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Value Added Service and Service Quality from the Customer's Perspective: An Empirical Investigation in Thai Telecommunication Industry

Saowanee Srikanjanarak ^a, Azizah Omar ^b, and T. Ramayah ^c

Increasing global competition has led to an intensively competitive market among service providers. Several organizations have created and developed a variety of products or services; in particular the telecommunications industry has developed mobile phone services. Various value-added services linked to mobile phone services, such as communication, entertainment, information services and money transfer services have been intensively incorporated to sustain and serve the customer's need, which in turn demands performance maximization. In service marketing literature, SERVQUAL and SERVPERF have been reported as failing to measure service quality in new industries such as the retail industry's B2B service. Therefore, service quality models for the mobile phone service industry need to be further developed. Service quality models have placed little focus on value-added services and no research has yet operationalized the concept of value-added services in a service quality model from the customer's perspective of the service industry. Hence, this paper aims to conceptualize a service quality model based on Gronroos' Model, other exploratory research and the current market situation in the service context. A total of 998 structured questionnaires were distributed to pre-paid mobile phones users in 9 provinces around Thailand. The results indicate four dimensions of service quality. The value-added services have shown a particularly high level of measurements of satisfaction. These findings reveal a meaningful insight into how customers perceive the value-added services offered by service providers. This will help managers to design an appropriate variety of service options that suit their customers and in turn may lead to the development of a long-term relationship with their organizations.

Keywords: Value added services, Service quality, Telecommunication Thailand

Introduction

Service quality models; namely SERVQUAL (Parasuraman et al., 1988) and SERVPERF (Cronin & Taylor, 1992) are the two most widely accepted models used to measure service quality. However, many scholars have argued that either SERVQUAL or SERVPERF conceptualizations have failed to measure service quality in new industries (Brady & Cronin, 2001; Carr, 2007; Dabholkar, Thorpe & Rentz, 1996; Gounaris, 2005; Kang, 2006; Kang & James, 2004; Philip & Hazlett, 1997). For instance Dabholkar et al. (1996) developed the Retail Service Quality Scale for the retail industry; later Gounaris (2005) developed the INDSERV scale for B2B

services by using SERVQUAL and adding some items which were more relevant to the specific nature of its industry. Recently, some researchers argued that the SERVQUAL measurement is more focused on the processing of delivery service and does not reflect on service output (Kang, 2006; Kang & James, 2004; Lim et al., 2006; Seth, Deshmukh & Vrat, 2005). In addition, Selth et al. (2005) revealed that several service quality models are different based on the nature of the service industry, currently existing competition, time and needs. The increasing

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global competition in the business market has led to an intensively competitive environment among service providers, particularly in the telecommunications industry dealing with mobile phone services. The advancement of information and technology communication (ICT) continues to facilitate the innovation of mobile phone services. Several value-added services have been created and developed to satisfy customers' needs in order to keep the favor of existing customers such as communication services, entertainment services, information services and money transfer services. Therefore, the service quality model for mobile phone services needs to be further developed.

The service quality model has received little attention in light of value-added services and no research has yet developed the concept of value-added service into a service quality model suited to the nature of the service industry. The critical dimension that demands examination is the customers' perception of service quality. This is crucial for both academic and practitioner to examine as it relates to various value-added services in order to sustain existing customers and in turn to maximize company performance. Hence, to fill this gap in the service marketing literature, particularly in the mass service context such as the pre-paid mobile phone service industry among individual users in Thailand, this study seeks to extend the conceptualization and develop the operational measurement of service quality based on Gronroos' Model (Gronroos, 1984). Specifically, this information is in relation to technical quality (core service and value-added service) and functional quality (customer care service).

Literature Review

Service Quality

Service quality has been studied over the past two decades in service marketing literature. Many scholars have agreed that the concept of service quality in the customer's mind is very subjective, complicated and personal as well as difficult to conceptualize and operationalize (Brady & Cronin, 2001; Cronin & Taylor, 1992; Dabholkar, Thorpe & Rentz, 1996; Parasuraman, Zeithaml

& Berry, 1994; Rust & Oliver, 1994; Tea, 1993). Service quality has been conceptualized in two different approaches. The first approach of service quality has been conceptualized by Gronroos in 1984 which comprises two dimensions: technical quality and functional quality. Technical quality refers to what is delivered to the customer as the outcome of interaction with a service provider (what is delivered). Functional quality is concerned with how the end result of the process was transferred to the customer (how it was delivered). This dimension is not directly related to core service offerings but includes a wide range of service delivery items, such as perceptions of a company's service center or customer care service and the manner of personal service. This concerns both psychological and behavioral aspects which include accessibility to the provider, how service employees perform their tasks, what they say and how the service is provided. Technical quality can often be quite readily evaluated objectively; it is more difficult to do this with functional quality. Hence, the author further conceptualized that the important impact of any previous experience of service quality in a corporate situation would act as a guide for customers to evaluate the technical and functional quality of the product and the company. The second approach is to use SERVQUAL which was developed and refined by Parasuraman et al. (1985 & 1988). It is a multi-item instrument with five dimensions to quantify customers' global assessments of a company's service quality. The original 22-items consist of five service quality dimensions, namely reliability, responsiveness, assurance, empathy, and tangibles. Reliability is the ability to perform the promised service dependably and accurately while responsiveness is the willingness to help customers and to provide prompt service. Assurance refers to employees' knowledge and courtesy, and their ability to inspire trust and confidence. Empathy is the caring, individualized attention given to customers and tangibles are the appearance of physical facilities, equipment, personnel and written materials.

The SERVQUAL measurement has been used to measure across a wide range of service contexts (Brown, Churchill & Peter, 1993; Caro & Carcia, 2007; Philip & Hazlett, 1997; Seth,

Deshmukh, & Vrat, 2005). However, several researchers argued that service quality should be measured only using consumer perceptions rather than expectations minus perceptions (E-P) (Brady & Cronin, 2001; Carman, 1990; Cronin & Taylor, 1992; McDougall & Levesque, 1994; Teas, 1993). In addition, the performance-based measure was a better means of measuring the service quality construct (Brady, Cronin & Brand, 2002; Brown et al., 1993; Cronin & Taylor, 1992). Therefore, Cronin and Taylor (1992) developed the SERVPERF scale which used the same 22 performance items from the SERVQUAL scale from Parasuraman et al. (1988). This measure explained more variance in an overall measure of service quality than did the SERVQUAL scale. However, it has been suggested that SERVQUAL or SERVPERF do not provide good measures of the importance of service attributes and dimensions (Brady & Cronin, 2001; Carr, 2007; Dabholkar et al., 1996; Gounaris, 2005; Kang, 2006; Kang & James, 2004; Olorunniwo & Hsu, 2007; Oppewal & Vriens, 2000). Nevertheless, many researchers have continued to develop concepts, definitions, models, measurements, etc of service quality up to today (Seth et al., 2005). For instance, Ladhari & Morales (2008) tested the validity of LibQUAL + TM 2004, a standardized measure of library service quality in Canadian public libraries. The validity of the LibQUAL + TM 2004 has been reported as being appropriate to measure the service quality in the public library service context (Ladhari & Morales, 2008).

Recently, there has been agreement in the literature that the outcome of the service encounter significantly affects perceptions of service quality (Carmann, 1990; Gronroos, 1984, 2001; Johnson & Sirikit, 2002; McDougall & Levesque, 1994; Kang & James, 2004; Rust & Oliver, 1994). For instance, the outcome of service quality was labeled in terms of technical quality by Gronroos (1984, 2001). Moreover, Johnson and Sirikit (2002) and Lim et al (2006) suggested that the service context is often needed to consider the impact of both technical quality or service outcome and process quality that would have an impact on customer perceived service quality. Similarly, Selth et al. (2005) has revealed that several service quality models have different

bases within the service industry, such as intense competition, time and need. It can be suggested that the service quality measurement should be developed based on a competitive environment which is driven by the customer's expectations towards a particular service provider in terms of time, needs and the type of service setting which also influences service quality to develop in specific ways (Seth et al., 2005).

Development of Conceptualization and Operational Measurement of Service Quality

It is the nature of service industries to develop rapidly as a result of increasing their quality of service and customer care. Moreover, value-added services can be created and developed to satisfy customers' needs and in order to keep the favorable ratings of existing customers. For example, there has been continuous improvement in after sales service in the electronics industry. In particular, various value-added services in the mobile phone service industry have been added, such as communication services, entertainment services, information services and money transfer services. Despite this there has still been no conclusion reached regarding how exactly to conceptualize and operationalize service quality in the literature (Brady & Cronin, 2001; Cronin & Taylor, 1992; Kang & James, 2004; Rust & Oliver, 1994). Moreover, several studies have noted that relevant service dimensions vary across different industries, which emphasize a need for developing multiple scale items that provide adequate measures of service quality in a particular context (Brady & Cronin, 2001; Cronin & Taylor, 1992; Olorunniwo & Hsu, 2006; Taylor & Baker, 1994). The findings to date suggest that there is no underlying latent variable associated with a technical quality dimension and the lack of attention to technical quality requires researchers to develop their own measure to assess the dimension (Kang & James, 2004). Therefore, the service quality model in service industries needs to keep developing. Hence, this present study will adopt Gronroos's model (1984) as a fundamental theoretical framework to measure perceived service quality, in particular the technical and functional qualities. However, there is a need to incorporate other

variables that may affect customer loyalty into the existing service quality model due to rapid switching behavior in the telecommunication industry. value-added services such as mobile communication services, mobile entertainment services, mobile information services and mobile transaction services are critically important to customers as they not only provide additional features to the main service but they also fulfill customer needs (Johnson & Sirikit, 2002; Lim et al.; 2006; Kang, 2006 ; Kang & James, 2004 ; Olorunniwo & Hsu, 2006; Selth et al., 2005).

Typical of the nature of mobile phone services, voice calling is the main, core service provided for customers. Therefore, the quality of calling, or the core service, is viewed as the service output which is related to accessibility and successful voice transmission which is dependent on network coverage and quality (Gerpott et al., 2001; Lee et al., 2001; Kim et al., 2004). An essential characteristic of the core service is clarity of voice without connection breakdown (Gerpott et al., 2001; Lim et al., 2006). However, service providers have increasingly been creating various value-added services to complement the core service, voice communication (Lim et al., 2006). These include such services as SMS (Short Message Service), MMS (Multimedia Message Service), GPRS (Mobile Internet), Missed Call Alert, Call Waiting and Call Divert. They also strive to meet other desires of their customers such as entertainment services like downloading ringtones, calling melodies wallpapers, screensavers, music, SMS & MMS. Mobile information services such as sport information, business information, general information (the three most commonly used reports), Lotto Alert and mobile transaction services such as Mpay, Money Transfer and Mobile Banking. Therefore, value-added services are also viewed as a service output for this service industry. Moreover, customer care service is provided for solving problems (Kim et al., 2004; Lim et al., 2006; Gerpott et al., 2001) linked to using the service output. Of course the service provider cannot directly contact all customers due to the massive variety of services requested. Based on Gronroos' Model (Gronroos, 1984), functional quality deals with how the service delivery can be viewed as a supplementary service for satisfying

their customers' needs. This service also affects customer perceptions toward the overall service provided by the service provider (Lim et al., 2006). Therefore, the quality of customer care service is assumed to be a functional quality.

Therefore, in order to cover the service quality in this context, in particular that of the mobile phone service provider, the service quality measurement in this study will measure customers' perceptions of the characteristics of service performance or technical quality in 2 sub-dimensions. These are core and value-added services and process delivery or functional quality. This study of technical quality will therefore be comprised of 2 sub-dimensions; core service and value-added services. Service quality in this study is viewed as the customer's perceived judgment resulting from the evaluation process of comparison between their expectations and the service performance to date in two dimensions, technical quality and functional quality, which they have received from the current service provider (Gronroos, 1984). Technical quality is viewed as the quality of the output service (that is delivery) (Gronroos, 1984) comprised of core service and value-added services (Lim et al., 2006). Core service refers to the quality of the main needed output from the service provider (Gronroos, 1984) in terms of call quality. Value-added service is viewed in terms of the quality of output service (Gronroos, 1984) that focuses on the additional services in order to fulfill customers' needs (Lim et al., 2006). Functional quality refers to the quality of customer care service which is viewed as supplementary to the output service (Gronroos, 1984; Lim et al., 2006).

Methodology

Validation and Content Validity of the Instrument

A survey instrument was developed in order to validate empirically the conceptualization and operational measurement. The instrument was designed after an extensive literature survey. The translation version for all items in the questionnaire was based on Brislin's (1970) translation and back-translation techniques. The

original English version was translated to a Thai version by an English language expert. Then, the researcher discussed the item-content with two experts in the mobile phone service industry. A pre-test questionnaire was conducted and comments and suggestions from various academicians, researchers, practitioners, and customers were received regarding the instrument. The instrument was tested in a pre-test sample with 10 respondents in Bangkok, the capital city of Thailand. The respondents were examined with the purpose of the current study before going into any further information. If respondents agreed to participate, then they were requested to complete the questionnaire and to provide feedback, comments and any recommendations in relation to the questions. The researcher also asked the respondents whether they understood the meaning of each question written in the survey. All the information gathered during the pre-test phase was used to improve and fine-tune the survey. Any suggestions from the respondents were taken into consideration when revising and improving the questionnaire, in particular with regard to the language used, the Thai language. A few changes, including editing and restructuring of the questionnaires, were carried out. Finally, the improved version of the questionnaire was used for the pilot study survey.

The pilot study was conducted to enhance understanding among target respondents after the pre-test phase with 30 respondents who met the criteria of the present study in Bangkok, the capital city of Thailand. The respondents were asked to complete the questionnaires. The question in each item in the questionnaire was pre-tested for validity involving pertinence and easy understandability. The improved questionnaires of both versions were used for the final stage of questionnaire development in this study to ensure clarity of meaning of each item addressed in the questionnaire before further collecting data in Thailand. The important procedure of translation into the Thai language and back translation to English was then performed. The Thai language instructor at the Center of Languages and Translation, Universiti Sains Malaysia (USM) was sought. Having done that, the researcher and the translators from the Center of Languages and Translation of USM

conferred to clear up errors between the original and back translated versions. Following those steps, the final questionnaire was ready for data collecting in Thailand.

Measuring Instruments: Service quality

This present study focuses on service quality and covers two dimensions, namely technical quality and functional quality. The technical quality is divided into two categories of services; (a) core service and (b) value-added services.

Core Service: Three items are used to measure the quality of core service or calling quality. It is measured by customer accessibility and successful communication in terms of network quality and clarity of voice without any connection breakdowns (Aydin & Ozer, 2005; Gerpott et al., 2001; Kim et al., 2004; Lim et al., 2006). The modification of Question 1 was adapted from Kim et al. (2004) and Aydin and Ozer (2005). Question 2 and 3 were adapted from Lim et al. (2006). A five-point Likert scale ranging from (1) "Strongly disagree" to (5) "Strongly agree" was employed.

Value-Added Service: Fifteen items were employed to measure the quality of value-added services. They were chosen by asking the respondents about the value-added service they were using. They were comprised of SMS (Short Message Service), MMS (Multimedia Message Service), GPRS (Mobile Internet), these were adapted from the study by Lim et al. (2006). Missed Call Alert, Call Waiting, Call Divert, Downloading Music, Downloading ringtone or calling melody, Downloading wallpaper or screensavers, Hit SMS & MMS, Sport, Business and General News Information, Lotto Alert, Mpay, Money Transfer and Mobile Banking were self-developed. A five-point Likert scale ranging from 1 - Poor, 2 - Fair, 3 - Good, 4 - Very Good, and 5- Excellent were used in this study.

Customer Care Service: The measurement for functional quality, viewed as customer care service in this study, was determined by using six items which had been adapted from Kim et al. (2004) and Lim et al. (2006). Questions 1, 2 and

3 were adapted from Lim et al. (2006). Questions 4, 5, and 6 were adapted from Kim et al. (2004). Each item would be measured on a five-point Likert scale ranging from (1) “Strongly disagree” to (5) “Strongly agree.”

Sampling

In the mass service context, the mobile phone service industry in Thailand is considered as rapidly evolving due to high switching behavior and a competitive market. Hence, the service providers must always find ways to improve their services in order to keep their customers. The usefulness of value-added services is considered one feature that can provide and enhance existing customer’s satisfaction among pre-paid mobile phone users in Thailand. The value-added services are a focal point of this study. The unit of analysis of this study is individual mobile phone users who are currently using a pre-paid mobile phone service in Thailand and have full control over their decision to continue or discontinue the services at any time. The total population in this study is quite large. To provide a sample that can be generalized for result interpretation, allow for efficient time usage, meet budget constraints and reflect a true picture of individual users in the mobile phone service industry, multistage

area sampling was employed. Bangkok was chosen as the main population, simple random sampling was carried out through four regions, two provinces were then chosen to represent each region and convenience stores and shopping mall from each province were selected to represent the sampling area using simple random sampling. Convenience sampling was used to choose respondents within the sampling area. A total of 998 completed questionnaires from nine provinces were collected using structured a questionnaire which was self-administered to avoid bias from research assistants.

Analysis of Data

Statistical Package for Social Science (SPSS) version 15.0 for Windows was used for data analysis and hypotheses testing. Descriptive statistics, factor analysis, reliability analysis were used to analyse the studied variable in this research.

Result and Discussion

The unit analysis of this study is a mobile phone user. The user must use prepaid service(s) as his/her main usage and have full control over the decision to choose to continue usage

Table 1. The Demographic Profile of Respondents

Demographic Variables	Categories	Frequencies	Percentage
Total number of respondents		998	%
Age	15– 20 years	160	16.0
	21 – 25 years	271	27.2
	26 – 35 years	377	37.8
	36 – 45 years	144	14.4
	46 – 55 years	20	4.0
	Over 55 years	6	0.6
Gender	Male	373	37.4
	Female	625	62.6
Education	Secondary School or Lower	26	2.6
	High School or Diploma	184	18.4
	Advance Diploma or Certificate	168	16.8
	Bachelor	532	53.2
	Master or Higher	90	9.0
Occupation	Student/Undergraduate	252	25.2
	Employee/ Private Company Employee	258	25.9
	Government Employee/Official/ State Enterprise Employee	362	36.3
	Business Owners	126	12.6
Income	Less than Baht 5,000	150	15.0
	Baht 5,000 – 9,999	356	35.6
	Baht 10,000 – 14,999	190	19.0
	Baht 15,000 – 19,999	116	11.8
	Baht 20,000 – 24,999	60	6.0
	Baht 25,000 – 29,999	30	3.0
	Over Baht 30,000	96	9.6

or not. A total number of 1650 respondents participated in this study. Around 90% (N=1432) of the respondents completed the questionnaire, however only 70% (N=998) of the completed questionnaires indicated the appropriate level of experience through (a) value-added services in 9 items (SMS, MMS, GPRS, Downloading Music, Downloading ringtones or calling melodies, Downloading wallpaper or screensavers, Hit SMS & MMS, Sport, Business and General News Information and Money Transfer and (b) customer care service. Only these responses were used for further analysis.

As shown in Table 1, findings from the total of 998 respondents indicate that more than half of them are females (62.6%); this in itself reflects a behavior in purchasing a prepaid mobile phone service which has not been reported in Thailand. Around 53% the respondents have a bachelor degree and are aged between 26-35 years old (38%). With regards to occupation, around 36% of the respondents were government employees/

officials or were involved in state enterprises. In terms of personal income, 35.6% of the respondents have a monthly income between Baht 5,000 – 9,999 (35.6%).

The service quality construct consists of 2 dimensions, namely; technical service (core service and value-added service), and functional service (customer care service). Exploratory factor analysis was employed in order to assess the validity of these service quality constructs. Originally, there were 18 items; core service (3 items), value-added services (9 items), and customer care service (6 items). A principal component method with Orthogonal Varimax Rotation was utilized in order to reduce a large number of variables/items to a small number of factors by determining the items which could be grouped together to form a single factor.

As shown in Table 2, the result from factor analysis indicates that the item of value-added services: Hit SMS & MMS, Sport, Business and General News Information and Money Transfer

Table 2. Results of Factor Analysis, Reliability Coefficient, Mean and Standard Deviation of Service Quality

Items	F1	F2	F3	F4
Factor 1: Customer Care Service				
Complaints from customers are processed speedily.	.86	.07	.03	.03
Customer care service's person at X is able to help with my problem.	.82	.11	.04	.06
Customer care service person is friendly when lodging complain(s).	.82	.05	.05	.13
It is convenient to interact with the customer care service's person at X.	.81	.06	.09	.06
X provides a variety of customer support system for their customers to communicate when they have problems.	.81	.04	.08	.06
Customer care service's person at X is polite.	.75	.01	.15	.08
Factor 2: Value Added Service (Entertainment)				
Downloading Music	.12	.90	.18	.05
Downloading Ring tone /Calling Memolody	.08	.89	.12	.06
Downloading Wallpaper/Screensavers	.05	.84	.20	.08
Factor 3: Value Added Service (Non-Voice Communication)				
MMS (Multimedia Message Service)	.05	.26	.83	.06
SMS (Short Message Service)	.19	.36	.80	.06
GPRS (Mobile Internet)	.06	.20	.77	.01
Factor 4: Core Service				
X provides high voice quality.	.16	.02	.00	.85
X has better coverage than any other network operators.	.05	.06	.07	.83
X provides uninterrupted call.	.07	.09	.05	.75
Eigenvalues	4.07	2.44	2.05	2.04
Percentage Variance Explained	27.14	16.28	13.68	13.58
Total Percentage Variance Explained	70.68			
KMO	.82			
Bartlett's Test Sphericity	7445.250**			
Cronbach's Alpha	.90	.88	.77	.75
Mean	3.10	2.05	2.44	3.65
Standard Deviation	1.06	1.21	1.02	.79

Note: N=998. Bold loadings indicate the inclusion of that item in the factor; * p<.05; **p<.01

were dropped to achieve low communalities. Four factors with eigenvalues greater than 1 were extracted. The Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) values exceed 0.50, the Barlett's test of sphericity was significant at 0.05, the anti-image correlations and the communalities of items were greater than 0.50 and the minimum requirement of factor loading above 0.05 (Hair, Black, Babin, Anderson & Tatham, 2006). The reliability of four factors achieved an acceptable to a satisfactory Cronbach Alpha (Sekaran, 2000; Nunnally, 1978) of between 0.75-0.90. In addition, the mean values of the service quality ranged from 2.05 to 3.65 with the standard deviation ranging from 0.79 to 1.21.

The first analyzed factor consisted of six items about customer's perceptions regarding the functional quality of prepaid mobile phone services. It was named "customer care service" with Eigenvalues of 4.07 and Cronbach's Alpha of 0.90 (mean 3.10, standard deviation = 1.06). They were (1) speedily processed complaints, (2) ability to help, (3) friendliness of the customer care service person, (4) convenience of interaction with the customer care service person, (5) variety of customer support systems and (6) politeness of the customer care service person. This factor loaded between 0.75-.86 and the total variance was 27.14 %. The customer's perception of the quality of value-added services was grouped under factors 2 and 3. The second factor important to customers was renamed "Entertainment Value-Added Services" and contained 3 items: (1) Downloading Music, (2) Downloading Ring tones /Calling Melody, and (3) Downloading Wallpaper /Screensavers. This factor had Eigenvalues of 2.44. All items in this component had factor loadings of between .84-.90 and a total variance of 16.28 %. This factor achieved reliability coefficients of 0.88 (mean 2.05, standard deviation = 1.21). The third factor related to non-voice communication in customer perception, was renamed "Non-Voice Value-Added Service". The attributes included the following items; (1) MMS (Multimedia Message Service), (2) SMS (Short Message Service), and (3) GPRS (Mobile Internet). All items had factor loadings of between 0.77-0.83, with Eigenvalues of 2.05 and accounted for 13.68 % of the total

variance in data. This factor achieved reliability coefficients of 0.77 (mean 2.44, standard deviation = 1.02). The fourth factor considered was the quality of core service. The factor loadings for this factor ranged from 0.75-0.85, with Eigenvalues of 2.04. The attributes of this factor were (1) X provides high voice quality, (2) X has better coverage than any other network operator, and (3) X provides uninterrupted calls. This factor had a variance of 13.58 % and Cronbach's Alpha of 0.75 (mean 3.65, standard deviation = .79).

To sum up, the results from this study indicate that service quality in the prepaid mobile phone service industry consists of four dimensions, namely core service (voice service), non-voice value-added services, entertainment value-added service and customer care service. Non-voice value-added service was composed of short message service (SMS), multimedia message service (MMS) and mobile internet (GPRS). Entertainment value-added service quality was comprised of three services; downloading ringtone/calling melody, downloading music and downloading wallpaper/screensavers. Moreover, this study also found that customers' perceptions are based largely upon service quality in the sense that they are highly concerned with the quality of calling. This was the most prevalent concern when considering all of the services provided by network operators, followed by customer care service, non-voice value-added service and entertainment value-added service. Furthermore, customers of prepaid mobile phone services in Thailand also perceived the quality of non-voice services as higher in importance than entertainment in influencing their behavior.

This research developed the service quality's conceptualization and measurement from the original work of Gronroos (Gronroos, 1984) that conceptualized service quality in two dimensions, namely technical quality and functional quality. The results revealed that customers of the prepaid mobile phone service industry perceived that core service is the most important, followed by customer care service, non-voice value-added service and entertainment value-added service. The value-added services have been separated into two new dimensions; non-voice and entertainment value-added services which is a

different result from previous studies that reveal only one factor as a value-added service (Lim et al., 2006). It is insisted that the most important factor for customer satisfaction is high calling quality (core service), followed by customer care service which can help them to be successful with the core service. It was also confirmed that the value-added service has increasingly effected customers' perceptions of mobile phone services. In the customers' view, value-added service is categorized into related to core service value-added service (non-voice service) and not related value-added service (entertainment service). The value-added service related to core benefit is viewed as another option for satisfying customer's desires and unrelated value-added service to core benefit is viewed as an additional benefit. The related value-added service has more impact than unrelated value-added services. This implies that customers are more concerned about value-added services which fulfill the customer's communication needs (core service or calling service), such as SMS, MMS or GPRS rather than those which are purely related to entertainment

Theoretical Implication

The results indicated that service quality can be conceptualized in four dimensions, namely core service (voice-service), non-voice service, entertainment value-added service and customer care service. This study extends the conceptualization of Gronroos' Model (1984) that service quality in terms of technical quality is comprised of 3 sub-dimensions; core service, non-voice and entertainment value-added services. The value-added services can be viewed as areas related and not related to core benefit in the customer's view. Moreover, the operational measurement was developed with a satisfactory level of validity which shows that it is appropriate to measure service quality in the mobile phone service industry

Managerial Implication

Subsequent to the results of this study it may be suggested that among the main factors of service quality, network operators should focus

on improving the quality of calling services by further building on the existing investment by enhancing the quality of voice calls so as to be clearer and uninterrupted. Network coverage, as in the past, is still the most important factor in the customer's perception. In terms of customer care service, network providers should concentrate on the development of the system so as create convenience for contacting the person at the customer care service centre and training service personnel to be polite and capable of solving customers' problems in a friendly manner. Moreover, developing a variety of customer support systems and solving problems with speed are also necessary. In addition, network providers also need to focus on the development of the quality of non-voice services to increase the capability of the customer's communication such as through short message service (SMS), multimedia message service (MMS) and mobile internet (GPRS). However, the creation of value-added services to enhance customer enjoyment or entertainment is also useful as a tool for the service provider to use to increase the customer's perception of service quality, such as downloading ringtones, music and wallpaper/screensavers.

Limitation and Future Research

This research is aimed at extending the conceptualization of service quality and developing its measurement at an operational level by focusing on value-added services. It does not provide enough questions to measure all possible facets of value-added services. In addition, the customer's perception of this measurement is based on self-administered questionnaires from individual users of the prepaid mobile phone service industry. Their perceptions cannot be verified as they are the perceptions of individuals and are entirely subjective. Moreover, the results should not be generalized to other service industries such as the health care industry, financial services industry, retailing, retail banking, insurance industry and other professional service industries and so on. Therefore, for future applications it is necessary to develop and add more questions. Moreover, the testing of operational measurement in other

service industries which can provide a variety of value-added services for customers, such as mobile phone services in the post paid market, health care services and so on is also needed. Future research should look into the four dimensions of service quality (core service, value-added service which is related to core service and to enjoyment or entertainment and customer care service for personal and support systems) in other service industries to examine the nature of these services in general.

Conclusion

The main objective of this research is to investigate the effect of the various value-added services in service quality dimensions on the prepaid mobile phone services industry. The development of conceptualization and operational measurements were based on Gronroos' Model (Gronroos, 1984) as well as several previous exploratory projects and the current market situation in this service context. The study was conducted using 998 individual

users of the prepaid mobile phone service industry in Thailand. Survey research and structured questionnaires to assess the respondents in 9 provinces around Thailand were employed. This study has shown the importance of understanding the main criteria for individual users of the prepaid mobile phone service to measure the quality of service provided by service organizations. Results from this study indicated that service quality is a construct that consists of four dimensions, namely core service (voice service), non-voice value-added services, entertainment value-added service and customer care service. The service quality instruments were shown to have a strong reliability coefficient which indicates how successful this conceptualization and operational measurement of service quality in the mobile phone service context has been. These findings help provide an understanding of how customers perceive the quality of service provided, especially value-added services. This, in turn helps developers to create or develop and design a variety of services that are appropriate for their customers' needs.

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