Full paper

An Analysis of The Impact of Service Quality on Customer Satisfaction in Malaysian Research Universities

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Abstract

The purpose of this paper is to present a regression model for predicting international postgraduate students satisfaction based on service quality. Ironically, most studies on student satisfaction tend to concentrate on the undergraduate students and/or the education providers. The university management would benefit by knowing which factors have impact on international students' satisfaction. A multiple regression analysis was used upon a database 522 international postgraduate students who were selected based on stratified sampling from five research universities. The analysis started with descriptive analysis followed by regression analysis. Five factors in the form of professionalism, reliability, hospitality, tangibles, and commitment were examined as predictors for the students' satisfaction. After conducting regression analysis, only professionalism and reliability, were found to be valid as independent variables for predicting satisfaction. As the international postgraduate segment is more lucrative, this research is timely and presents significantly different results from those found in the current literature.

Keywords: Postgraduates; higher education; student satisfaction

Tujuan kajian ini adalah untuk membentang model regresiuntul membuat telahan terhadap kepuasan pelajar pasca ijazah terhadap kualiti perkhidmatan. Kebanyakan kajian ke atas kepuasan pelajart adalah tertumpu kepada pelajar bachelor dan/atau pstaf institusi pengajian. Pihak penguruan universiti akan memperolehi manfaat dengan mengetahui factor manakah yang mempunyai impak ke atas kepuasan pelajar antarabangsa. Analisis regresi berganda telah diguankan kea atas data yang terdiri daripada 522 pelajar pasca ijazah antarabangsa yang dipilih secara persampelan strata dari lima buah university penyelidikan. Analisis dimulakan dengan mengunakan statistic deskriptif dan diikuti dengan analisis regresi. Lima factor dalam bentuk profesionalisma, reliability, hospitality, tangible dan komitmen diuji sebagai peramal untuk kepuasa pelajar. Setelah selesai analisis regresi, hanya profesionalisma dan reliability didapati sah sebagai pemboleh ubah tidak bersandar. Untuk meramal kepuasan. Oleh kerana segmen pelajar antrabangsa menjanji pulangan yang lebih lumayan, kajian ini adalah tepat pada masanya menghasilkan keputusan yang berbeza daripada apa yang terdapat dalam literatur semasa.

Kata kunci: Pasca ijazah; pengajian tinggi; kepuasan

■1.0 INTRODUCTION

Customer satisfaction has become a requirement for all successful firms and organizations to remain competitive (Dawkins & Reichheld, 1990). Many researchers have emphasized the importance of capturing customer satisfaction initiatives which have resulted in improving firm performance, and behavioral intentions like customer retention (Molinari, Abratt & Dion, 2008; Powers & Valentine, 2008). Given that higher education is a service industry where students see themselves as consumers; it has become an increasingly competitive market (Angell, Heffernan & Megicks, 2008). In addition it is becoming increasingly difficult for universities, as the core of higher educational institutions, to enhance their students' satisfaction as there is much emphasis on the importance of managing student satisfaction in educational institutions (Franklin & Shemwell 1995, Douglas, McCelelland & Davis 2007).

The main aim should be to maximize students' satisfaction with their experience even as they are at the university in order to preserve students whilst managing the resources available (Powers & Valentine 2008; Stalnaker, 1994). Subsequently should improve their performance by providing student-centric which will eventually aid recruitment (Douglas, Douglas & Barnes, 2006). In this line, the development of a statistical model and its application within the higher education sector highlights the critical drivers of satisfaction with regards to the international

student experience which is the focus of this study. Deployment of a successfully validated model could improve the quality of both teaching and learning and various supplementary services by providing a framework that would allow a focus on limited resources and improvement efforts towards those areas that will increase student satisfaction.

■2.0 LITERATURE REVIEW

A recent study by International Development Programs (IDP) Australia forecasts that the global demand for international higher education (i.e. international mobility of students) will increase from a base of 2.173 million in 2005 to 3.720 million by 2025 (International Development Programs, 2007). The reasons for student migration can be categorized twofold: push and pull factors. Former factors are related with area of origin, while lastly are factors related with area of destination (Lee, 1996). Push factors include poor quality of education, religious factors, peer pressure. On the other hand, pull factors include high quality of training, economic prospects after education, professional satisfaction, desire to settle abroad and high standard of living (Shekarchizadeh, Rasli & Hon-Tat, 2011, Ali Syed *et al.*, 2008)

An interesting paradigm on student satisfaction considers the student as a consumer (Chadwick & Ward, 1987; Christensen & Philbrick, 1993; Franklin & Shemwell, 1995). From the perspective of this school of thought, higher education can be considered as a business. This attitude focuses to make the case for examining the student as a consumer and the ways that institutions can assess their service in an era where quality, measurement and accountability are perceived as very important (Brown, 1979; Glenn, 1997; Rawls, 1998). From this perspective, students should receive positive service to satisfy their college experiences as valued consumers. Otherwise, they can easily transfer to another college which can provide better service and provide higher level of satisfaction (Casto, 1995; Edwards, 1993; Stalnaker, 1994).

On the other hand, behavioral consequences of satisfaction are crucial. From the education perspective, enrolling is often mentioned as a consequence of satisfaction (Chadwick & Ward, 1987; Cooper & Bradshaw, 1984; Liu & Jung, 1980; Wince & Borden, 1995). Prospective students may apply to an institution because of good word of mouth from existing students who are satisfied. The more students testify to satisfaction with higher education institutions, the more likely they are to continue. Satisfied students are more likely to return for more education and more inclined to recommend the institution to others. In marketing literature, student satisfaction is accompanied by another important notion, i.e. service quality. This relation has been discussed in next section. In marketing literature, student satisfaction is preceded to service quality (Ott, 2005, Ham, 2003).

Customer satisfaction and service quality are usually inherent in higher education marketing literature. One of the prevalent paradigms for measuring service quality is SERVQUAL model proposed by Parasuraman, Zeithaml and Berry (1988). Since then, the SERVQUAL instrument has been the predominant method used to measure consumers' perceptions of service quality as compared to other instruments such as SERVPERF (Cronin & Taylor, 1992) and HEdPERF (Abdullah, 2005). According to Ham (2003), SERVQUAL has five generic dimensions or factors: tangibles, reliability, responsiveness, assurance and empathy. The difference between expected and perceived services is defined as a gap. Expectations are viewed as "normative expectations", which means desires or wants of customers, i.e. what they feel a service provider should offer rather than would offer (Buttle, 1996). As such, Parasuraman *et al.* (1985) developed a service

quality model which seeks to address the following five types of gaps:

Gap 1: The differences between what the students expected and what management perceived about the expectations of the students.
Gap 2: The differences between managements' perceptions of student expectations and the translation of these perceptions into service quality specifications and designs.
Gap 3: The differences between specifications or standards of service quality and the actual service delivered to students.
Gap 4: The differences between the services delivered to students and the promise of the institution to students about its service quality.
Gap 5: The differences between students' expectations and perceptions of services.

In the context of higher education, there are two approaches used for measuring the quality of education: mechanistic and humanistic (Li, 2005). Research assessment exercise and quality assurance assessment are examples of tools of the mechanistic approach performed by experts and agencies. On the other hand, the humanistic approach focuses on students' perspectives. Studies indicate that most researchers in this approach use the SERVQUAL instrument (Sunanto, 2007). As such this research utilizes the humanistic approach for measuring service quality.

2.1 Satisfaction and Quality

Satisfaction and quality are usually used by non-academic staff interchangeably; nevertheless they have distinct definitions in marketing literature (Douglas, McClelland & Davis, 2007; Houston, 2007). It is basically accepted that the two concepts are fundamentally different in terms of their underlying causes and outcomes. Satisfaction can be considered an extensive concept while service quality measurement focuses specifically on dimensions of services (Harris, 2002). In addition, Bolton & Drew (1991) uncovered both perceptions and disconfirmation to have a direct effect on overall service quality. After differentiates these two concepts, researchers encountered another question: what is the order of their occurrence in the customer's mind?

First, most researchers had proposed that customer satisfaction with a given service experience would lead to an overall evaluation/attitude about service quality eventually (Bitner, 1990; Bitner, Booms and Mohr, 1990; Brady, Cronin & Brand, 2002; Hernon, Nitecki & Altman, 1999; Oliver, 1981; Parasuraman, Zeithaml & Berry, 1988). In addition, Dabholkar (1995) maintained that the relationship is situation specific and depends on the context of the service encounter. He suggested in customers' mind, who think cognitively about the encounter, service quality precedes satisfaction. If the customer approaches the encounter emotionally, satisfaction is the antecedent of service quality. Several researchers such as Anderson and Sullivan (1993), Oliver (1993), and Spreng and Mackoy (1996) have found empirical support for this model. With consideration to the above, the following framework is adopted for this research, i.e. satisfaction is a consequence of service quality.

In addition, Dabholkar, Shepherd and Thorpe (2000) mentions the importance of measuring customer satisfaction separately from service quality when the aim is to determine customer evaluations of service. In their article they concluded that customer satisfaction is a much better forecaster of behavioral intentions. They found constructs of service quality and satisfaction as distinct, even if highly correlated (Dabholkar, Shepherd & Thorpe, 2000). In their article, Ruyter, Bloemer, & Peeters (1997) described a number of differences between service

satisfaction and service quality: (1) Satisfaction is directly influenced by the intervening variable of disconfirmation, while service quality could be measured as the mathematical difference between expectations and perceptions of performance; (2) In order to achieve satisfaction customers must have experienced a service, while perceived service quality is not necessarily experience-based; (3) Satisfaction expectations are predictive, service quality expectations are based on an ideal standard; (4) Satisfaction can result from a large variety of dimensions, service quality dimensions are specific; and (5) Satisfaction is influenced by cognitive and affective processes, service quality is influenced solely by forms of communication.

■3.0 METHODOLOGY

Parasuraman, Zeithaml and Berry (1985, 1988) argued that in order to measure service quality, customers' expectations compared to perceived service quality levels should be evaluated. To gain a better understanding of service quality in an educational context, this study seeks to examine the international students' expectations and perceptions of educational services rendered by five Malaysian research universities. Using stratified sampling based on gender and level of study, a total of 522 international postgraduate students were selected to participate in this study.

A modified SERVQUAL questionnaire comprising of 35 items was used as the survey instrument to collect data. The items were found to be consistent with findings from studies by Boulding *et al.* (1993), Ham (2003), Hampton (1993), and Harris (2002). Subsequently, a panel of four professors in the faculties of education and management in Universiti Teknologi Malaysia conducted content validity on the instrument. The panel recommended several amendments which were incorporated into the questionnaire. The instrument was administered to 30 postgraduate international students enrolled in Universiti Teknologi Malaysia to test for face validity.

The finalized instrument consists of an introduction and three sections. The first section includes cover letter which provides information on the research. The second section consists of 35 items with two separate sub-sections to assess the respondents' expectations and perceptions (refer Table 1). Each of the items in the first section is anchored on a five-point Likert scale to measure the respondent's agreement to the item posed. The third section contains demographic questions.

According to Buttle (1996), SERVQUAL gap can be determined based on three methods: (a) item-by-item analysis (e.g., P1 – E1, P2 – E2, ...P35– E35); (b) construct-by-construct analysis (e.g., (P1 + P2 + P3+ P4)/4 – (E1 + E2 + E3 + E4)/4), where P1 to P4, and E1 to E4 represent the four perception and expectation statements relating to a particular construct); and (c) computation of an overall single measure of service quality [(P1 + P2 + P3 …+ P35)/35] – (E1 + E2 + E3 + … + E35)/35]). For purpose of this study, the second method was used to determine the gaps. The means of perceptions and expectations were calculated for the 5 constructs representing service quality. As such, the main hypothesis for this research is as follows: satisfaction can be predicted by the five SERVQUAL constructs, i.e. professionalism, reliability, hospitality, tangibles, and commitment.

To address the aforementioned hypothesis, regression analysis were used. Stepwise regression analyses were administered using the mean of satisfaction items as the dependent variable and the means of the five perception-expectation factors resulted from factor analyses as the predictors. There are four assumptions for using regression: Linearity,

independence, normality and equality of variances. In cross-sectional data, as this study, the assumption of independence is not relevant since the observations are not made in any meaningful sequence (Carver & Nash, 2009). Testing of normality and equality of variances were conducted in the earlier study by Shekarchizadeh, Rasli and Huam (2011) and were proven to be significant. One important problem in the application of multiple regression analysis involves the possible collinearity of the independent variables. According to Snee (1973), if the maximum Variance Inflation Factor (VIF) exceeds 5, alternatives to least-squares regression are recommended.

Table 1 Items of the questionnaire and factors emerged

No.	Statement	Factors Emerged
1	Members of faculty are well dressed	Professionalism
2	Faculty provided services at time promised	
3	Faculty performed service right first time	
4	Faculty maintained error free records	
5	Faculty told exactly when services were done	
6	Faculty gave prompt services to you	
7	Faculty readily helped	
8	Faculty responded to requests promptly	
9	Faculty behavior instilled confidence in you	
10	Faculty consistently were polite with you	
11	Faculty had knowledge to answer your questions	
12	Faculty gave you intellectual attention	
13	Faculty had your best interests at heart	
14	Faculty understood your specific needs	
15	Promised to do something and did so	Reliability
16	Staff provided services at time promised	
17	Staff performed service right first time	
18	Staff maintained error free records	
19	Staff told exactly when services were done	
20	Staff gave prompt service to you	
21	Staff willing to help	Hospitality
22	Staff respond to request all the time	
23	Staff behavior instilled confidence in you	
24	Staff consistently courteous to you	
25	Staff had knowledge to answer your questions	
26	Staff gave you individual attention	
27	Staff had your best interest in heart	
28	Staff understood your specific needs	
29	Uses modern equipment and technology	Tangibles
30	Physical facilities visually appearing	
31	Materials visually appealing	
32	Showed honest interest solving your problem	Commitment
33	Felt save in learning environment	
34	Operating hours were convenient for you	
35	Support staff are well dressed	

■4.0 FINDINGS

4.1 Factor Analyses

To verify the dimensionality of the education service quality construct in the SERVQUAL, a factor analysis, using the principal components extraction technique, was performed on students' gap scores, calculated by perception-minus-expectation mean scores. Because we used only one source (the student), who provided his or her assessment of the dependent and independent

variables, we acknowledge the possibility of common method bias. We applied counter mechanisms suggested by Podsakoff (2003) by ensuring respondent anonymity in order to reduce evaluate apprehension as well as counterbalancing question order in the instrument. The analysis made use of the Varimax factor rotation procedure in line with the approach used by Parasuraman, Zeithaml and Berry (1988) in their initial SERVQUAL study.

Based on Table 1 which is an extract from a prior study by Shekarchizadeh, Rasli, Hon-Tat (2011) the results of the factor analysis in terms of construct names, rotated factor loading matrices, the variance explained by each factor, and the results of reliability test were defined as:

(1) Professionalism (items 1-14);
(2) Reliability (items 15-20);
(3) Hospitality (21-28);
(4) Tangibles (items 29-31); and
(5) Commitment (items 32-35).

From the context of this study, tangibles within the higher education context is related to the quality of university facilities i.e. classrooms, computer labs, and the campus library. This is in line with suggested definition of tangibles in a higher education context by Franklin and Shemwell (1995). Reliability is the consistency of performance and dependability. Professionalism relates to the possession of the required skills and knowledge to perform the service. Commitment is the apparent commitment of employees to their work. Hospitality is warmth and personal approachability, cheerful attitude. These findings confirm with findings by Douglas, McCelland and Davis (2007). All the factors and their related items have been exhibited in the Table 2.

Table 2 Means of IVs and DV Std. Deviations, and the Inter-Correlations

DV/IVs	Mean	Std. Deviation	P-value	Inter-correlations with DV
Satisfaction	3.034	0.929	0.000	-
Professionalism	-0.394	0.887	0.000	0.441
Reliability	-0.479	1.011	0.000	0.408
Hospitality	-0.509	0.910	0.000	0.377
Tangibles	-0.305	1.090	0.000	0.280
Commitment	-0.361	0.960	0.000	0.352

Table 2 shows the means of all IVs and DV, the standard deviations, and the inter-correlations among the variables. Inter-correlations among variables were performed at the 0.01 significance level (two tailed). Professionalism and reliability show the biggest correlation coefficient of 0.441 and 0.488 respectively.

Table 3 Regression model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.442(a)	0.195	0.193	0.8370013
2	0.463(b)	0.214	0.211	0.8276866

As Table 3 depicts, there are two models generated by the stepwise regression. Based on Table 2, the adjusted R^2 values based on the number of independent variables is 0.193 and 0.211 for model 1 and model 2 respectively. Based on Table 3, model 2 is the better than model 1 due to the superior r^2 value.

Table 4 ANOVA result from regression analysis

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	80.097	1	80.097	114.332	.000(a)
	Residual	330.670	472	.701		
	Total	410.767	473			
2	Regression	88.101	2	44.051	64.301	.000(b)
	Residual	322.666	471	.685		
	Total	410.767	473			

a Predictors: (Constant), Centralized Professionalism
b Predictors: (Constant), Centralized Professionalism, Centralized Reliability
c Dependent Variable: Mean of Satisfaction

Table 4 contains the results of the analysis of variance. As Table 4 presents, the significance levels for both models are 0.000. Applying the $p < 0.05$ criterion to test the significance of the test statistics, leads to rejection of the null hypothesis. In other words, at least one regression coefficient differs significantly from zero.

As the lower part of Table 5 depicts, only two of the independent variables contributed significantly to prediction of satisfaction level of post graduate students. The p-values are all 0.000, thus implying the regression equation has coefficients which are not equal to 0. Taking into consideration results of Table 5, the regression equation representing model 2 is as follows: Satisfaction = 3.047 + 0.289 Professionalism + 0.207 Reliability. Finally, as shown in Table 5, all the variance inflationary factor (VIF) values are 1.000 and 2.199, and are less than 5.0, implying the absence of multicollinearity among the two constructs, i.e. professionalism and reliability.

■5.0 CONCLUSION

The findings of this study, suggest that only two constructs, i.e. professionalism and reliability, out of the five dimensions of service quality have impact on students satisfaction. Of all emerged service quality dimensions, students found the professionalism as having the greatest impact on their overall satisfaction. As Table 1 depicts, all of the items contributing to professional construct, are related to faculty members. In the other words, quality of services offered by academic contributes importantly to perceived service quality by students. This situation maybe is a reflection of the option that academic services constitute the core service in a higher education context.

Interestingly, the finding of this study is comparable with finding by Yang (2008), who reported commitment and professionalism are significant predictors of overall satisfaction. In comparison, there are two common items in professionalism dimension that was reported by Yang (2008) in a study on higher education within the Eastern culture i.e. members of my faculty are well dressed (item 22) and my faculty has the knowledge to answer students' questions (item 32).

It is noteworthy from a managerial perspective, in the current study that the strongest predictor of overall satisfaction, the professional dimension, also tended to show a significant negative gap scores regarding students perceptions. In the other words, the students' ratings of perceptions of performance were considerably lower than their expectations. This reveals the problem managers may have with performance-only evaluations (Yang, 2008). In line with this thinking, managers should use other evaluations, like periodical surveys for improving students satisfaction.

Table 5 Coefficients of regression analysis and collinearity analyses

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	3.047	0.038		79.257	.000	1.000	1.000
Centralized professionalism	0.460	0.043	.442	10.693	.000	1.000	1.000
2 (Constant)	3.047	0.038		80.137	.000	1.000	1.000
Centralized professionalism	0.301	0.063	.289	4.769	.000	.455	2.199
Centralized reliability	0.190	0.056	.207	3.418	.001	.455	2.199

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