

**SERVICE QUALITY DIMENSIONS, PERCEIVE VALUE  
AND CUSTOMER SATISFACTION:  
ABC RELATIONSHIP MODEL TESTING**

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**Abstract**

The study was conducted to examine the effect of service quality and perceived value on customer satisfaction using a sample of 150 usable questionnaires gathered from undergraduate students in one public university in Sarawak, Malaysia. The outcomes of hierarchical regression analysis showed four important findings: firstly, relationship between perceive value and reliability significantly correlated with customer satisfaction. Secondly, relationship between perceive value and responsiveness significantly correlated with customer satisfaction. Thirdly, relationship between perceive value and assurance significantly correlated with customer satisfaction. Fourthly, relationship between perceive value and empathy significantly correlated with customer satisfaction. This result confirms that perceive value does act as partial mediating variable in the service quality models of organizational sample. In addition, implications and limitations, as well as directions for future research are elaborated.

**Keywords:** service quality characteristics, perceive value and customer satisfaction

## Introduction

Service quality and customer satisfaction are inarguably the two core concepts that are at the crux of the marketing theory and practice (Spreng & Mackoy, 1996). In today's world of intense competition, the key to sustainable competitive advantage lies in delivering high quality services that will in turn result in satisfied customers (Shemwell et al., 1998). Therefore, there is not even an iota of doubt concerning the importance of service quality as the ultimate goal service providers throughout the world (Sureshchandar et al., 2002). In an era of global competition; many organizations have now shifted the paradigm of service quality to customer's perspective (Parasuraman et al., 1985). Rely on this paradigm; a customer will judge the quality of service if its service meets his/her expectations (Grönroos, 1984; Parasuraman et al., 1985, 1988). Many scholars think that employee satisfaction with the service features may increase retention and loyalty (Alexandris et al., 2002), thus lead to increased organizational competitiveness (Shemwell et al., 1998).

Service quality has been defined as a form of attitude – a long-run overall evaluation (Zeithaml, 1988; Parasuraman et al., 1988). Perceived service quality portrays a general; overall appraisal of service, i.e. a global value judgement on the superiority of the overall services and it could occur at multiple levels in an organization (Sureshchandar et al., 2002). Many scholars such as Parasuraman et al., (1988), Juwaheer, Ross (2003) and Walker et al., (2006) highlight that reliability, responsiveness, assurance and empathy are the most important service quality characteristics. Reliability is frequently seen as the ability of service provider to implement promised service dependably and accurately (Wong & Sohal, 2003). Responsiveness is often defined as the willingness of service provider to provide service quickly and accurately (Johnston, 2006). Assurance refers to credibility, competence and security in delivering services (Juwaheer & Ross, 2003). Empathy is related to caring, attention, and understanding the customer needs when providing service.

Extant research in this era shows that properly implemented such service quality characteristics have a significant impact on customer satisfaction (Gronroos, 1984; Parasuraman et al., 1988; Walker et al., 2006). In a quality management context, customer satisfaction is often defined as a result of comparison between what one customer expects about services provided by a service provider and what one customer receives actual services by a service provider (Caruana et al., 2000; Parasuraman et al., 1988). If services provided by an organization meet a customer's needs, this may lead to higher customer satisfaction (Foster, 2004; Parasuraman et al., 1988; Walker et al., 2006).

Interestingly, a thorough review of such relationships reveals that effect of service quality characteristics on customer satisfaction is indirectly affected by perceive value (Caruana et al., 2000; Varki & Colgate, 2001). Perceive value is considered as customer recognition and appreciation the utility of a product that is given by a service provider which may fulfill his/her expectation (Foster, 2004; Heininen, 2004; Walker et al., 2006). In a service management context, the ability of an organization to use reliability, responsiveness, assurance and empathy in delivering services will increase customer's perceptions value; this may lead to higher customer satisfaction (Sureshchandar, 2000; Sureshchandar et al., 2002). Even though many studies have

been done, little is known about the mediating effect of perceive value in service quality models (Caruana et al., 2000; Eggert & Ulaga, 2002). Hence, the purpose of this study is to investigate the direct effect of service quality features on customer satisfaction and to measure the mediating effect of perceive value in the relationship between service quality characteristics and customer satisfaction that occurs in one Malaysia public university in Sarawak. For confidential reasons, name of the organization is kept anonymous.

## Literature Review

Several studies about soft quality program in Western organizational settings show that service quality may indirectly and directly affect customer satisfaction. In terms of direct relationships perspective, Bitner (1990) examined the quality service based on a sample of 145 tourists and found that service quality had been an important antecedent of customer satisfaction. In addition, Caruana et al., (2000) conducted a research on 80 personal interviews with customers of the audit firm and found that service quality positively correlated with perceived value. Thus, it can be hypothesized that:

H1: There is a positive relationship between reliability and customer satisfaction

H2: There is a positive relationship between responsiveness and customer satisfaction

H3: There is a positive relationship between assurance and customer satisfaction H4:

There is a positive relationship between empathy and customer satisfaction

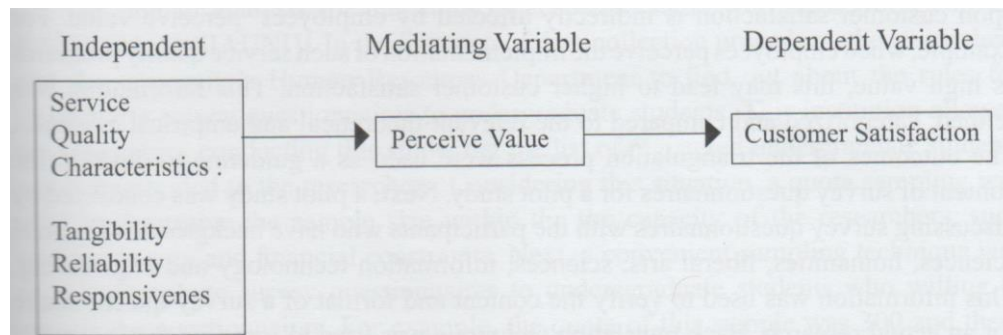
Further, recent studies in this area reveals that relationship between service quality and customer satisfaction is indirectly affected by perceive value. For example, Eggert and Ulaga (2002) conducted a study about customer satisfaction based on 301 employees in US organizations. This study found that properly implemented service quality characteristics (i.e., reliability, responsiveness, assurance and empathy) have increased individuals' perceive value about quality features. As a result, it might lead to an increased customer satisfaction.

The service gap theory posit that the service quality process can be examined in term as of gap between expectations and perceptions on the part of management, employee and customer (Oliver, 1997). If the customer's expectations of service did not match the perception service delivered, customer become dissatisfied. This theory is supported by the expectancy disconfirmation theory.

In the classic expectancy-disconfirmation theory, customer satisfaction with consumption experiences depends on expectations, performance, and disconfirmation (Oliver & De Sarbo, 1988).

The service quality research literature is consistent with the notion of perceive quality models. For example, Parasuraman et al., (1985) conceptual service quality model highlights that matching between service quality standards and customer's standards may decrease service performance gap and increase customer's perceive value about the quality systems. Consequently, it may lead to higher customer satisfaction.

The literature has been used as foundation to develop a conceptual framework for this study as shown in Figure 1.



**Figure 1:** Perceive value mediates the effect of service quality characteristics and customer satisfaction

Based on the framework, it can be hypothesized that:

- H5: Perceive value mediates the effect of reliability on customer satisfaction
- H6: Perceive value mediates the effect of responsiveness on customer satisfaction
- H7: Perceive value mediates the effect of assurance on customer satisfaction
- H8: Perceive value mediates the effect of empathy on customer satisfaction

## Methodology

This study used a cross-sectional research design which allowed the researchers to integrate service quality literature, in-depth interviews, pilot study and the actual survey as a main procedure to gather accurate and less bias data (Davis, 1996; Cresswell, 1998; Sekaran, 2000). This study was conducted in one public institution of higher learning in East Malaysia (EASTMALAYSIAUNIV). At the initial stage of data collection, in-depth interviews were conducted involving ten undergraduate students during and before a pilot study in order to understand the nature of quality service. They are selected based on purposive sampling where the students have good knowledge and experiences about the implementation of quality service program. Information gathered from such students helped the researchers to understand the nature of quality service policies and procedures, student's perceptions of value about service quality and customer satisfaction characteristics, as well as the relationship between such variables in the studied organizations. For example, an undergraduate studies division in the studied organization has used broad policies set

up by the Ministry of Higher Education, Malaysia to design and manage undergraduate student's records, such as enrolment of student intake, course registration, lecture schedules, examination, graduation, and academic development. In order to increase service delivery, management have promoted several improvements: Five (5s) quality system to standardized job operations and decrease mistakes, simplify work processes and decrease period of time to be attended, hire appropriate staff and allow staff to used creativity in performing job.

According to majority employees, the ability of managers to properly implement such quality programs have not directly increased customer satisfaction, but its impact upon customer satisfaction is indirectly affected by employees's perceive value. For example, when employees perceive the implementation of such service quality programs as high value, this may lead to higher customer satisfaction. This information was refined, categorized and compared to the relevant theoretical and empirical evidence. The outcomes of the triangulation process were used as guideline to develop the content of survey questionnaires for a pilot study. Next, a pilot study was conducted by discussing survey questionnaires with the participants who have backgrounds in social sciences, humanities, liberal arts, sciences, information technology and engineering. This information was used to verify the content and format of survey questionnaire for an actual research. Back translation technique was used to translate the content of questionnaire in Malay and English in order to increase the validity and reliability of instrument (Wright, 1996). The survey questionnaire had three sections. First, reliability, reponsiveness, assurance, and empathy had 26 items that were modified from SERVQUAL instrument (Parasuraman et al., 1985). The items used to measure reliability were: (1) This division insists on zero defect record, (2) This divisions practices "Do the right thing right, first and everytime" policy, (3) Chances of this division to make mistake is very low, (4) This division always make sure that their performance is the highest standard, (5) This division implemented 5's to make sure that their operation is up to standard, (6) The staff in this division has interest in solving my problem. The items used to measure responsiveness were: (1) The staff in this division always trying their best to help me, (2) This division provides on time service, (3) This division tells me exactly when the service will be performed, (4) This division has simplified work process with low interrupted service, and (5) I never waited for a long period of time to be attended. The items used to measure assurance were: (1) I trusted the services given by this division, (2) This division has hired appropriate people to perform their duty, and (3) Staff in this division is given freedom to make decision to satisfy customer's needs. The items used to measure empathy were: (1) Staff in this division never neglects me, (2) Staff in this division always understand my needs, and (3) This division has my best interest in heart. Second, perceive value had 6 items that were modified from service quality related perceive value (Monroe, 1990; Caruana et al., 2000; Foster, 2004). The items used to measure this variable were: (1) I feel that dealing with this division is very beneficial in providing information, (2) I feel that this division pays full dedication to their customer, (3) I feel that this division cooperates well with their customers, (4) I feel that this division always implemented the best quality service, (5) I feel that this division is giving the

appropriate information in solving my problem, (6) I feel that this division is carrying out their responsibilities in their best capabilities. Third, customer satisfaction had 3 items that were modified from service quality related customer satisfaction (Bitner, 1990; Eggert & Ulaga, 2002; Walker et al., 2006).

The items used to measure this variable were: (1) I was satisfied with the facilities in this division, (2) I was satisfied with the appearance of the staff in this division, (3) I was satisfied with this division operating hours. All these items were measured using a 7-item scale ranging from “very strongly disagree” (1) to “very strongly agree” (7). Demographic variables were used as controlling variables because this study focused on employee attitudes.

The unit of analysis for this study is academic staffs who have worked in the EASTMALAYSIAUNIV. In the first step of data collection procedure, the researchers met the university’s Human Resources Department to find out about the rules for distributing survey questionnaires to undergraduate students. This institution allowed the researchers conducting this study, but the list of registered undergraduate students was not provided to the researchers. Considering this situation, a quota sampling was used to determine the sample size within the capacity of the researchers, such as time, energy, and financial constraints. Next, a convenient sampling technique was used to distribute survey questionnaires to undergraduate students who willing to answer the questionnaires. For example, the quota of this sample was 300 and these questionnaires were distributed to the students in the main campus of the university. Out of 300, only 150 usable questionnaires were returned to the researchers, yielding, 50 percent response rate. The survey questionnaires were answered by participants based on their consents and on voluntarily basis.

A statistical package for science social (SPSS) version 16.0 was used to analyse the questionnaire data. Firstly, exploratory factor analysis was used to assess the validity and reliability of measurement scales (Hair et al., 1998). Secondly, Pearson correlation analysis and descriptive statistics were conducted to analyse the constructs and test direct relationship between independent variable and dependent variable (Foster et al., 1998). Finally, Stepwise regression analysis was recommended by several scholars, such as Aiken, West and Reno (1991), Berenson and Levine (1992), Fox (1991), and Kleinbaum, Kupper and Muller (1988) as an appropriate statistical tool examine the mediating effect of distributive justice in the hypothesized model. By using this regression analysis, one may assess the direct relationship between variables as well as show the causal relationship and the nature of relationship between variables. It can accurately quantify the magnitude and direction of each independent variables, and vary the mediating variable relationship between many independent variables and one dependent variable (Aiken et al., 1991; Foster et al., 1998; Kleinbaum et al., 1988). According to Baron and Kenny (1986), the mediator variable can be clearly judged when a previously significant effect of predictor variables is reduced to non-significant or reduced in terms of effect size after the inclusion of mediator variables into the analysis.

## Findings

Table 1 shows that the majority respondent characteristics were females (56.7%), ages between 21 to 31 years old (60.7%), students who have humanities, social sciences, liberal arts stream (43.6%), third and fifth year students comprised of (44.0%), and students who come from East Malaysia (56%).

**Table 1:** Profile of Respondents (N = 150)

Respondent Characteristics	Sub-Profile	Percentage	Frequency
Gender	Male	43.3	65
	Female	56.7	85
Age	> 20 years	20.0	30
	21-30 years old	60.7	91
	31-40 years old	18.7	28
	> 41 years old	0.7	1
Faculty	Humanities, Social Sciences & Liberal Arts	43.6	84
	Pure Sciences, Engineering & Medicines	44	66
Year of Study	Year 1	24.0	36
	Year 2	32.0	48
	Year 3 to 5	44.0	66
Student's origin	West Malaysia	44.0	66
	East Malaysia	56.0	84

Table 2 show that the survey questionnaires have 26 items which which are related to five variables: reliability (6 items), responsiveness (5 items), assurance (3 items), empathy (3 items), perceive value (6 items), and customer satisfaction (3 items). The validity and reliability analyses were first conducted based on procedures established by Hair et al., (1998), and Nunally and Berstein (1994). A principal component factor analysis with oblique rotation using direct oblimin was used to determine the possible dimensions of the constructs. The results of factor analysis showed that all items for each variable had factor loading values 0.40 and above, indicating that the items met the acceptable standard of validity analysis. Further, The Kaiser-Mayer-Olkin Test (KMO) which is measure of sampling adequacy was conducted for each variable and the results indicated that it was acceptable. Table 2 shows the results of validity and reliability analyses where (1) all research variables exceeded the minimum standard of The Kaiser-Mayer-Olkin's value of 0.6, were significant in Barlett's test of sphericity, (2) all research variables had eigenvalues larger than 1, and (3) the items for each variable exceeded factor loadings of 0.40 (Hair et al., 1998), and (4) all variables exceeded the acceptable standard of reliability analysis of

0.70 (Nunally & Bernstein, 1994). These statistical results showed that the measurement scales used in this study met the acceptable standard of validity and reliability analyses as shown in Table 2.

**Table 2:** Results of Validity and Reliability Analyses

Measures	Item	Factor Loadings	KMO	Bartlett's Test of Sphericity	Eigenvalue	Variance Explained	Cronbach Alpha
Reliability	6	.52 - .72	.86	440.88	3.76	62.67	.88
Responsiveness	5	.40 - .85	.78	332.72	3.18	63.60	.85
Assurance	3	.61 - .84	.70	151.85	2.19	72.95	.80
Empathy	3	.68 - .80	.70	137.90	2.14	71.18	.80
Perceive Value	6	.63 - .77	.89	592.31	4.11	68.52	.91
Customer Satisfaction	3	.40 - .56	.70	270.36	2.42	80.53	.88

Table 3 shows that the means values for each variable are between 4.91 and 5.54 indicating the level of responsiveness, assurance, and empathy, perceive value and customer satisfaction ranging from high (4) to highest level (7). The Pearson correlation coefficients between the independent variable (i.e., reliability, assurance, and empathy) and mediating variable (i.e. perceive value) and between dependent variable (i.e., customer satisfaction) were less than 0.90, indicating the data are not affected by serious collinearity problem. These correlations also provide further evidence of validity and reliability for measurement scales used in this research (Hair et al., 1998).

Table 3 shows the results of testing direct effect hypotheses: first, reliability positively and significantly related to customer satisfaction ( $r=.63$ ,  $p<0.01$ ), therefore H1 was supported. Second, responsiveness positively and significantly related to customer satisfaction ( $r=.35$ ,  $p<0.01$ ), therefore H2 was supported. Third, assurance positively and significantly related to customer satisfaction ( $r=.26$ ,  $p<0.01$ ), therefore H3 was supported. Fourth, empathy positively and significantly related to customer satisfaction ( $r=.39$ ,  $p<0.01$ ), therefore H4 was supported. Finally, perceive value positively and significantly related to customer satisfaction ( $r=.74$ ,  $p<0.01$ ), therefore H4 was supported. These statistical results show that service quality characteristics are important predictors of customer satisfaction in the organizational sample.



**Table 3:** Correlation between Variables and Descriptive Statistics

Variable	Mean	Standard Deviation	Component						
			1	2	3	4	5	6	
1. Reliability	5.12	.83	1						
2. Responsiveness	4.91	.92	.60**	1					
3. Assurance	4.93	1.02	.55**	.69**	1				
4. Empathy	5.09	.83	.58**	.62**	.60**	1			
5. Perceive Value	5.32	.88	.73**	.63**	.55**	.58**	1		
6. Customer Satisfaction	5.54	1.04	.63**	.35**	.26**	.39**	.74**	1	

Note: Significant level at \*\*p<0.01 Reliability estimation are shown diagonally (value1)

The results of testing mediating model using a stepwise regression analysis are shown in Table 4. In this model testing, demographic variables were entered in Step 1 and then followed by entering independent variable in Step 2, and mediating variable in Step 3. An examination of multicollinearity in the coefficients table shows that the tolerance values for the relationship between the independent variable (i.e., reliability, responsibility, responsiveness, assurance and empathy) and dependent variable (i.e., customer satisfaction) were 0.94, 0.89, 0.96, and 0.95, respectively. While, the tolerance value for the relationship between the independent variable (i.e., reliability, responsibility, responsiveness, assurance and empathy), the mediating variable (i.e., perceive value) and the dependent variable (i.e., customer satisfaction) were 0.40. These tolerance values were more than tolerance value of .20 (as a rule of thumb), indicating the variables were not affected by multicollinearity problem (Fox, 1991; Tabachnick & Fidell, 2011).

**Table 4:** Results for Stepwise Regression Analysis

Variables	Independent Variable (Customer Satisfaction)		
	Model 1	Model 2	Model 3
<u>Controlling Variable</u>			
Sex	-.14	-.07	-.04
Age	.06	.06	.07
Faculty	.06	-.06	-.06
Years	-.12	-.15*	-.14*
Origin	.11	.04	.04
<u>Independent Variable</u>			
Reliability		.63***	.29***
Responsiveness		.10	-.06
Assurance		-.19*	-.23**
Empathy		.10	.00
<u>Mediating Variable</u>			
Perceive Value			.71***
R Square	.04	.44	.63
Adjusted R Square	.01	.40	.61
F	1.26	12.04***	24.48***
R Square Change	.04	.39	.20
F Change	1.26	24.48***	75.18***

Note: Correlation value significant at \*p<0.05, \*\*<0.01, \*\*\*p<0.001

The table shows the outcomes of testing hypotheses in Step 3: Step 1 showed that all demographic variables were found to be not significant predictors of customer satisfaction. The inclusion of these variables in this step had explained 4 percent of the variance in the dependent variable. Step 2 displayed four types of direct relationships: first relationship between perceive value and reliability significantly correlated with customer satisfaction ( $\beta=.63$ ,  $p<0.001$ ), therefore H1 was supported. Second, relationship between perceive value and responsiveness insignificantly correlated with customer satisfaction ( $\beta=.10$ ,  $p<0.05$ ), therefore H2 was not supported. Third, relationship between perceive value and assurance significantly correlated with customer satisfaction ( $\beta=-.19$ ,  $p<0.05$ ), therefore H3 was supported. Fourth, relationship between perceive value and empathy insignificantly correlated with customer satisfaction ( $\beta=.10$ ,  $p<0.05$ ), therefore H4 was not supported. The inclusion of these variables in this step had explained 44 percent of the variance in dependent variable. These results demonstrate that reliability and assurance are important determinants of customer satisfaction.

Step 3 revealed that the relationship between service quality characteristics and customer satisfaction was significant ( $\beta=.71$ ,  $p<0.001$ ) when perceive value included in the analysis, therefore H5, H6, H7 and H8 were supported. Specifically, the inclusion of perceive value in the analysis had provided four implications: first, the previous significant relationship between reliability and customer satisfaction (Step 2:  $\beta=.63$ ,  $p<0.001$ ) did not change to non significant (Step 3:  $\beta=.29$ ,  $p<0.001$ ), but the effect size of such relationships were decreased. Second, the previous insignificant relationship between responsiveness and customer satisfaction (Step 2:  $\beta=.10$ ,  $p<0.05$ ) did not change to significant (Step 3:  $\beta=-.06$ ,  $p<0.05$ ). Third, the previous significant relationship between assurance and customer satisfaction (Step 2:  $\beta=-.19$ ,  $p<0.05$ ) did not change to non significant (Step 3:  $\beta=-.23$ ,  $p<0.01$ ), but the effect size of such relationships were decreased. Fourth, the previous insignificant relationships between empathy and customer satisfaction (Step 2:  $\beta=.10$ ,  $p<0.05$ ) did not change to significant (Step 3:  $\beta=.00$ ,  $p<0.05$ ). In terms

of explanatory power, the inclusion of perceive value in Step 3 had explained 63 percent of the variance in dependent variable. Statistically, these results demonstrate that after the inclusion of perceive value in the analysis, the strength of the relationship between service quality characteristics and customer satisfaction has increased, signaling that perceive value does act as a partial mediating variable in the relationship between service quality characteristics and customer satisfaction in the studied organization.

## **Discussion and Implications**

The finding for this research shows that perceive value does act as partial mediating variable in the overall relationship between service quality characteristics and customer satisfaction. In the context of EASTMALAYSIAUNI, the service provider (undergraduate studies division) has taken a proactive action to plan, maintain, and monitor its service to undergraduate students based on 5s quality program. Majority undergraduate students perceive that implementation of such quality practices have increased the quality of delivering services (i.e., reliability, responsiveness, assurance and empathy) in terms of registration of enrolment, examination and academic records. Most undergraduate students perceive high value about the implementation of service features. When such perceptions of value are high this may lead to an increased customer satisfaction. This study provides significant impacts on three major aspects: theoretical, contribution, robustness of research methodology, and practical contribution. In terms of theoretical contribution, this study reveals that perceive value has mediated the effect of service quality characteristics (reliability, responsiveness, assurance and empathy) on customer satisfaction . This finding is consistent with studies by Parasuraman et al., (1985), and Eggert and Ulaga (2000). The findings of this study show that majority of undergraduate students perceive that the ability of service provider to properly use reliability, responsiveness, assurance and empathy in providing services in terms of registration of enrolment, examination, and academic records will increase undergraduate student's perceptions of value about the services. Consequently, it may lead to an increased academic staff's satisfaction in the organization. This finding has supported and broadened service quality research literature mostly published in Western countries.

Regarding the robustness of research methodology, the data gathered using service quality literature, the in-depth interviews, pilot study, and survey questionnaires have exceeded a minimum standard of validity and reliability analyses, this can lead to the production of accurate and reliable findings.

With respect to practical contribution, the findings of this study can be used as a guideline by management to improve the design and administration of service quality program in organization. Specifically, the design and management of service quality may be improved if managers emphasize on the suggestions: firstly, counter staff need to be continuously trained with proper service quality management. Through this training program, the staff may increase their understanding about the concept and importance of practicing new knowledge, skills, and good moral values in enhancing job quality.

Secondly, staff that committed in implementing quality service and gained recognitions from customers should be given better rewards. For example, most staff who involve in delivery

of services to customers are from low level positions. By providing monetary incentives for for the staff who involve in working overtime will invoke their satisfaction, this may lead to increased motivation to perform job better. Thirdly, recruitment policy needs to be changed from hiring fresh graduates to knowledgeable and experienced employees. Staffs who involve in providing services are usually dealing with most young students. If an organization hires experienced staff this will decreased mistake and increase efficiency in providing academic information, such as academic transcripts and student development records. As a result, it may lead to an improved customer service. Considering such suggestions will help an organization to improve the design and management of undergraduate student's records, which in turn, lead to higher customer satisfaction.

## Conclusion

In conclusion, the findings of this study confirm that perceive value does act as a partial mediating role in the relationship between service quality characteristics and customer satisfaction. These results have supported and boardened service quality research literature published in most Western countries. Therefore, current research and practice within service quality models needs to consider individual's perceive value as a vital aspect of the service quality. The findings of this study further suggest that perceive value should be seen as a crucial aspect of service quality where perceive value about service quality may strongly induce positive subsequent individual attitudes and behaviours (e.g., satisfaction, retention and thus loyalty). Thus, it may lead to maintain and support organizational strategy and goals.

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