

## The Influence of Service Quality on Customer Satisfaction towards Internet Service Providers among Malaysian

Zahayu Md Yusof<sup>1,2\*</sup>, Krudharshaini Nagapan<sup>1</sup>, Sofia Amir<sup>1</sup>, Nazifa Nasir<sup>1</sup> and Wan Muhammad Zulhafizsyam<sup>1</sup>

<sup>1</sup>School of Quantitative Sciences, Universiti Utara Malaysia, Sintok, Kedah, Malaysia

<sup>2</sup>Institute of Strategic Industrial Decision Modelling, Universiti Utara Malaysia, Sintok, Kedah, Malaysia

### ABSTRACT

*Malaysia's internet connectivity has significantly increased over the last decade, boosting competitiveness and supporting economic growth. The number of Internet Service Providers (ISPs) has been steadily expanding, and competition is intensifying. As a result, it's crucial to comprehend why clients stick with a given service provider. The impact of service quality on customer satisfaction with internet service providers among Malaysians is investigated in this study. The responses were collected using a google form from 181 post-paid mobile subscribers in Malaysia. According to the findings of structural equation modelling, service quality is a significant predictor of customer happiness, which leads to tangibles and responsiveness. The findings offer useful managerial advice on how to manage customer happiness and loyalty. It is crucial for the organisations to know how to gauge these factors from the buyers' point of view with a specific target to better comprehend their requirements and consequently fulfil them.*

**Keywords:** Telecommunication, Structural Equation Modelling, Customer satisfaction, Service quality, Loyalty, Internet Service Providers (ISP)

### 1. INTRODUCTION

In modern times, the internet has become a necessity in human daily life. The amount of internet usage on a daily basis has accelerated during the pandemic. Many people subscribe to the internet at home for the use of the whole house since many works and study are from home. The amount of internet usage on a daily basis has accelerated during the pandemic of COVID-19 compared to the pre-pandemic period (Ozturk & Ayaz-Alkaya, 2021). As in Malaysia, there are countless companies that offer various internet plans consisting of many categories, prices and so forth. These companies compete with each other in satisfying the customers. As a result, one of the most important aspects associated with customer satisfaction is the service quality. Better customer service in an era of fierce competition and quality of the services are vital components that can help distinguish and improve an organisation's success (Farooq et al., 2018). The SERVQUAL model has shown that the most dominant components of a service sector are the most dominated components of customer satisfaction. The COVID-19 epidemic has had and continues to have a severe physiological, and social impact on people of all ages, causing a social crisis (Lin, 2020). Working from home has become a new norm as the pandemic has spread throughout the world. There are complications to working from home such as having problems with the internet. According to Saludin et al. (2013), some basic conditions should be considered to enable the concept of working from home. These include internet connectivity, fax machine, computer with fax functionality, phone/handphone, and pager to name a few. A strong internet connection is one of the most important factors to ensure the working condition at home is accessible.

---

\*Corresponding Author: zahayu@uum.edu.my

Farooq et al. (2018) agreed that better customer service is a vital component that may be used to distinguish and improve an organisation's performance. According to prior studies, delivering high service quality may boost client satisfaction even in an unsatisfactory environment, hence increasing incomes and market share (Joshy et al., 2020). Client satisfaction is positively influenced by service quality, which leads to customer loyalty and happiness (Yi & Natarajan, 2018). Could it be that expansion the level of substance of an assistance will upgrade client dedication or the other way around? Hence, the goal of this research is to determine the link between customer satisfaction and service quality. This study will be carried out to identify the relationship between customer satisfaction and service quality in assisting the organisation to gain the loyalty from customers to their product. Overall service quality has a favourable impact on client satisfaction, which leads to customer loyalty and happiness (Yi & Natarajan, 2018). Hence, this will build incomes and profitability.

## **2. LITERATURE REVIEW**

### **2.1 Conceptualisation of Customer Satisfaction, Service Quality, Responsiveness and Tangible**

In every organisation, it is important to hear the voice of the customer in order to make sure the level of their satisfaction which also helps the business's growth. Based on Haemon (2006), the concept of customer satisfaction is against the traditional method. Michael et al. (2008) in his paper mentioned that customer satisfaction is not a guarantee for an organisation's sustainability and the causes are not usually related to client displeasure. Customers are important to an organisation since they are a part of its long-term viability. The services provided will determine the level of the customer's satisfaction. According to Vithya Leninkumar, cited in Fornell (1992), they have defined customer satisfaction as an attitude formed as a result of a customer's experience after purchasing a product or paying for services. Organisation believes a satisfied customer will become an asset to make the business more profitable in the long-term (Hauser, 1994). The gap between a customer's expectation for service performance prior to a service contact and their assessment of the service received is known as service quality. Joudeh et al. (2018) found a beneficial impact of the quality of the internet service on customer satisfaction. Responsiveness worried about clients' solicitations, grumblings and questions mindfully and instantly. This component alludes to the organisation's activities in reacting to clients speedily. Responsiveness was positioned as the third measurement in SERVQUAL 1994 (Parasuraman et al., 1994). Tangibles are expressed as personal appearance, physical facilities, and equipment (Omar et al., 2016). Tangibles are important in communicating the company's image to the customers as stated in Suresh and Vasantha, (2021), the term "tangibility" refers to the ability to deliver items within a specified time frame. Furthermore, the existence of tangibles will surely boost up the confidence level of customers in purchasing the product offered.

### **2.2 Relationship between Customer Satisfaction with Service Quality, Responsiveness and Tangible**

The researcher specifically suggests that long-term oriented relationship factors impact customer satisfaction both directly and indirectly through cumulative relationship quality (Yi & Natarajan, 2018). Hence, this study has designed the research model to illustrate the relationship of customer satisfaction and service quality dimensions. The previous findings indicate that relationship quality is a significant factor of customer satisfaction among all services industries (Yi & Natarajan, 2018). Responsiveness alludes to the willingness to offer prompt service and helping the customers (Zeithaml et al., 2006). Quick action and fast response from an organisation towards the client are expected to increase the customer satisfaction. The tangible are the appearance of the store and staff, physical facilities at store or shop, and visual materials

for customers play a significant role towards customers' satisfaction (Minh et al., 2015). The nice-looking staff with smart dresses to entertain the customers in air-conditioned and beautiful stores increase the customer satisfaction.

### **3. METHODOLOGY**

#### **3.1 Research Design**

This study intends to look at the correlation between reliability, responsiveness, assurance, empathy and tangible components towards customers' satisfaction of Internet Service Providers (ISP) in Malaysia. This study will also look into the relationship between nationalities, gender, and age.

#### **3.2 Data Collection Process**

The target population was Malaysian citizens that come from different groups of people who subscribe to the internet services for various purposes. In recent years, most of the global population, especially students and working people are using the ISP due to its wide range of applications. The questionnaire which contains 40 questions was used and distributed to 181 respondents from various groups of people using convenient sampling method. A questionnaire is merely a set of mimeographed or printed questions that a respondent fills out to express his or her viewpoint (Roopa & Satya, 2012). Furthermore, the questionnaire was developed by using Google Form and distributed through various platforms of social media such as WhatsApp, Telegram, and so forth. The data has been collected from 04 October 2021 until 22 October 2021 within the timeline of 21 days.

### **4. DATA ANALYSIS**

#### **4.1 Factor Analysis**

Cronbach's Alpha was used to measure instrument reliability, followed by exploratory factor analysis to determine the factors and confirmatory factor analysis to establish the factor structure of a collection of observed variables. Once the measurement model was established, correlation analysis was utilised to describe the extent and direction of the linear relationship between service quality and customer happiness. The data in this study was analysed by using Statistical Package for the Social Sciences (SPSS). The pilot test has been run and the result for the reliability is 0.986 which is greater than 0.6. Hence, this means that it is acceptable to proceed with all the variables.

#### **4.2 Structural Equation Modelling Analysis**

Inspired by the views of quantitative research scholars that the Structural Equation Modelling (SEM) analysis provides adequate opportunities to examine and explore the effect of one construct on the other (Byrne, 2010), this study adopted this technique in its analysis. Moreover, SEM is a powerful statistical tool that can analyse the causal relationships among the model constructs simultaneously (Tri Prasetyo & Marquez, 2020). Thus, SEM is used in this study to analyse the causal relationship among the components in service quality dimensions and customer satisfaction.

## 5. RESULTS AND DISCUSSIONS

### 5.1 Descriptive Analysis

Gender, age, nationality, race, marital status, educational level, and occupational level were all described as demographic variables in the samples. A questionnaire was distributed to 181 respondents through google form. This demographic exploration has been performed to provide information on the respondent's background as displayed in a Figure 1.

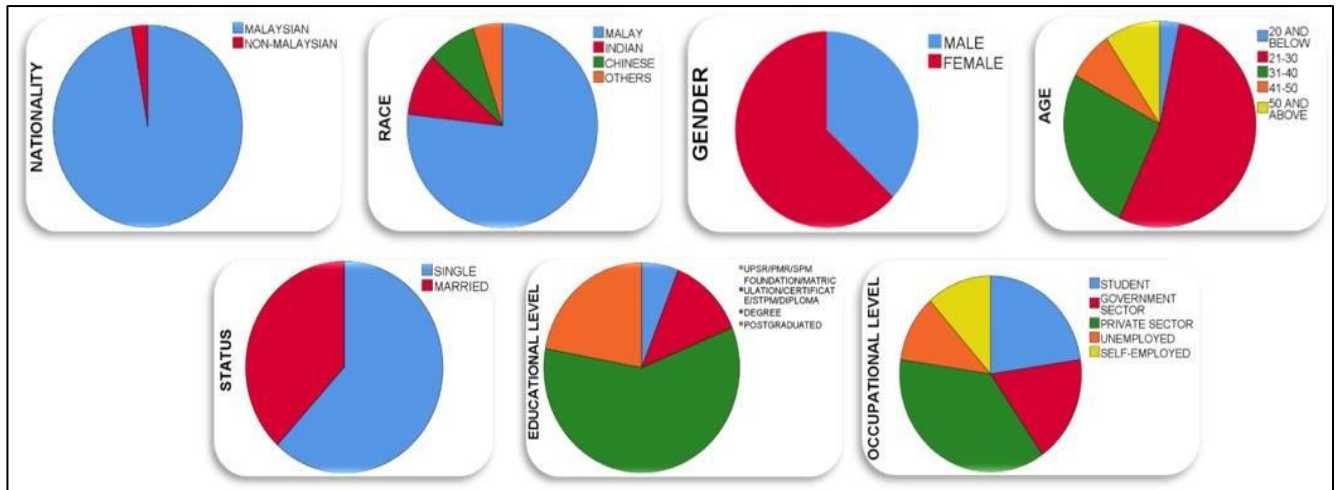


Figure 1. Demographic Exploration

### 5.2 Factor Analysis

#### 5.2.1 Kaiser Meyer Olkin (KMO) and Bartlett's Test

Table 1 shows that the KMO measures 0.950 is high and satisfactory. Therefore, the sample is adequate for Factor Analysis. Bartlett's test of sphericity was significant ( $<.001$ ) and therefore it suggests that the data are normally distributed. This means that correlation matrix is an identity matrix.

Table 1. KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.950
Bartlett's Test of Sphericity	Approx. Chi-Square	5083.435
	df	406
	Sig.	.000

#### 5.2.2 Total Variance Explained

Table 2 shows that the first component has the eigenvalue of 16.795 which is greater than 1. While for the second component, the value is 1.636  $> 1$  and for the third component, the value will be 1.340  $> 1$ . As a result, the extracted sum of squared holding percent of variance shows that the first component is responsible for 57.913 percent of the variance in the provided data, the second factor is 5.641%, and the third factor is 4.622%. Thus, the three components are effective enough in representing all the characteristics.

**Table 2.** Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	16.795	57.913	57.913	16.795	57.913	57.913	7.322	25.249	25.249
2	1.636	5.641	63.554	1.636	5.641	63.554	7.162	24.696	49.945
3	1.340	4.622	68.176	1.340	4.622	68.176	5.287	18.231	68.176
4	.968	3.339	71.515						
5	.939	3.237	74.752						
6	.840	2.896	77.647						
7	.693	2.388	80.036						
8	.619	2.135	82.170						
9	.538	1.855	84.025						
10	.490	1.690	85.715						
11	.413	1.426	87.141						
12	.361	1.245	88.386						
13	.354	1.222	89.608						
14	.335	1.154	90.763						
15	.328	1.129	91.892						
16	.269	.929	92.821						
17	.261	.901	93.723						
18	.236	.814	94.537						
19	.200	.691	95.227						
20	.196	.675	95.902						
21	.191	.659	96.562						
22	.176	.608	97.169						
23	.165	.568	97.737						
24	.146	.503	98.240						
25	.131	.452	98.692						
26	.126	.434	99.127						
27	.097	.334	99.461						
28	.085	.293	99.754						
29	.071	.246	100.000						

Extraction Method: Principal Component Analysis.

### 5.2.3 Interpretation

The result from factor analysis extracted 3 factors and can be identified as the construct among highly loading questions. The questions that load highly on component 1 seem related to tangible factor. The questions that load highly on component 2 seem related to responsiveness factor and lastly, the questions that load highly on component 3 seem related to customer satisfaction of the ISP.

### 5.3 Construct Validity of Measurement Model

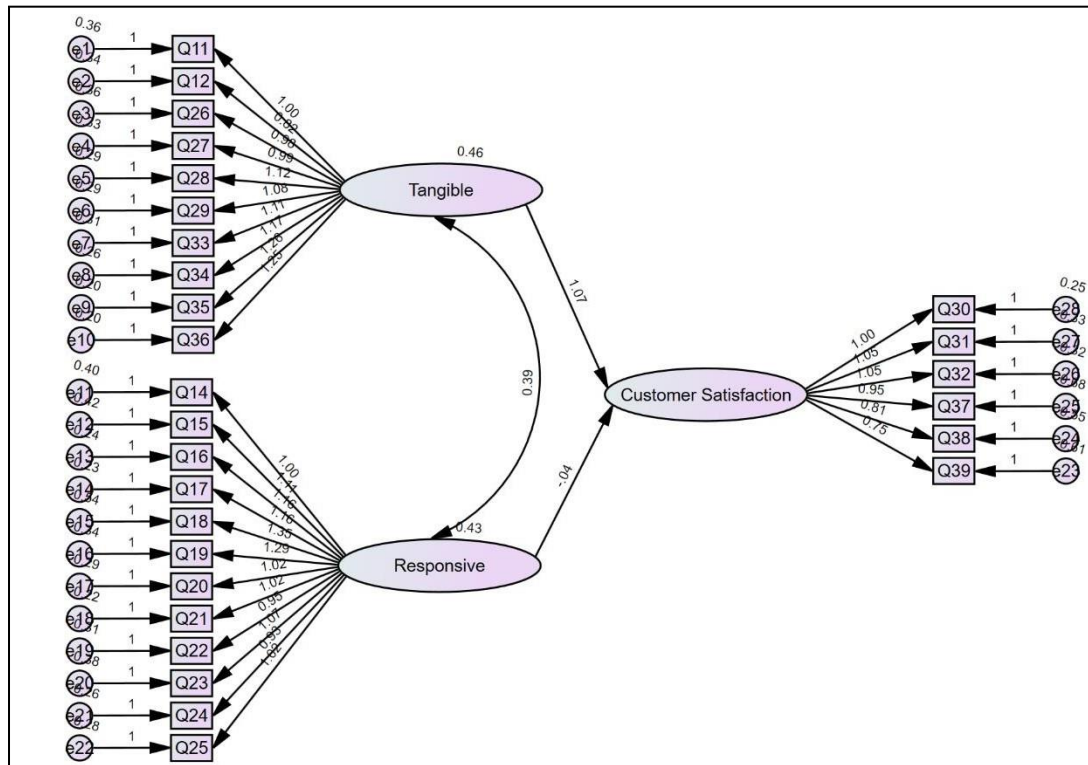


Figure 2. Service Quality Model

### 5.4 Convergent Validity

Convergent validity is a term used frequently in sociology, psychology, and other behavioural sciences to describe the degree to which two measures of variables that should be connected theoretically are really related. Convergent validity demonstrates the relationship between two measures that are claimed to measure the same construct. After factor analysis undertaken and produce, three factors found to be mostly associated to service quality of ISP. SEM for this study was constructed using AMOS software as shown on Figure 2. These three factors named tangible, responsive and customer satisfaction used to be measurement model to test the convergent validity to see how close the indicators to determine each latent variable. Calculation of convergent validity needs to start calculating the Average Variance Extracted (AVE) using formula as shown by Figure 3. The AVE value must be 0.5 or more for measurable model to have convergent validity.

$$\text{Average Variance Extracted(AVE)} = \frac{\sum (\text{Standardized Loading}^2)}{\text{Number of Indicators}}$$

Figure 3. Formula AVE

The AVE value for factor tangible, responsive and customer satisfaction are 0.655, 0.615 and 0.583 respectively. The result shows that the AVE value for all three latent variables is above 0.5 indicate that convergent validity been proved.

### 5.5 Discriminant Validity

Discriminant validity used to determine how far of one latent variable from the other latent variables or how much deviating one measurement model to another.

**Table 3.** Correlation Value of Latent Variable

			Estimate
Tangible	<-->	Customer Satisfaction	0.86
Tangible	<-->	Responsive	0.882
Customer Satisfaction	<-->	Customer Satisfaction	0.814

To determine discriminant validity, square root of AVE or also called discriminant value should be more than correlation value of the latent variable. The discriminant value of tangible, responsive and customer satisfaction are 0.809, 0.784 and 0.763, respectively. The result in Table 3 shows that all the latent variable correlation value greater than discriminant value indicate that the discriminant validity proof validated.

### 5.6 Composite Reliability

The shared variance among the observed variables of a latent construct is referred to as composite reliability. Internal consistency dependability is another name for it. The value of composite reliable model of measurement model must be more than 0.6 to consider it as acceptable and having required internal consistency reliability. The calculation to find composite reliability is using the formula in Figure 4. To get the composite reliability, it is a sum the standardised loading indicator then square it. Then divide by the same sum of standardise loading indicator square plus sum of measurement error.

$$\text{Composite Reliability} = \frac{(\sum \text{Standardized Loading})^2}{(\sum \text{Standardized Loading})^2 + \sum(\text{ME})}$$

**Figure 4.** Formula Composite Reliability

From the composite reliability calculation results shows the composite reliability value for measurement model tangible is 0.9497, responsive is 0.9503 and customer satisfaction is 0.8912 indicate the values are greater than required 0.6. It shows that measurement model of tangible, responsive and customer satisfaction are having required internal consistency reliability between their indicator variables.

## 5.7 Confirmatory Factor Analysis (CFA)

Confirmatory Factor Analysis (CFA) is performed after exploratory factor analysis to establish the underlying structure set of factors.

### 5.7.1 Model Fit

The model fit assessment criteria for structured equation models are shown in Table 4.

**Table 4.** Model Fit Assessment Criteria

Fit Indices	Acceptable Value	Source
<b>ABSOLUTE FIT</b>		
Root Mean Square Error Approximation (RMSEA)	≤ 0.08	Brown & Cudeck (1993)
<b>INCREMENTALFIT</b>		
Normed Fit Index (NFI)	≥ 0.90	Bentler & Bonnet (1980)
Non-normed Fit Index (NNFI) (TLI)	≥ 0.90	Bentler & Bonnet (1980)
Comparative Fit Index (CFI)	≥ 0.90	Bagozzi & Yi (1988)
<b>PARSIMONY FIT</b>		
Normed Chi Square (CMIN/DF)	<5.00	Marsh and Hocevar (1985)



5.7.2 Model Fit for Overall Model

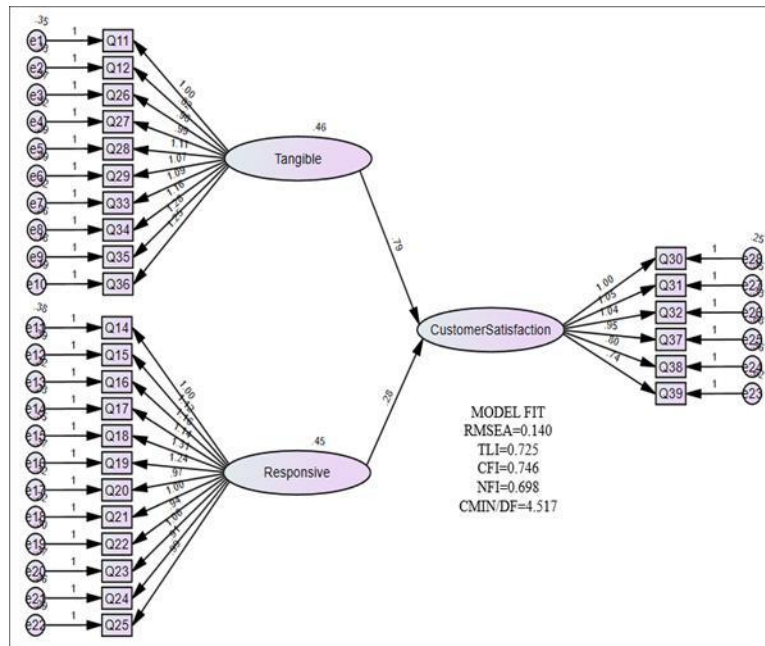


Figure 5. Overall Model Before Modification

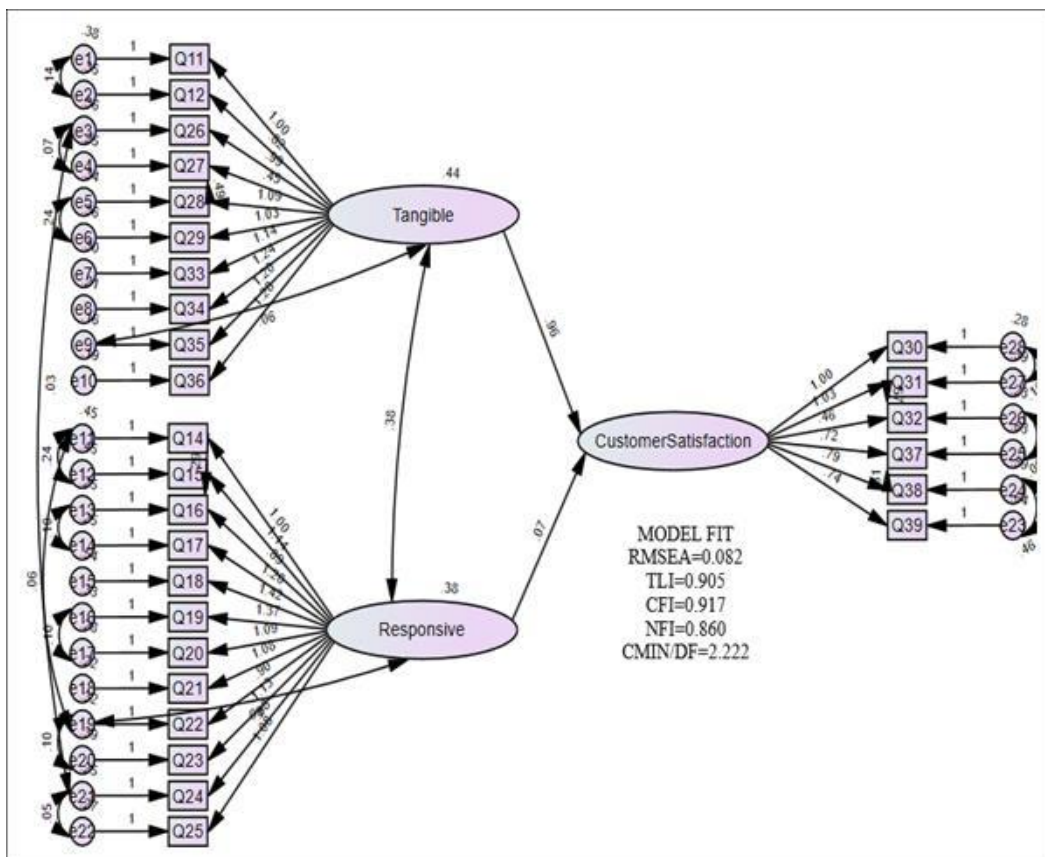


Figure 6. Overall Model After Modification

**Table 5.** Overall Model Fit

Model	Index	Before Modification	After Modification
Absolute Model Fit	RMSEA	0.140	0.082
Incremental Fit	TLI	0.725	0.905
	CFI	0.746	0.917
	NFI	0.698	0.860
Parsimonious Fit	CMIN/DF	4.517	2.222

### 5.7.3 Hypothesis Testing

The hypothesis is run using SPSS Software. The result as shown in Table 6.

**Table 6.** Hypothesis Testing ( $p$ -value < 0.005)

Hypotheses	$p$ -value	Results
H <sub>1</sub> : Tangible has significant relationship with customer satisfaction.	0.000	Supported
H <sub>2</sub> : Responsive has significant relationship with customer satisfaction.	0.000	Supported

## 6. CONCLUSIONS

The study focuses on the customer satisfaction among the internet subscriber towards the ISP in Malaysia. After the factor analysis, the outcome reported that only 3 of the proposed factors are extracted from the information given by the respondents. Hence for further analysis using SEM only these factors being considered. From the finding in this research, it is concluded that tangible and responsive of service quality are the factors that had great influence or have significant relation with customer satisfaction towards ISP. In addition, the results of this study also indicate that tangible and responsive has significant relationship with customer satisfaction since both dimensions show significant  $p$ -value. This research recommends the ISP to focus more on tangible and responsive in customer service to ensure the maximum satisfaction among the customers. The outcome of this research could provide a guidance to the improvement of the services of IPS towards their customer satisfaction.

## ACKNOWLEDGEMENT

Gratitude goes to Universiti Utara Malaysia, the School of Quantitative Sciences, and the respondents for their support in this study.

## REFERENCES

- Byrne, B. M. (2010). *Structural equation modeling with AMOS: Basic concepts, applications, and programming (2nd ed.)*. Taylor & Francis/Routledge.
- Farooq, M. S., Salam, M., Fayolle, A., Jaafar, N., & Ayupp, K. (2018). Impact of service quality on customer satisfaction in Malaysia airlines: A PLS-SEM approach. *Journal of Air Transport Management*, 67, 169-180.
- Fornell, C. (1992). A National Customer Satisfaction Barometer: The Swedish Experience. *Journal of Marketing*, 56, 6-21.
- Haemoun Oh, S. C. (2006). Customer Satisfaction and Service Quality: Research Implications for the Hospitality Industry. *The Council on Hotel Restaurant and Institutional Education*, 20-57.
- Hauser, J. R., Simester, D. I., & Wernerfelt, B. (1994). Customer satisfaction incentives. *Marketing Science*, 13(4), 327-350.

- Joudeh, J. M. M., Dandis, A., Ala', & Dandis, O. (2018). Service Quality, Customer Satisfaction and Loyalty in an Internet Service Providers. *International Journal of Business and Management*, 13(8).
- Joshay, K. T., Peterkumar, F. J., & Vakayil, S. (2020). The impact of service quality on customer satisfaction; an empirical study. *International Journal of Management*, 11(3), 76-88.
- Lin, M. P. (2020). Prevalence of internet addiction during the covid-19 outbreak and its risk factors among junior high school students in Taiwan. *International Journal of Environmental Research and Public Health*, 17(22), 1-12.
- Michael, D. C., Christopher, G., Tzu-Hui, K. and Michelle, C. (2008). An empirical analysis of customer satisfaction in international air travel. *Innovative Marketing*, 4(2), 2008.
- Minh, N. H., Thu Ha, N., Chi Anh, P., & Matsui, Y. (2015). Service quality and customer satisfaction: A case study of hotel industry in Vietnam. *Asian Social Science*, 11(10), 73-85.
- Omar, M. S., Ariffin, H. F., & Ahmad, R. (2016). Service Quality, Customers' Satisfaction and the Moderating Effects of Gender: A Study of Arabic Restaurants. *Procedia - Social and Behavioral Sciences*, 224 (August 2015), 384-392.
- Ozturk, F. O., & Ayaz-Alkaya, S. (2021). Internet addiction and psychosocial problems among adolescents during the COVID-19 pandemic: A cross-sectional study. *Archives of Psychiatric Nursing*, 35(6), 595-601.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1994). Alternative scales for measuring service quality: a comparative assessment based on psychometric and diagnostic criteria. *Journal of retailing*, 70(3), 201-230.
- Roopa, S. & Menta Satya, Rani. (2012). Questionnaire Designing for a Survey. *The Journal of Indian Orthodontic Society*. 46. 37-41.
- Saludin, N. A., Karia, N., & Hassan, H. (2013). Working from Home (WFH): Is Malaysia ready for digital society? *Entrepreneurship Vision 2020: Innovation, Development Sustainability, and Economic Growth - Proceedings of the 20th International Business Information Management Association Conference, IBIMA 2013*, 1(January), 981-989.
- Suresh S., & Vasantha, S. (2021). Influence of logistics service quality among customer satisfaction using IOT based techniques, *Materials Today: Proceedings*.
- Tri Prasetyo, Y., & Marquez, A. T. (2020). Determinants of customer satisfaction with Metals Industry Research and Development Center (MIRDC) analysis and testing services: A structural equation modeling approach. *ACM International Conference Proceeding Series*, 22-27.
- Yi, Y., & Natarajan, R. (2018). Customer satisfaction in Asia. *Psychology and Marketing*, 35(6), 387-391.
- Zeithaml, V. A., Bitner, M. J., & Gremler, D. D. (2006). *Services marketing: Integrating customer focus across the firm* (4th ed., p.117). Singapore: McGraw-Hill.

