WEP Warwick Evans Publishing

International Journal of Social Sciences and Public Administration

ISSN: 3005-9836 (Print), ISSN: 3005-9585 (Online) | Volume 2, Number 3, Year 2024
DOI: https://doi.org/10.62051/ijsspa.v2n3.68
Journal homepage: https://wepub.org/index.php/IJSSPA/index

Measuring the Digital Assets, Brand Services and Service Quality Quantitative Analysis: Evidence from China

Jun Cui[1,*], Hongchen Liu[2], Qiang Wan[3]

[1]Solbridge International School of Business, Woosong University, Ph.D. Student, Korea
[2]Arts and cultural management, Chung-ang University, Ph.D. Student, Korea
[3]Institute of Industrial Economics, Chinese Academy of Social Sciences, Ph.D. Student, China
[*]Corresponding Author: Jun Cui (Email: jcui228@student.solbridge.ac.kr)

ABSTRACT

This study mainly analyses over the data of 300 questionnaire surveys for China mobile, China, Unicom, and China Telcom. It uses the hypothesis testing methodology, ANOVA analysis, and multiple-linear regression testing methodology for data analysis and verification to prove the feasibility of the sample data. This study emphasizes the importance of using the established SERVQUAL model to measure the digital asserts, brand service, and quality-of-service of the mobile communications segment in China, albeit with fair variance based on expert judgments to capture specific industry aspects, as well as China's unique digital and brand culture. Moreover, it is challenging to find evidence-backed studies focusing on quality-of-service, consumer satisfaction and consumer value, along with their impacts on the behaviour intentions of consumers in the telecommunications sector. This study emphasizes the importance of using the established SERVQUAL model to measure the quality-of-service of the mobile communications segment in China, albeit with fair variance based on expert judgments to capture specific industry aspects, as well as China's unique culture. Meanwhile, This article uses a combination of qualitative and quantitative methods for analysis. This article mainly uses quantitative analysis methodology for sample research, it also uses SPSS and Excel software as analysis tool. The major factors of quality-of-service, consumer value, brand value, digital asserts value, and consumer happiness are initially determined using a disaggregated method to stress the consumer perceived sacrifice. Following that, the paper focuses on establishing dynamic relationships between those elements, particularly the regulating role of consumer value in the customerr relationship between higher-quality of service and some related consumer satisfaction, which is preceded by a finally examination of their effects on consumers' behaviour and behaviour data. The paper research results are based on our structural equation models that were created using the TAM theory method - Partial Least Square approach.

KEYWORDS

ANOVA and Multiple-linear Regression Analysis; TAM Theory Partial Least Square Approach; Quantitative Analysis Methodology; Digital Asserts; Brand Service; Quality of Service.

1. INTRODUCTION

It is widely accepted that consumer-perceived quality-of-service, consumer value plus consumer satisfaction remains the primary elements of success in business competition in product manufacturers as well as service providers (Parasuraman et al., 1997). These elements are increasingly becoming the precedence of management in the more and more heightened rivalry for consumers in the consumer-centred contemporary world as well as the future (McDougall & Levesque, 2000; Oh, 1999). Nonetheless, numerous diverse conclusions have been drawn concerning

quality of service, digital asserts, brand service, consumer satisfaction and attributes of satisfaction vis-a-vis relative studies are somewhat disjointed, particularly for the composite interrelations among them.

Furthermore, the limited empirical studies use a disaggregated method to examine the decomposed impacts of quality-of-service on consumer value and satisfaction in existing studies focusing on the associations between quality of service, consumer value, and satisfaction on the one hand, and satisfaction on the other. As a result, little is known to date regarding the relative some impacts of quality-based variables on consumer value-chain and customer satisfaction. As a result, significant in-depth study on the major drivers of customer perceived quality-of-service, consumer value, and consumer happiness is still required. Furthermore, while consumer value has recently received a lot of attention in the debate over consumer evaluation of services and products, its potential roles or permissions as a regulating variable between high quality and satisfaction appears to have gotten less attention, which, in fact, should be one of the most important points to raise awareness of the complex relationships between the two.

As such, this research paper contributes to relevant studies through its proposed disaggregated approach, which decomposes the effects of quality-of-service on both consumer value chain and consumer satisfaction, helping to create awareness of how service-based factors can impact consumer value and consumer satisfaction, whilst providing scholars and managers a more practical guide to expand them. Furthermore, in order to identify the primary drivers of consumer value, this study incorporates not only product-based and service-based factors, but also one more important element of consumer perceived sacrifice, which aids in the integration of existing research and provides an all-encompassing picture of how to influence consumer value. Similarly, the PLS-based product indicator method based on measures of multiple items of all involved constructs is used to investigate not only the intermediating function but also the regulating role of consumer value in addressing the complex relationship between consumer perceived quality of service and consumer satisfaction as well.

Besides, This paper is arranged as follows; Section 2 presents the literature review, research questions, Section3 presents the theoretical basis and data analysis, research statements. Section 4 presents the research method and data analysis. Finally, Section 5 presents the discussion, limitation, and conclusions.

2. LITERATURE REVIEW

2.1. Marketing Analysis

The mobile phone service market in China is getting into a new phase marked by reduced subscriber base with low profit growth. A slower growth of the total subscribers in China coupled with dwindling margins illustrate this. Consequently, the three biggest mobile operators in China (China Mobile, China Unicom, and China Telecom) have resorted to price competition to increase subscriber base or in response to threats by competitors. By the beginning of 2020, the number of subscriptions for mobile phone services had surpassed 1.58 billion. Likewise, China Telecom is the only company that posted an increase in subscribers in 2020.

Currently, however, China Mobile commands 60% of the market share with 942 million subscribers by the close of 2020, with the other two trailing at about 20% each (GSMA, 2020). In the same findings, China mobile market is cited to have a penetration rate of over 85%. The three state-owned mobile operators have already been issued commercial 5G licenses by the MIIT, all of whom initiated commercial services in towards the end of 2019 and remain the main mobile phone service operators in the country.

While the three major Mobile Network Operators (MNOs) all started 5G network operations in October, 2019, current market studies reveal that China Mobile has the largest user base of 5G service, and was subsequently listed as the third-largest telecommunications provider in the world by revenue in 2020, according to data from the Global System for Mobile Communications (2021). As such, the paper's empirical object is China Mobile's quality-of-service of mobile service provision in China by using questionnaires.

2.2. Context Analysis

In an integrated framework, the effects of quality-of-service, customer value, and consumer satisfaction on consumers' behavioural intentions are combined together and investigated. Finally, rather than using tangible, reliability, responsiveness, assurance, and empathy as components of the construct, this paper attempts to conceptualize factors of quality-of-service as qualifications to consumers' overall appraisal of quality-of-service, and a strong emphasis has been placed on replicating and extending existing studies of digital asserts, brand service, quality-of-service. By modifying the standard SERVQUAL scale of quality-of-service to represent specific mobile communication industry features as well as China's distinctive culture, "tangibles," "reliability," "responsiveness," "assurance," "empathy," and "network quality" are recognized as quality-based criteria. Nonetheless, collecting data from a mostly neglected but major business in China, namely the telecom sector, assists in validating the generality of related study results in a first-world country, China. As a consequence, this article contributes to important academic and practical research while also assisting in the examination of linked outcomes that provide significant insights into theory growth (Easley et al., 1994).

3. DATA ANALYSIS AND METHODS

3.1. The Response Rate is as Follows

The study paper randomly picked a sample of 385 participants from China. It uses SPSS and Excel software to analyze sample data and make the conclusion. While all the selected participants were given questionnaires, the scholar only received 320 dully filled questionnaires back. This translated to a response rate of 83.12 percent on the questionnaires that were returned. Previous studies indicate that a response rate of at least 50 percent is sufficient for analysis and reporting purposes, with at least 60 percent ranking as good, while at least 70 percent being excellent. Thus, this research had an excellent response and was consequently applied to analysis and reporting.

Table 1. Response Rate

Questionnaires	***Frequency***	***Percent***
Returned	320	83.12
Un-returned	65	16.88
Total	385	100.00

Source: Primary Data (2021).

In terms of the participants' general information, this study sought to determine the ethnicity, household income, and primary mobile service of the respondents. This informed the researcher in defining the nature of mobile phone subscribers in China.

3.2. Ethnicity

Table 2. Respondents' Ethnicity

Ethnicity					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Chinese	117	36.6	36.6	36.6
	Indian	65	20.3	20.3	56.9
	Malay	111	34.7	34.7	91.6
	Other	27	8.4	8.4	100.0
	Total	320	100.0	100.0	

From the findings, 36.5% of the respondents were Chinese, 31.1% were Malay, 20.3% were Indian and 12.2% were among other races. Based on these findings, the ethnic backgrounds of respondents varied. Most (36.5%) of the customers that participated in the study were Chinese.

3.3. Household Income

Table 3. Household Income of the Respondents

Category	***Frequency***	***Percent***
Below CNY 3000	45	14.0
CNY 3001- CNY 5000	108	33.7
CNY 5001- CNY 7000	84	26.2
CNY 7001- CNY 10000	56	17.4
Above CNY 10001	27	8.7
Total	**320**	**100.0**

Source: Primary Data (2021).

3.4. Primary Mobile Service

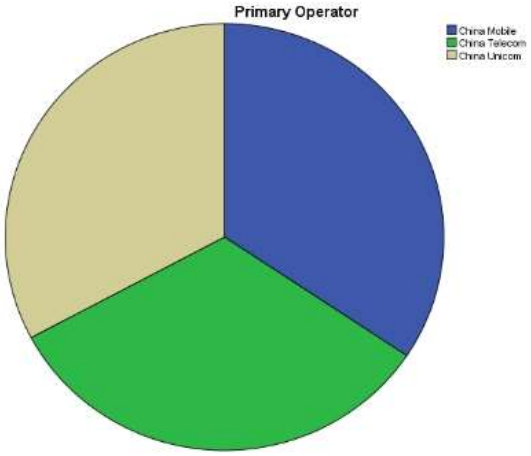

Figure 1. Respondents' Primary Mobile Service

The Figure 1 shows in 320 questionnaires, 110 respondents using China Mobile, and the 105 respondents using China Telecom, and 105 respondents using China Unicom.

PLS-Graph architecture. We retain customer satisfaction and five attributes of customer satisfaction respectively in the our finally survey stage, which are shown in Table 1.

Because of its capacity to follow latent structures under non-normal settings and its applicability to both small and larger sample sizes, the PLS-SEM method has gained in popularity and usage in recent years. For approaches such as regression, this is desirable in order to obtain error-free testing. As a result, the PLS technique is used to evaluate and model survey data in this work.

3.5. Assessment of Measurement Properties

Indeed, Internal consistency's composite reliability was shown, because of all the values throughout the construct demonstrated 0.70 threshold, with a 0.81 minimum as presented in Table 1. Moreover, throughout the items, the standardized factor loadings surpassed the 0.60 recommended cut-off (Hatcher, 1994), with at least 0.69, plus all showing significance ($P < 0.005$), a strong indication of convergent validity.

Furthermore, The study paper developed a data structural equation model through the PLS-Graph architecture to test the direct effect results as illustrated in Table 2, indicating a strong relationship between the dependent and independent variables. According to the findings, tangibility strongly correlates with consumer satisfaction (r=0.653, p-value=0.003); reliability strongly and positively correlates with consumer satisfaction (r=0.724, p-value=0.000); responsiveness strongly and positively correlates with consumer satisfaction (r=0.539, p-value=0.001); assurance strongly and positively correlates with consumer satisfaction (r=0.619, p-value=0.004); whilst empathy strongly and positively correlates with consumer satisfaction (r=0.568, p-value=0.004). overall, the results indicate that network quality, tangibility, reliability, responsiveness, assurance, empathy, and network quality all have direct relationship with customer satisfaction among China Mobile subscribers.

3.6. Correlation

The spearman rank correlation was used to show correlation between qualitative variables as shown below. Correlation refers to degree at which different variables are related and its calculated using spearman rank correlation where the correlation coefficient ranges from -1 to 1. negative values indicate negative correlation while positive values indicate positive correlation. Pearson values close to 1 or -1 indicate strong correlation while values close to 0 indicate weak correlation. The correlation table below shows how different variables are correlated.

Table 4. Correlations of IV and DV Variables.

The representative stores' appearances are clean and attractive	***Correlation Coefficient***	*1.000*	*-.006*	*-.029*	*.025*
	Sig. (2-tailed)	.	.913	.607	.656
	N	320	320	320	320
Physical facilities of the representative stores are modern and visually appealing	Correlation Coefficient	-.006	1.000	.019	-.165**
	Sig. (2-tailed)	.913	.	.735	.003
	N	320	320	320	320
Employees appear neatly and well dressed	Correlation Coefficient	-.029	.019	1.000	.166**
	Sig. (2-tailed)	.607	.735	.	.003
	N	320	320	320	320
When the service provider promises to do something by a certain time, it does so	Correlation Coefficient	.025	-.165**	.166**	1.000
	Sig. (2-tailed)	.656	.003	.003	.
	N	320	320	320	320

3.7. Reliability Test

Reliability test is used to test internal consistency and reliability of the data. Reliability is measured using Cronbach's Alpha which ranges from 0 to 1. The higher the Cronbach's alpha the more reliable the data, the lower the Cronbach's alpha the poor the reliability. From the table below, the data was valid and reliable to be used in the analysis as shown by the Cronbach alpha value of 0.73.

The multiple linear regression analysis above shows how customer satisfaction is affected by empathy, assurance, responsiveness, reliability, tangibility, and quality.

Regression model is as follows;

Satisfaction=53.6+0.654 empathy+0.005 asurance+0.815responsiveness-0.08 reliability+0.324 tangibility-0.024 quality.

The Customer Satisfaction levels equals to 53.6 units when other factors are constant. A unit increase in empathy increases satisfaction by 0.654. Unit increase in assurance increases satisfaction by 0.005. Unit increase in responsiveness increases satisfaction by 0. 815.. Unit increase in reliability decreases satisfaction by 0. 08.. Unit increase in tangibility increases satisfaction by 0. 324.. Unit increase in equity decreases satisfaction by 0.024 units.

From the table shows as above, we can see that coefficient of regression called R squared which is 0.712 showing there is positive regression between customer satisfaction and other independent variables.

Moreover, Model summary table shows the variation level in dependent variable caused by modifications on the independent variables. With the findings in Table 3, it is adapted to depict the variance in customer satisfaction as a result of changes in network quality, tangibility, dependability, responsiveness, assurance, and empathy.

The findings show 0.756 as the R square value, suggesting that a 75.6 percent variance in customer satisfaction could be attributed to network quality, tangibility, reliability, responsiveness, assurance, and empathy. The rest of the 24.8 percent represents other elements that can cause changes in customer satisfaction among China Mobile subscribers. Furthermore, as indicated by the correlation coefficient (R) value of 0.75, the results show that the variables under investigation have a significant and positive association.

4. MANAGERIAL RECOMMENDATIONS

In sum up, this study uses the method of quantitative analysis, using SPSS 27 and Excel software to analyze the sample data and draw the final data analysis conclusion. the study paper found that China Mobile subscribers were happy with the services, they intend to continue using the same company and would even recommend the firm to friends because the provider has their best interests at heart, delivers on its promises, and generally convenient. The subscribers also noted strong and stable 3G and 4G mobile signal transmission with an extensive network coverage. The study found China Mobile's stores appearances to be clean and attractive, with modern and visually appealing physical facilities, whilst the staff is neatly and well dressed.

Furthermore, this study found that China Mobile largely keeps its promises to customers, service operators show sincere interest in addressing consumers' concerns, coupled with reasonable and affordable packages that are devoid of hidden charges. Likewise, the research established that China Mobile is responsive, with staff cited to provide prompt technical help, a willingness to respond to consumers. The market behavior and attitudes of employees and the brand in general provides assurance to customers that they are in the right hands. Finally, the study found that by providing individual customer attention, with a comprehensive awareness of consumers' specific needs, including taking customers' opinions into account all make China Mobile empathetic in the eyes of

the customer and boost customer loyalty. That notwithstanding, the above results can come in handy to elucidate the fierce rivalry among the three monopoly MNOs in China, including China Mobile, China Telecom, and China Unicom. Whilst these are the major mobile operators at the moment, the rivalry among them is increasingly intensified owing to the reduced potential market size for expansion.

In conclusion, This study paper uses SPSS 27 and Excel software to comprehensively analyze the sample data. The study therefore recommends management of telecoms in China to ensure that they are reliable in providing services to customers in order to increase satisfaction and thus loyalty. The study recommends telecoms to hire staff with customer service skills and train them regularly on service delivery to increase promptness in attending to consumers. It is also recommended that telecoms hire trustworthy individuals to assert assurance to consumers through safety. Finally, employees ought to be trained to show empathy in service delivery, so as to enhance overall satisfaction as well.

5. CONCLUSION

Overall, The contemporary era is characterized by an increasingly competitive business environment with the quality-of-service delivery determining consumer satisfaction and consumer value, without which winning consumers is near impossible. Nonetheless, research on quality-of-service, consumer satisfaction and consumer value remain quite diverse with studies being disjointed, particularly for the complex interrelationships within those areas. This is further compounded with the ever-dynamic consumers' needs. Therefore, there is scant information on the relative effect of quality-based factors on value to consumer plus consumer satisfaction to date, including the regulating function of the value of consumer in the relationship between the quality-of-service and the satisfaction of consumer is rather fluid. Moreover, it is challenging to find evidence-backed studies focusing on quality-of-service, consumer satisfaction and consumer value, along with their impacts on the behaviour intentions of consumers in the telecommunications sector. This research paper has efficaciously used applicable literature available literature in the customer service market to one area of the MNOs in China. Similarly, it has delivered a detailed integrated customer survey framework to help comprehend the ever-dynamic relations between customer satisfaction and attributes of satisfaction, service quality satisfaction, brand service satisfaction. However, it is vital that the findings are interpreted within study's limits. For instance, the research's cross-sectional model, is a limitation research, implying that collecting and analysing longitudinal data will be an essential step in conducting future research. Besides, it is important that these analysis results are confirmed with some additional evidence from other places considering the difference in cultural backgrounds and values in some different communities.

ACKNOWLEDGEMENTS

We thank all friends, friends, classmates, company service quality, and IT management experts, technical architect and professors. This work was supported in part by a grant from Solbridge International School of Business. Moreover, I hope that my technical paper journals can help more and more people understand digital asserts, brand service, service management platform and quantitative analysis process.

ORCID

Cui Jun https://orcid.org/0009-0002-9693-9145

CONFLICTS OF INTEREST

The authors declare that they have no conflict of interest.

REFERENCES

[1] Information on: http://www.weld.labs.gov.cn.

[2] Kassim, N. M. (2006). Telecommunication Industry in Malaysia: Demographics Effect on Customer Expectations, Performance, Satisfaction and Retention. Asia Pacific Business Review, 12(4), 437–463.

[3] Thibaud. (2016, April 19). The importance of social media in China. https://daxueconsulting. com/ importance-of-social-media-in-china/.

[4] Goyal, K., & Kar, A. K. (2019). Determinants of Customer Satisfaction in Telecommunication. In Proceedings of ICETIT 2019, Emerging Trends in Information Technology (pp. 754–761). unknown.

[5] TRADING ECONOMICS. (n.d.-a). Digi.com Berhad | DIGI - Market Capitalization [Data set]. Retrieved October 13, 2021, from https://tradingeconomics.com/digi:mk:market-capitalization.

[6] Harwit, E., 1998. China's telecommunications industry: Development patterns and policies. Pacific Affairs, pp.175-193.

[7] Tan, Z.A., 2002. Product cycle theory and telecommunications industry-foreign direct investment, government policy, and indigenous manufacturing in China. Telecommunications Policy, 26(1-2), pp.17-30.

[8] Loo, B.P., 2004. Telecommunications reforms in China: towards an analytical framework. Telecommunications Policy, 28(9-10), pp.697-714.

[9] Santos, J. (2003). E-service quality: a model of virtual service quality dimensions. Managing service quality: An international journal, 13(3), 233-246.

[10] Cronin Jr, J. J., & Taylor, S. A. (1992). Measuring service quality: a reexamination and extension. Journal of marketing, 56(3), 55-68.

[11] Rust, R. T., & Oliver, R. L. (Eds.). (1993). Service quality: New directions in theory and practice. Sage Publications.