

A Study on the Influence on Customer Satisfaction in Mobile Telecommunications Service Quality between China and Korea

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중·한 이동통신 서비스품질이 고객만족에 미치는 영향에 관한연구

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Abstract

20세기 90년대부터 시작하여 이동통신 시장은 매우 높은 증가세가 나타나 핸드폰 사용 고객 수와 영업 액이 이미 고정전화를 앞섰다. 현재 이동통신은 매우 중요하고 발전 속도가 아주 빠른 산업으로 성장되었다. 오늘에 와서 중국과 한국 두 이웃 나라 간에는 많은 면에서 밀접한 관계를 보였다. 양국 수교 이후, 한국의 많은 기업들이 중국으로의 진출을 시도하였었고 그에 따른 투자도 적지 않는 규모였다. 중국은 세계에서 인구가 제일 많은 나라이고, 또한 WTO에 가입한 이래 발전 단계에 있는 이동통신 산업의 전망은 아주 좋을 것이다. 반면, 한국 이동통신 산업은 이미 성숙기에 들어섰고 이동통신사 간의 경쟁이 매우 치열하다.

본 논문의 목적은 한중 이동통신 고객들에 대한 설문조사를 통하여 이동통신사의 서비스가 고객 만족에 대하여 미치는 영향을 분석하는데 있다. 이 논문은 SPSS 프로그램으로 설문결과에 대한 분석을 서비스 품질 요인은 한국의 고객만족에 영향을 미치고, 반면, 요인 Tangibles, Reliability, Responsiveness, Assurance는 중국의 고객 만족에 영향을 미치지만 요인 Empathy는 고객만족에 영향이 없다는 결론을 얻었다.

Keyword: Service Quality, Mobile Telecommunications, China, Korea, Customer Satisfaction

1. Introduction and Theoretical Background

Since mid-1990s, mobile telecommunications market has shown a high growth rate in the number of subscribers and sales by replacing wired communications in many countries. In today's world, telecommunication is one of the most important and fast growing industries. The mobile telecommunications services in Korea and China show definite differences in environmental conditions, such as market characteristics, competitiveness, and so on. This research is an empirical study comparing the relationships of quality of service and customer satisfaction between China and Korea.

1.1 Service quality and customer satisfaction

Over the past several years, there have been a variety of studies on different issues pertaining to service quality. Traditionally, service quality has been defined as the difference between customer expectations of service be received and perceptions of the service actually received (Gr nroos 1984; Parasuraman et al., 1988, 1991). Parasuraman, Zeithal, & Berry (1988) defined service quality as "a global judgment, attitude, relating to the superiority of the service" and it continues to increase in importance as service industries grow and outnumber manufacturing organizations (Storbacka, Strandvik, & Gr nroos, 1994).

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The customer's perception of service quality comes from their evaluation of what they experienced and what they expected. During the last decade, the conceptualization and measurement of service quality has received a great deal of attention in the literature.

The desire by researchers to develop a fuller understanding of service quality was given a tremendous stimulus following the publication of the seminal work of Parasuraman et al., the creators of the well-know SERVQUAL model. This model has been refined in various ways by Parasuraman and his co-researchers over the years. Asubonteng et al. and Buttle showed the extent to which SERVQUAL by the mid-1990s. The SEVRQUAL model is used as a diagnostic tool for the measurement of customer service and the satisfaction of service perception.

The SERVQUAL consists of five service dimensions with a set of 22 items for expectation and perception. The five service dimensions are: tangibles (physical facilities, equipment, and appearance of personnel), reliability (ability to perform the proposed service dependably and accurately), responsiveness (willingness to help customers and provide prompt service), assurance (knowledge and courtesy of employees and their ability to inspire trust and confidence), and empathy (the individualized attention and care that the service provider gives to customers).

For the purpose of this article, the SERVQUAL model will not be discussed. Our survey was based on the version of Parasuraman et al.'s (1988) 22-item SERVQUAL questionnaire.

Homburg and Bruhn(1998) specified the customer satisfaction as an experience based assessment made by the customer of how far his own expectations about the individual characteristics or the overall functionality of the services obtained from the provider are fulfilled. Researchers who define satisfaction as mental and emotional status resulted from evaluation and judgment about the result of purchase experience defined satisfaction as customer's cognitive status about properness from sacrifice Howard and Sheth, 1969), or developed emotion from an evaluation of use experience(Cadotte et al., 1987).

In this paper, we used the service quality's five dimensions to test if they have positive influence on customer satisfaction in Mobile Telecommunications

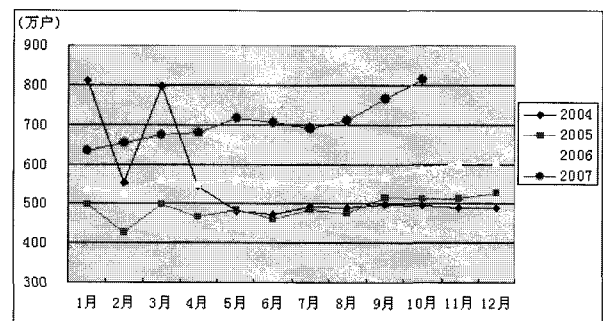
between China and Korea.

1.2 Chinese and Korean telecommunications

China has a very large, fast-growing mobile telecommunications market in the world. The number of mobile phone users in China was 539.379million on Nov.2007.

In 1987, China Telecom initiated the mobile telecommunications service in China as analogue method. China Mobile was separated from mobile telecommunications department of China Telecom since 1994 when the gradually converted to GSM technology. In 1994, the Ministry of Electronics and Industry, the Ministry of Electronics and the Ministry of Railways, established China Unicom, as the second service provider. China Unicom began mobile telephone service after receiving business rights of nationwide GSM service in 1998 and then was given authority to construct nationwide CDMA network in 1999. Therefore, Chinese mobile telecommunications market is composed of two companies using two kinds of technologies.

(unit: 10 thousand subscribers)



<Figure1-1>Monthly mobile phone user's increasing quantity in 2004-2007(China)

The number of subscribers in Korea mobile telecommunications service has reached 42.5million from its first launch of Analog service in 1984. Comparing with the total Korea population of 49million, more than 80% of the total populations is hooked up to the mobile network. Now, the mobile telecommunications companies in Korea are reaching more effective to focus on customer retention than on acquisition of new customer. Korean's biggest

mobile telecommunications company(SK Telecom) was established in March 1984, and KTF, LG telecom were established on 1996 and entered the market in 1997. The competition between service providers deepened due to the strategies to attract new subscribers, like reduction of subscription fee, subsidized mobile device, etc.

<Table 1-1> Mobile phone user's quantity(Korea)
(unit: thousand)

Year	2002	2003	2004	2005	2006	2007.8
Total	32,342	33,592	36,586	38,342	40,197	42,510
SKT	17,219	18,313	18,783	19,530	20,271	21,459
KTF	10,333	10,442	11,729	12,302	12,914	13,533
LGT	4,790	4,837	6,074	6,510	7,012	7,518

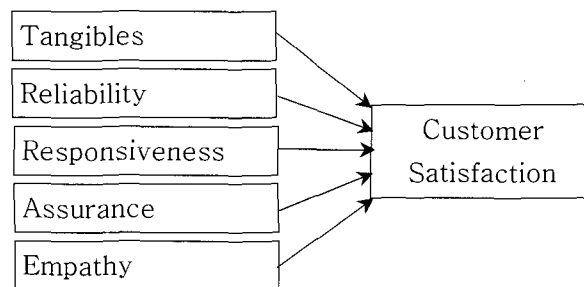
The mobile telecommunications services in Korea and China show definite differences in environmental conditions, such as market characteristics, competitiveness, and so on. With respect to market lifestyle, Korea has attained a state of maturity with the subscriber rate reaching 87%; and China shows annually increasing number of subscribers at a rate of over 80%. The form of competition of mobile telecommunications service in Korea is that three service providers have formed struggle composition with the rate of about 5:3.2:1.8 based on the number of subscribers. The Chinese market, unlike in Korea, has two service providers competing at a rate, approximately equal to 6.5:3.5.

2. Research Methodology and Hypotheses

2.1 Data collection methodology

The questionnaire for this study consisted of 23 items, there were 22 items divided into 5 dimensions based on the literature review as mentioned before, other 1 items was about the question of customer satisfaction. The survey was conducted by using an e-mail questionnaire with customers of both China Mobile and China Unicom in China and KTF, LG Telecom and SK Telecom in Korea. Subjects were asked to assess their perceptions of various items of different constructs

about the factors of service quality and customer satisfaction. Assessments were based on a five-point Likert scale in which the descriptors ranged from a total 500 questionnaires were distributed and 252 were usable. The response rate was 50.4%. Data collection was over a period of 30 days. The research model of this paper is showed as following figure.



<Figure2-1>Research model

2.2 Research hypotheses

Based on the review of the literature on the five-dimension related to the service quality, the following hypotheses are presented:

- H1-1: Tangibles have a significantly positive influence on customer satisfaction in China.
- H1-2: Reliability has a significantly positive influence on customer satisfaction in China.
- H1-3: Responsiveness has a significantly positive influence on customer satisfaction in China.
- H1-4: Assurance has a significantly positive influence on customer satisfaction in China.
- H1-5: Empathy has a significantly positive influence on customer satisfaction in China.
- H2-1: Tangibles have a significantly positive influence on customer satisfaction in Korea.
- H2-2: Reliability has a significantly positive influence on customer satisfaction in Korea.
- H2-3: Responsiveness has a significantly positive influence on customer satisfaction in Korea.
- H2-4: Assurance has a significantly positive influence on customer satisfaction in Korea.
- H2-5: Empathy has a significantly positive influence on customer satisfaction in Korea.

3. Data Analysis and Procedure

The research model was analyzed using SPSS 11.5 program. Data analysis proceeded into reliability analysis, factor analysis and multiple linear regression analysis in this study.

Detailed descriptive statistics relating to the respondents' characteristics are shown in <Table 3-1>.

<Table 3-1> The Characteristics of respondents

Category	Items	China		Korea	
		Freq uenc y	%	Freq uenc y	%
Gender	Female	62	42	49	46
	Male	84	58	57	54
Mobile phone expenses	under ¥20	6	4		
	¥20~50	32	22		
	¥51~100	56	38		
	¥101~200	42	29		
	over ¥201	10	7		
	under 20000			8	7
	20001~30000			24	23
	30001~50000			36	34
	50001~100000			33	31
over 100001			5	5	
Monthly salary	under ¥1000	34	23		
	¥1001~2000	50	34		
	¥2001~3000	41	28		
	¥3001~5000	13	9		
	over ¥5000	8	6		
	under 1million			8	8
	1~2 million			41	38
	2~3 million			37	35
over 3million			20	19	
Age	under 15	0	0	0	0
	15~25	23	16	22	21
	26~35	53	36	33	31
	36~45	49	34	37	35
	over 46	21	14	14	13
Education	under high school	10	7	4	4
	high school	72	49	43	41
	undergraduate	55	38	45	42
	graduate or higher	9	6	14	13

3.1 Reliability analysis

In order to ensure that the variables were internally consistent, reliability assessment was carried out using Cronbach's alpha. As <Table 3-2> shows, all Cronbach's alpha values were greater than 0.7, satisfying a minimum requirement of 0.6.

<Table 3-2> Reliability analysis results of the independent variables

Variable	Cronbach's α	
	China	Korea
Tangibles	0.7148	0.7595
Reliability	0.7366	0.7107
Responsiveness	0.7971	0.8471
Assurance	0.8897	0.7097
Empathy	0.7879	0.7317

3.2 Factor analysis

To verify the content validity of measures, factor analysis was performed. We performed exploratory factor analysis. The exploratory factor analysis was conducted using principal axis factoring as the factor extraction method and the Oblimin rotations with Kaiser normalization as the rotation method.

<Table 3-3> Factor analysis results (China)

NO.	1	2	3	4	5
T1					0.803
T2					0.649
T3					0.489
T4					0.529
RL1			0.823		
RL2			0.761		
RL3			0.553		
RL4			0.819		
RL5			0.266		
RP1		0.681			
RP2		0.773			
RP3		0.783			
RP4		0.838			
A1	0.842				
A2	0.755				
A3	0.856				
A4	0.935				
E1				0.519	
E2				0.770	
E3				0.679	
E4				0.506	
E5				0.901	

<Table 3-3> indicates that most of the items properly loaded to their corresponding dimensions with factor loading of greater than 0.5 except RL5 which should be deleted in this analysis. Therefore, the five-dimension structure of the SERVQUAL instrument adapted for China's mobile telecommunications industry was acceptable.

<Table 3-4> Factor analysis results (Korea)

	1	2	3	4	5
T1		0.774			
T2		0.690			
T3		0.674			
T4		0.778			
RL1			0.715		
RL2			0.738		
RL3			0.619		
RL4			0.675		
RL5			0.507		
RP1	0.849				
RP2	0.825				
RP3	0.867				
RP4	0.879				
A1				0.949	
A2				0.650	
A3				0.895	
A4				0.525	
E1					0.555
E2					0.518
E3					0.682
E4					0.672
E5					0.574

<Table 3-4> indicates that most of the items properly loaded to their corresponding dimensions with factor loading of greater than 0.5. Therefore, the five-dimension structure of the SERVQUAL instrument adapted for Korea's mobile telecommunications industry was acceptable.

3.3 Multiple linear regression analysis

Here under are the tests for the predictors' goodness of fit of the regression model and the regression equation.

<Table 3-5> Output of model testing (China)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.805	.649	.636	.248

In the above <Table 3-5>, the R2 is 0.649. This suggests that there is 64.9% goodness of fit of the model produced by the regression equation.

<Table 3-6> Output of model testing (Korea)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.890	.792	.782	.184

In the above <Table 3-6>, the R2 is 0.792. This suggests that there is 79.2% goodness of fit of the model produced by the regression equation.

<Table 3-7> ANOVA output of hypotheses testing(China)

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	15.838	5	3.168	51.685	.000 ^a
Residual	8.580	140	.61		
Total	24.418	145			

In <Table 3-7>, ANOVA tests the hypothesis that there is a linear relationship between the predictors and the dependent variable. F is the ratio of the mean square for regression to the mean square for the residual. In <Table 3-7>, when all predictors are entered, the significance level associated with the observed value of F is 51.685(≥0.000). Thus, the hypothesis can be accepted and we may conclude that there is a significant linear relationship between the set of independent variables and the dependent variable.

<Table 3-8> ANOVA output of hypotheses testing(Korea)

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	12.850	5	2.570	76.129	.000 ^a
Residual	3.376	100	.034		
Total	16.226	105			

In <Table 3-8>, F is 76.129(≥0.000). Thus, the hypothesis can be accepted and we may conclude that there is a significant linear relationship between the set of independent variables and the dependent variable.

<Table 3-9> Regression coefficients analysis

	China			Korea		
	Beta	t	Sig.	Beta	t	Sig.
Tangibles	.114	.278	0.00	0.047	2.633	0.010
Reliability	.080	.195	0.00	0.231	12.880	0.000
Responsiveness	.187	.456	0.00	0.241	13.441	0.000
Assurance	.233	.567	0.00	0.054	2.993	0.003
Empathy	.025	.060	2.32	0.076	4.266	0.000

a. Dependent Variable: Customer Satisfaction

In the result of regression analysis between service quality's five-dimension of mobile telecommunications and customer satisfaction, dimensions such as Tangibles, Reliability, Responsiveness, and Assurance shows their good positive effect on customer satisfaction, but the dimension of Empathy was little to consider customer satisfaction in China.

Contrary to this, all of the five dimensions were shown as effective factors of customer satisfaction in Korea.

3.4 Hypothesis Test and conclusions

In the multiple linear regression analysis of China, R2 is 0.649. Thus, there is 64.9% goodness of fit of the model produced by the regression equation.

F-value is 51.685. Thus, the hypothesis can be accepted and we may conclude that there is a significant linear relationship between the set of independent variables and the dependent variable. So, 'Sig.' (p-value≤0.05) is the significance level for the test of the hypothesis. The 'Sig.' value (p-value≤0.05) for factor Empathy is greater than 0.05(2.32≥0.05). Therefore, the hypothesis H1-5 that there is linear relationship between this predictor and attractiveness can be rejected.

While, after the multiple linear regression analysis of Korea, R2 is 0.792, F-value is 76.129. And all of the 'Sig.' value are smaller than 0.05. So all of the hypothesis can be accepted.

Assurance are important to customer satisfaction in China, and all of the service quality's five dimensions have positive influence to customer satisfaction in Korea.

In China, as the mobile telecommunications industry is not in mature, it seems that the customers are pay more attention to the mobile phone's price and the monthly expenses than the service provider.

In conclusion, mobile telecommunications service providers in Korea and China have to consider the most effective relation as service quality's dimensions affecting customer satisfaction. They should consider proper marketing strategy and proper customer strategy.

4. Limitations and future research

In this paper we have several limitations. First, if the SERVQUAL model adapted and assessed the mobile telecommunications service quality in China and Korea were not tested. Second, the response rate of our survey was relatively small, which may raise a question regarding the generalizability of this study. Third, our findings are from the China and Korea's mobile telecommunications industry, which may not be generalized to other industry settings.

Several future research directions are suggested by this study. First, research should be conducted to examine whether the SERVQUAL instrument is valid in China and Korea's mobile telecommunications industries. Second, larger sample should be collected.

Third, detail comparition should be conducted between China and Korea's mobile telecommunications in the future.

<Table 3-10>Result for Hypotheses Test

	China		Korea
H1-1	Accepted	H2-1	Accepted
H1-2	Accepted	H2-2	Accepted
H1-3	Accepted	H2-3	Accepted
H1-4	Accepted	H2-4	Accepted
H1-5	Rejected	H2-5	Accepted

In this paper , we explored the relationship between service quality's five-detentions and customer satisfaction in China and Korea using the collected data from an e-mail survey.

The results of this study strongly suggest that the Tangibles, Reliability, Responsiveness and

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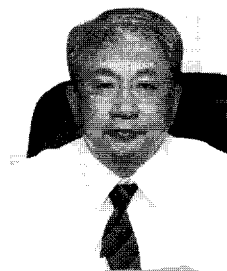
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