.75
Using the same network provider even if it increases the call rate.	0.66	*	
Using more services from the same providers in the next few years.	0.81	17.46	
Continuing the service offered by the same network provider.	0.68	15.75	

Note: N =798. All regression weights are significant at 0.01 level. * = Fixed parameter.

χ^2 = 1359.17, Degree of Freedom = 329, p = 0.000, CMIN/DF = 4.13, NFI = 0.91, TLI = 0.92, CFI =0.93, RMSEA = 0.06

Table 9. Mean, Standard Deviation and Correlation Matrix

	Constructs	Mean	SD	1	2	3	4	5	6	7
1.	Functional service quality	5.11	1.02	1						
2.	Technical service quality	5.13	0.98	0.66	1					
3.	Competitive promotional packages	5.21	0.98	0.61	0.66	1				
4.	Online customer engagement	3.6	1.59	0.27	0.33	0.34	1			
5.	Offline customer engagement	4.8	1.17	0.60	0.62	0.64	0.47	1		
6.	Cross-buying behavior	4.9	1.12	0.48	0.51	0.46	0.34	0.57	1	
7.	Continuous subscription	4.4	1.23	0.48	0.53	0.51	0.47	0.60	0.72	1

Note: N =798. 1= strongly disagree and 7 = strongly agree.
All are significant at 0.001 levels.

5. RESEARCH RESULTS AND DISCUSSION

This paper proposes that service quality and competitive promotional packages can be measured to determine the impact on consumer loyalty intentions through customer engagement in the mobile network industry. Table 10 shows a summary of the results. A total of sixteen hypotheses were tested, eight of which were supported. The influence of customer engagement towards customer loyalty has been previously studied in the marketing literature. However, only a few studies have considered service quality and promotional packages as antecedents of customer engagement or as mediators, by measuring the direct and indirect relationships towards customer loyalty. Previous studies by marketing scholars have suggested including the service quality attribute in testing customer engagement behavior, to capture the influence of customer loyalty (Theingi et al., 2017) and service quality (Ng et al., 2011). The findings show hypothesis 1 is partially supported indicating technical service quality is more important in determining customer loyalty than functional service quality in the context of mobile network provision. Interestingly, factors of functional service quality, which include the service provider's willingness to help customers, politeness, quick response, and prompt service, do not appear to have a significant direct effect on customer loyalty. This is inconsistent with previous studies, which found that aspects of technical service quality such as clarity of voice, and wide area of network coverage, are a major predictor of customer loyalty in the mobile sector (Shafei & Tabaa, 2016). This study contributes to customer engagement theory by suggesting technical service quality, functional service quality, and promotional activities, as possible antecedents of customer engagement. Therefore to achieve customer loyalty, service providers should offer sufficient technical services and also engage with customers appropriately (Tung & Carlson, 2015a).

The results also found that there is no significant relationship between the provision of competitive promotional packages and customer loyalty. Therefore, hypothesis 2 was not supported. This is due to the fact that when switching costs are negligible (Ngobo, 2017), users are less likely to be attracted towards competitors' promotional offerings, thus users' mobile service consumption becomes habitual with stable consumption (R. Lee, Rungie, & Wright, 2011).

The study also reveals that there is a significant relationship between customer engagement (both offline and online engagement) and customer loyalty. Even though offline customer engagement (standardized regression weight = 0.27) and online customer engagement (standardized regression weight = 0.25) have an almost equal impact on influencing continuous subscription, online customer engagement (standardized regression

weight = 0.41) has a greater impact on cross-buying intentions (offline customer engagement standardized regression weight = 0.11). Hence, hypothesis 3 is fully supported. This can be attributed to the fact that online customer engagement co-creates the customer experience (Brodie, Hollebeek, Jurić, & Ilić, 2011; Theingi et al., 2017) and leads to cross buys through one-stop shopping convenience and the firm's reputation (Liu & Wu, 2007).

The results shown in Table 10 indicate that technical service quality has a greater impact on customer engagement than functional service quality. Hypothesis 4 is thus supported, with the exception of the relationship between functional service quality and online customer engagement. In the current online marketplace, customers increasingly use devices such as tablets and smartphones to interact with their provider, which is much more convenient than visiting a brick-and-mortar shop (Bilgihan, Kandampully, & Zhang, 2016).

There is a positive and significant relationship between the provision of competitive promotional packages and customer engagement, thereby fully supporting hypothesis 5. A previous study also suggests that competitive promotions have positive effects on customer's offline and online engagement in purchase decisions (Breugelmans & Campo, 2016). In certain studies promotion has a stronger effect on online engagement, which ultimately influences customer loyalty (Zheng, Cheung, Lee, & Liang, 2015).

Table 10. Summary of results

	Hypotheses		t-value	Standardized regression weights	Results
H1a:	Technical Service quality →	Continuous subscription	2.6**	0.16	Supported
H1b:	Technical Service quality →	Cross-buying intention	1.04	0.08	Not supported
H1c:	Functional Service quality →	Continuous subscription	1.23	0.07	Not supported
H1d:	Functional Service quality →	Cross-buying intention	-0.515	-0.03	Not supported
H2a:	Promotional package →	Continuous subscription	1.69	0.10	Not supported
H2b:	Promotional package →	Cross-buying intention	1.65	0.11	Not supported
H3a:	Offline engagement →	Continuous subscription	4.9***	0.27	Supported
H3b:	Offline engagement →	Cross-buying intention	1.68*	0.11	Supported

H3c:	Online engagement →	Continuous subscription	6.25***	0.25	Supported
H3d:	Online engagement →	Cross-buying intention	8.06***	0.41	Supported
H4a:	Technical Service quality →	Offline engagement	5.16***	0.26	Supported
H4b:	Technical Service quality →	Online engagement	3.13**	0.19	Supported
H4c:	Functional Service quality →	Offline engagement	4.86***	0.22	Supported
H4d:	Functional Service quality →	Online engagement	0.193	0.01	Not supported
H5a:	Promotional package →	Offline engagement	7.20***	0.34	Supported
H5b:	Promotional package →	Online engagement	3.97***	0.22	Supported

*Significant at 0.1 level, ** Significant at 0.05 level, *** Significant at 0.01 level
χ^2 = 1517.21, Degree of Freedom = 331, p = 0.000, CMIN/DF = 4.58, NFI = 0.90, TLI = 0.91, CFI = 0.92, RMSEA = 0.07

An independent sample t-test was conducted to see whether the level of customer engagement and customer loyalty were different between prepaid and postpaid users. The data in Table 11 indicates that there is a significant difference between prepaid and postpaid users in terms of online customer engagement, showing that prepaid users are more likely to engage online than postpaid users.

Table 11. Summary table of independent sample t-test

	Prepaid user (N = 352) Mean value	Postpaid user (N =446) Mean value	t- value	Findings
Offline customer engagement	4.85	4.78	0.85	Not significant
Online customer engagement	3.8	3.4	3.57***	Significant
Continuous subscription	4.47	4.42	0.49	Not significant
Cross-buying intention	4.88	4.94	-0.80	Not significant

1 = strongly disagree and 7 = strongly agree, *** significant at 0.01 level.

6. ACADEMIC AND MANAGERIAL CONTRIBUTIONS

This study contributes to S-D logic in the existing literature (Hollebeek, Srivastava, & Chen, 2019), where the interaction of service quality has in indirect influence via co-creation by customers in the engagement process, affecting customer loyalty. An engaged customer thus brings a longer-lasting stable relationship, positive referrals, and high retention rates, in the mobile (Thakur, 2019) retail (Mohd-Ramly & Omar, 2017) environment. This study highlights the important role of customer engagement as a mediating variable in determining customer loyalty. Furthermore, there is an indirect relationship between service quality and competitive promotional packages with customer loyalty mediated by customer engagement. Hence, this study extends the understanding of customer engagement in the context of mobile network business.

In this study relevant factors were explored through the use of both qualitative & quantitative study, to modes of customer engagement experience, has a strong role in building customer loyalty (Thakur, 2019). However, even though mobile network providers offer a high quality of service, such as high functional service quality and competitive promotional packages, it will be difficult for them to enhance or maintain customer loyalty if customers are not engaged online or offline. Hence, it is very important for validate the measurement scales of service quality, promotional packages, customer engagement, and customer loyalty, relevant to the mobile network industry based in Thailand. The findings of this study provide helpful guidelines for mobile network providers in understanding key distinct factors such as service quality, competitive promotional packages, and customer engagement, which influence customer loyalty. Factors of the service dimension influencing customer engagement have received much less attention in the previous literature, with this study aiming to close the gap by highlighting the type of service quality (technical/functional) important for determining customer engagement (online/offline). Customers are likely to engage both offline and online if both technical and functional service quality meet their expectations.

Findings also indicated that factors of technical service quality, such as internet speed, network coverage, and signal, were important factors for continuous subscription. For managers, delivery of appropriate marketers to stimulate customer engagement by offering good service quality and competitive promotional packages. These findings may help mobile network providers to differentiate their offers and value-added services from other providers.

Finally, due to growing market competition and sophisticated social media platforms, customer engagement has become an important strategic tool for practitioners to

enhance customer loyalty (Chiang, Wei, Parker, & Davey, 2017). Managers should find more creative ways to generate engagement with marketing, by being informative, interactive, and collaborative. New tools and platforms, for example "hashtags" (e.g., McDonalds' #McDstories) help to increase market reach. At the same time, such features also bring potential harm, by attracting customers who spread negative-word-of-mouth. Therefore practitioners should investigate ways to manage the potential risks through proactive and reactive mechanisms (Harmeling, Moffett, Arnold, & Carlson, 2017).

7. CONCLUSION

This study provides valuable insights into customer loyalty in the context of mobile services. The proposed research develops the understanding about buyer behavior regarding services and creates an ideal model for customer loyalty. Mobile network service providers should focus more on technical services (willingness to help customers, politeness, quick response etc.), and online customer engagement platforms in order to retain mobile network subscriptions. Customers satisfied with the functional service quality (willingness to help customers, politeness, quick response etc.) are most likely to recommend network services to other people through an offline mode of engagement, rather than online modes. Therefore, service providers should effectively campaign through both offline and online customer engagement channels to maintain customers' loyalty in mobile network subscriptions in this digital age (Wire, 2019).

One limitation of this study is the lack of data regarding long-term prepaid users, as millions of tourists in Thailand tend to subscribe to a prepaid service for a few days and numbers of prepaid users are inflated. Hence, it is difficult to use quota sampling and the sample may not represent the actual proportions of prepaid and postpaid subscribers. Future research may include study of customer commitment as a mediating variable, similar to customer engagement, as enhancing service quality and competitive promotional packages may increase customer commitment, which in turn has an impact on customer loyalty. In addition, future studies can determine the relative importance of customer engagement and customer commitment in determining customer loyalty, or investigate the effects of online and offline promotions.

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