

A Statistical Analysis of Education Service Quality Dimensions on Business School Students' Satisfaction

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Abstract

This study aims to investigate student satisfaction on quality education services provided by institutions of higher learning in Malaysia. Their level of satisfaction based primarily on the data collected through five dimensions of education service quality. A random sample of 250 students studying in an institution of higher learning was selected for this study. Statistical analysis had been employed to analyze the intensity of these five dimensions and their influence on student satisfaction. The results indicated that instructors, academic courses, learning resources and student's engagement had positive and statistical significant influenced on student satisfaction. This study provides very useful information for the stakeholder to plan and draw appropriate strategies for the dimensions that need further improvement. More importantly, education service quality will determine the sustainability of an institution by looking at the competitiveness of education setting at national and international levels.

Keywords: education service quality, dimensions, student satisfaction, higher learning institution

1. Introduction

Malaysia consists of 60 public and private universities and university colleges (Ministry of Higher Education, 2011). These universities and university colleges offer a wide range of courses to local and international students. Therefore, it is important that institutes of higher learning deliver high quality service and ensure students are satisfied with the service provided. Ministry of Higher Education (2007) has launched a National Higher Education Strategic Plan 2020. This plan intends to transform local higher education in sync with the global landscape (Chapman, Chew & Tan, 2007). Two of the seven thrusts states in the plan are widening access and enhancing quality and improving the quality of teaching and learning. These include greater flexibilities, blended-learning, widening delivery methods and providing better learning environment.

Higher education also can be viewed from a marketing perspective. Institutes of higher learning always create services that respond to the needs of the markets. They act as the service provider has direct interactions with students and students as the main service receiver may provide good feedback on their service. Customer satisfaction is considered as one of the important conditions in service marketing. Customer plays a vital role in the success of businesses. Therefore, analyzing customers' needs is an important duty that increases the success of businesses (Parasuraman, Zeithaml & Berry, 1988). Students are treated as the primary consumers and service quality is measured through various dimensions. Service performance is determined by the service quality and customer satisfaction (J. Douglas, A. Douglas & Barnes, 2006 & Hill, 1995). There are two different ways to measure service quality. First, by comparing student perceptions with their expectations of an institution. Then, by collecting student feedback of their academic life.

It is important that higher learning institution deliver high service quality in this competitive world. Therefore, the purpose of this research is to determine student satisfaction on the dimensions of instructor, learning resources, academic courses, assessment and students' engagement. This study provides important directions for administrators and educators in higher learning institution; it also assists educators to understand their student's needs. Thus, institutes of higher learning able to identify areas that need further improvement.

1.1 Objectives of the Study

The objectives of this study are to evaluate dimensions of education service quality that affects student satisfaction.

- i. To determine the correlation between satisfaction and the five dimensions namely instructor, learning resources, academic courses, assessments and student engagement.
- ii. To investigate the effect of the five education service quality on student satisfaction.

1.2 Research Questions

Based on the research objectives, this study aims to answer the following questions:

- i. Is there any correlation between instructor, learning resources, academic courses, assessments, student's engagement and student satisfaction?
- ii. Is there a significant effect between the various dimensions on student satisfaction?

2. Literature Review

2.1 Student Satisfaction

Satisfaction can be defined differently in the services and consumer marketing literature. Oliver (1997) defines satisfaction as pleasurable fulfillment, which means consumers perceive that consumption fulfills some of their need, desire and goal. Satisfaction can be described as consumer sense of outcomes. The satisfaction concept has been extended to the context of higher education. Elliott and Shin (2002) state that student satisfaction being shaped continually by various outcomes and their experiences in campus. Likewise, Richardson (2005) uses various dimensions to measure quality learning environment and student satisfaction. These include student evaluation of teaching, course modules, perceptions of academic quality and student satisfaction. Cronin and Taylor (1992) posits between satisfaction and quality. They study realized that institutions needed to know whether their students satisfied with campus learning environment. They should also aim for higher service quality as a way of increasing student satisfaction.

2.2 Service Quality

Owlia and Aspinwall (1996) highlight the role of students in higher education. According to them, service quality consists of tangibles, competence, attitude, content, delivery and reliability. Study conducted by Gruber, Fuß, Voss and Gläser-Zikuda (2010) at German's universities showed that student satisfaction was related to person-environment relationship at their universities. Duque and Weeks (2010) indicate that support resources, educational quality and learning outcomes positively influence student satisfaction. Student involvement has a significant effect on the learning outcomes which contributed to student's perception on service quality and satisfaction. Therefore, it is important to evaluate student learning outcomes that reflect student satisfaction (Duque & Weeks, 2010). Positive feedback on student learning environment is associated with better learning outcomes and higher level of satisfaction.

2.3 Instructor

Banwet and Datta (2003) believe that satisfied-customers are loyal. Similarly, satisfied-students are more likely to attend another lecture delivered by the same lecturer. Their study showed that students placed more importance on the learning outcomes such as knowledge, skills, class notes and reading material, depth of lecture and teacher feedback on their work. The quality services offered by universities include lecturer knowledge, class materials, feedback on student assignments and student-lecturer interaction (Hill, Lomas & MacGregor, 2003). Navarro, Iglesias and Torres (2006) feels that good teaching is one of top factors that influence student's choice of university. Nadiri (2011) identifies academic advice and effective instructions affect student satisfaction. Academic support was the most important predictor of student satisfaction compare to facilities, welfare, academic, assessment feedback, placement and communication (O'Driscoll, 2012).

2.4 Learning Resources

A survey conducted by Sohail and Shaikh (2004) showed that physical environment, layout, lighting, classrooms, appearance of buildings and the overall cleanliness were significantly contributed to students' concepts of quality service. Modern educational facilities such as library, textbooks, learning and living environments are reliable equipment to support and sustain teaching and learning quality (Mavondo, Zaman & Abubakar, 2000). Likewise, Gardner (1985) believes that physical arrangement of facilities significant creates moods and shape behavior of students. Machinery, equipment and furniture, sufficient library materials, computers, workshop, laboratories, information systems and other learning resources play a key role in the process of learning. Disney

and Adlan (2000) believe that effective teaching and learning aids can influence student satisfaction. This will determine student choice of university. Price, Matzdorf, Smith and Agahi (2003) survey a number of universities over two years to determine student reasons for selecting a particular university. The results showed that availability of computers, library facilities, quiet study areas and area for self-study are some of the main reasons students choose a particular university. Limited access to reliable equipment prevents students from learning effectively (Belanger & Jordan, 2000). A good university needs to provide students with comfortable and safe residence. Heyneman (2001) states that new teaching technologies and new electronic information sources like databases, up-to-date textbooks, periodicals, journals, advanced multimedia resources, high-speed internet, liquid crystal display projectors (LCD), overhead projectors (OHP) and computer labs will facilitate student learning and assist researchers in their research.

2.5 Academic Course

A course is defined as the basic component of an academic program and sometimes it is referred as a subject of study. Numerical studies have been done on academic courses (Corts, Lounsbury, Saudargas and Tatum, 2000; Elliott, 2003; Gordon, 2005; Dahlgren, Hult, Dahlgren, Segerstad & Johansson, 2006; Parayitam, Desail & Phelps, 2007). Their studies have identified variety of courses, practical course contents, market and career oriented, interdisciplinary and social-cultural context significantly impact on students' learning. Hence, high quality courses are considered an important aspect that affects student satisfaction. Marshall (1987) believes that high-quality courses enhance student learning. Courses should be meaningful, valuable, and beneficial to learner career prospect. This finding is supported by Chen, P. Sok and K. Sok (2007) research. Quality higher education consists of academic curriculum and extra-curricular activities, teacher qualification and methods, funding and tuition, school facilities and interactive network. Curriculum is considered to be the heart of quality education.

2.6 Assessment

Assessment is an evaluation on student's learning progress (Palomba & Banta, 1999). The cognitive learning outcomes can be measured in terms of academic achievements. Standardized examinations are designed to determine whether a student has learned a specific knowledge. Students are expected to perform better if they have a positive attitude and satisfied with their learning environment. Courses and programs developed need to be balance between student expectations and learning outcomes (Roger & Smith, 2011). Assessment can be used to determine student learning outcomes. Therefore, student assessments need to compliance with real world situation. Seymour (1992) and Millis et al. (2003) suggest that students should be given opportunities to explore to the real world in order to build their self-confidence. Parayitam et al. (2007), Kane (2004) and Sampson, Leonard, Ballenger and Coleman (2010) believe that fair assessment positively contribute to student satisfaction.

2.7 Students' Engagement

Students learn better if they are actively involved in the learning process (Bryant, 2006). Gruber et al. (2010) state that student personal factor influence their level of satisfaction. Those who pass successfully in their exams perceive university more positively than those who fail. Bradley, Noonan, Nugent and Scales (2008) and Kuh (2003) point out that staff who demonstrates genuine interest in their students' needs and progress will increase student satisfaction. Student involvement is associated with student satisfaction. Students who put more effort and energy into their academic experience will obtain better learning and personal development (Duque & Weeks, 2010). These students devote more of their time on campus, participate in student organizations and interact with faculty members and other students. These students are more likely to perceive higher level of satisfaction than others.

3. Methodology

3.1 Research Hypothesis

From the literature review, relationships exist between instructor, learning resources, academic courses, assessments and student engagement on student satisfaction. Following the reasons stated in the previous empirical studies; this study is expecting that the five dimensions of education service quality affect student satisfaction of institutes of higher learning. Thus, these assumptions lead to the following alternative-hypotheses:

H_1 : Instructor has significant effect on student satisfaction

H_2 : Learning resources has significant effect on student satisfaction

H_3 : Academic courses has significant effect on student satisfaction

H_4 : Assessment has significant effect on student satisfaction

H_5 : Student engagement has significant effect on student satisfaction

3.2 Sample

The students were selected by using a convenience sampling method. The sample population for the research was the business school students from one of the private university in Malaysia. Two hundred and fifty questionnaires were distributed to these students who were enrolled for different business programs. The sample was an opportunity sample and participated in the research was voluntarily.

3.3 Instrument

The purpose of this study is to identify the dimensions that influence student satisfaction. Therefore, quantity approach was used to measure the effect of the 5 dimensions on student satisfaction. The questionnaires consisted of two parts: demographic information and education quality service. The questionnaires were measured using 5-point Likert scale that ranged from Strongly disagreed (1) to Strongly agreed (5).

Data were collected by means of a questionnaire which consisted of 6 sections:

- i. Instructors
- ii. Learning resources
- iii. Academic courses
- iv. Assessment
- v. Student engagement
- vi. Student satisfaction

Table 1. Sources of education service dimensions

Dimensions	Number of items	Sources
Instructor	8	Law and Meyer (2011)
Learning resources	8	Griffin et al. (2003)
Academic courses	9	• Law and Meyer (2011) • Wilson, Lizzio and Ramsden (1997) • Ramsden (1991a,b)
Assessment	5	Law and Meyer (2011)
Student engagement	5	Duque and Weeks (2010)
Student satisfaction	5	Gruber et al. (2010)

Table 1 lists the sources of 40 items which were adopted and adapted from various studies. 24 items were adapted from research done by Law and Meyer (2011), Griffin, Coates, McInnis and James (2003) and Wilson, Lizzio and Ramsden (1997). These items measure the dimensions of instructor, learning resources, academic courses and assessment. Ramsden (1991a, b) develops these questionnaires in order to collect students' feedback on the performance of teaching in higher education and has been widely used by many researchers. Moreover, Wilson et al. (1997) conducted a confirmative study on the relevant features of questionnaires as well as reviewed their validity. 5 items each in the dimensions of student engagement and student satisfaction were adopted from the studies of Duque and Weeks (2010) and Gruber et al. (2010) respectively. Some minor changes were made to suit the local context. For instance, the words 'academic staff', 'staff', 'lecturer' and 'tutor' were consolidated into 'instructor' in this study. Five reversed-scale items were rephrased to avoid the confusion of students.

3.4 Validity and Reliability

Table 2 indicated high internal consistency based on alpha reliability of all items. According to De Vellis (2003), the data has been analyzed in terms of internal consistency and correlation. The high values of Cronbach's α indicated high reliability and internal consistency of all the items being investigated. Table 2 reports the results of reliability analysis for the dimensions of instructor, learning resources, academic courses, assessments, student engagement and student satisfaction. The reliability test was performed on all the items that are presumed to measure the student satisfaction. The Cronbach's α for all the dimensions exceeded the threshold value of 0.70

as recommended by Nunnally (1978). The instrument was, therefore, found to be consistent and reliable to measure the variables of the study.

Table 2. Results of reliability statistics

Dimensions	Items	Cronbach's Alpha Value
Instructor	8	.859
Resources	8	.852
Courses	9	.889
Assessment	5	.744
Engagement	5	.844
Satisfaction	5	.925

4. Results and Analysis

4.1 Descriptive Statistics

Table 3 reported the results of descriptive statistics. The mean values for all the dimensions varied from the lowest 3.549 to the highest 3.899. The skewness and kurtosis values were within acceptable range. The mean values indicated general agreement of respondents with the dimensions of the study.

Table 3. Descriptive statistics

Dimensions	Mean	Std. Deviation	Skewness	Kurtosis
Instructor	3.687	.616	-.488	.496
Resources	3.729	.602	-.305	.516
Courses	3.688	.619	-.867	1.75
Assessment	3.619	.645	-.794	1.14
Engagement	3.899	.634	-.400	.613
Satisfaction	3.549	.830	-.502	.071

4.2 Correlation Analysis

Correlation analysis was implemented to determine the intercorrelation among dimensions. The results indicated in Table 4 that all dimensions had positive correlation greater than 0.5 that was statistically significant at $p < 0.05$ except for the dimension of assessment. The coefficient for the assessment was 0.276.

Table 4. Correlation matrix

Variables	Satisfaction
Instructor	.545**
Resources	.586**
Courses	.582**
Assessment	.276
Engagement	.474**

** . Correlation is significant at the 0.01 level (2-tailed).

4.3 Regression Analysis

A multiple regression analysis was used to examine whether independent variables statistically significance to dependent variable. Student satisfaction is used as dependent variable. The 5 dimensions of quality education are used as independent variables. The regression analysis was performed to determine the effect of independent variables such as instructor, learning resources, academic courses, assessment and student engagement on student satisfaction.

This study used backward elimination method. This process was repeated until all remaining independent variables reach at least 10% level of significance. The first and the second model for the multiple regression were reported in Table 5.

Model 1 on Table 5 shows that the value of R^2 is 0.490. 4 out of the 5 dimensions showed statistical significance to student satisfaction namely instructor ($t=2.672$, $p=.008$), learning resources ($t=4.270$, $p=.000$), academic courses ($t=2.920$, $p=.04$), and student engagement ($t=2.376$, $p=.019$). Backward elimination method automatically removed the dimension for assessment since it was insignificant ($t=-1.496$, $p = 0.137$). In the second model, the value of R^2 is 0.483; these dimensions successfully explain the indicator of student satisfaction. It is considered a good model to explain student satisfaction. The number of dimensions was reduced to 4 namely instructor ($t=2.495$, $p = 0.014$), learning resources ($t=4.178$, $p=0.000$), academic courses ($t=2.712$, $p = 0.007$) and student engagement ($t=2.072$, $p = 0.040$).

The results of regression analysis indicate that the model is fit and exhibits positive and statistically significant relationship through F statistics. The R^2 indicates that various dimensions explain 48.3% of variance in determining student satisfaction. This indicated that 48.3% of the variation on student satisfaction was explained by the variation of instructor, learning resources, academic courses and student engagement. The dimension of academic learning resources is the most important aspect with coefficient ($Beta = .418$) followed by academic courses ($Beta = .301$), instructor ($Beta = .265$) and student engagement ($Beta = .185$) respectively.

Table 5. Multiple regression of independent variables by dimension as predictor of satisfaction

Model		Standardized Beta	t	Sig.	R Square	F	Sig.
1	Instructor	.285	2.672	.008	.490	30.710	.000 ^b
	Resources	.426	4.270	.000			
	Courses	.327	2.920	.004			
	Assessment	-.128	-1.496	.137			
	Engagement	.218	2.376	.019			
2	Instructor	.265	2.495	.014	.483	37.538	.000 ^c
	Resources	.418	4.178	.000			
	Courses	.301	2.712	.007			
	Engagement	.185	2.072	.040			

4.4 Research Hypotheses

Table 6 shows that instructor, learning resources, academic courses and student engagement have significant positive effect on student satisfaction. Therefore, hypothesis H_4 was rejected. Table 6 summarizes the research results.

Table 6. Research results

Research Hypothesis	Results
H_1 : Instructor has significant effect on student satisfaction	Supported
H_2 : Learning recourses has significant effect on student satisfaction	Supported
H_3 : Academic courses has significant effect on student satisfaction	Supported
H_4 : Assessment has significant effect on student satisfaction	Rejected
H_5 : Student engagement has significant effect on student satisfaction	Supported

5. Conclusion

This study provides a useful insight into the importance of quality education and improved the standard of quality in higher education. Cronin and Taylor (1992) state that focusing on student satisfaction will enable institution adapt to student needs and continuously monitoring the delivery of services as a way of increasing student satisfaction. This study concurred with a few findings in previous studies.

The results revealed that student satisfaction was a multidimensional construct. The level of satisfaction was influenced by the instructor, learning resources, academic courses and student engagement, accounting for 48% of the variance in student satisfaction. Learning resources was the most important aspect that influenced students' satisfaction. This finding was reflected in previous study done by Price et al. (2003). This indicated that the learning resources such as effective teaching technologies, relevant electronic information sources, high-speed network, well-maintained campus facilities as well as accessible computer labs and library resources play important role in institutes of higher learning.

Multiple regression analysis revealed that the academic courses and instructor had similar importance explanatory power towards student satisfaction. This was not surprising that high quality courses with sufficient flexibility, skills oriented and well developed were considered as the heart of education quality and a strong predictor of student satisfaction. This result sustained the earlier studies done by Marshall (1987) and Chen et al. (2007). The student-instructor interaction and teaching quality contributes to better learning experiences and positively influence student satisfaction. O'Driscoll (2012) and Nadiri (2011) show that teaching staffs and teaching methods are critical influence student satisfaction. The student engagement factor accrued as the least influence on student satisfaction. This was rather influenced by personal factor such as student learning behavior, academic achievement than the service provided by institution. However, this area needs to be investigated further in the future. Gruber et al. (2010), Bradley et al. (2008) and Kuh (2003) believe that better student engagement has significant impact on student satisfaction.

An interesting finding for this study related to Assessment. Assessment was a primary dimension extracted from the previous studies (Parayitam et al., 2007; Kane, 2004; Sampson et al., 2010) was insignificant predictor of student satisfaction. Fair assessment and reasonable workload are important services that provided by institution and indirectly influence student satisfaction. The four dimensions contributed nearly 50 per cent to student satisfaction.

5.1 Limitations and Future Research

The research study has several limitations. First, the study was based on student satisfaction of education service quality covered five dimensions. Student satisfaction might not reflect the service quality in higher education as a whole. The service quality in higher education may also covers aspects from other stakeholders such as the government, employers and family members (Rowley, 1997). Future studies may include other new dimensions that affect student satisfaction. As this study involved 250 students from a university, the results could not be generalized to all the students in Malaysia. In order to obtain more reliable results, this study should be conducted with a larger sample. A qualitative research study be conducted to identify student satisfaction that may not be captured by using a quantitative approach.

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Appendices

Item		Strongly disagree	Disagree	Unsure	Agree	Strongly Agree
Instructor						
1	Instructor makes a real effort to understand difficulties students may be having with their work.	1	2	3	4	5
2	Instructor here normally gives helpful feedback on how you are going.	1	2	3	4	5
3	Instructor is extremely good at explaining things to us.	1	2	3	4	5
4	Instructor work hard to make subjects interesting.	1	2	3	4	5
5	Instructor really tries to get the best out of all his/her students.	1	2	3	4	5
6	Instructor put appropriate time into commenting/facilitating on students' work/research.	1	2	3	4	5
7	Instructor of the courses motivates students to do their best.	1	2	3	4	5
8	Instructor here shows real interest in what students have to say.	1	2	3	4	5
Learning Resources						
9	The library resources were appropriate for my learning and research work.	1	2	3	4	5
10	Where it was used, the information technology in teaching and learning was effective.	1	2	3	4	5
11	It was made clear what resources were available for learning and research.	1	2	3	4	5
12	The library services were readily accessible.	1	2	3	4	5
13	I was able to access e-databases/information technology resources when I needed them.	1	2	3	4	5
14	Relevant learning resources were accessible when I needed them.	1	2	3	4	5
15	Computer labs are adequate and accessible.	1	2	3	4	5
16	The campus facilities are well-maintained.	1	2	3	4	5
Academic Courses						
17	The courses have helped me to develop my problem-solving skills.	1	2	3	4	5
18	As a result of doing the courses, I feel more confident about tackling unfamiliar problems.	1	2	3	4	5
19	The courses have sharpened my analytic skills.	1	2	3	4	5
20	The courses have helped develop my ability to work as a team member.	1	2	3	4	5
21	The courses have improved my written communication skills.	1	2	3	4	5
22	The courses have helped me develop the ability to plan my own work.	1	2	3	4	5
23	The course content was organised in a systematic way.	1	2	3	4	5
24	There was sufficient flexibility in my course to suit my needs.	1	2	3	4	5

25	The content of the courses within my major is valuable.	1	2	3	4	5
Assessments						
26	The course seemed focused in testing what I had understood.	1	2	3	4	5
27	Questions asked in the course exams were thought provoking.	1	2	3	4	5
28	To do well on the courses you really need good analytical ability.	1	2	3	4	5
29	It would be impossible to get through the courses just by working hard around exam time.	1	2	3	4	5
30	Feedback on student work is provided in the form of marks, grades and interactive sessions with the teachers.	1	2	3	4	5
Student Engagement						
31	I have accomplished assignments proposed in class.	1	2	3	4	5
32	I have shown interest in learning more.	1	2	3	4	5
33	I have had positive attitudes towards the business school, courses and professors.	1	2	3	4	5
34	I have made efforts to integrate myself in the university cultural and social life.	1	2	3	4	5
35	I have efficiently exploited the opportunity to study business.	1	2	3	4	5
Student Satisfaction						
36	The institution fulfils my expectations.	1	2	3	4	5
37	The institution is just how I would like them to be.	1	2	3	4	5
38	I am satisfied with the institution.	1	2	3	4	5
39	I would recommend the institution to others.	1	2	3	4	5
40	Thinking back on your experience within the institution, how you rate your overall satisfaction?	1	2	3	4	5

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