MEASURING STUDENTS’ SATISFACTION FOR QUALITY EDUCATION IN A E-LEARNING UNIVERSITY

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ABSTRACT

Despite a vast literature in customer satisfaction, little has been said on the satisfaction of higher education institutions’ customers i.e. the students. This study therefore, aims at finding out whether the current undergraduate students of Universiti Tun Abdul Razak (UNITAR) are satisfied with the quality of education delivered by the university. It also attempts to discover which of the factors that constitute UNITAR’s education service contributes the most to the students’ satisfaction level. Since the university delivers its education through a combination of web-based materials, on-line tutorials and the conventional face-to-face classes, the researchers identified seven independent variables to constitute the university’s education service namely the course content, service given by the lecturers and the faculty, course assessment, instruction medium, social activities, concern for students and facilities. Data were collected through a set of questionnaire and analyzed using SPSS software. An analysis of mean gap score was obtained by subtracting the experience score from the corresponding expectation score to find out students’ satisfaction with each of the factors. A stepwise regression analysis was conducted to determine the factor affecting students’ satisfaction. It was found that four factors namely facilities, instruction medium, course content and lecturer and faculty are significant in affecting student satisfaction. Discussion and conclusion were formed based on the mean gap score and stepwise regression analysis.

INTRODUCTION

Relationship between service quality and customer satisfaction has been extensively studied by researchers (Sureshchandar, Rajendran & Anantharaman, 2002; Jones & Suh, 2000; McDougall & Levesque, 2000). Ghobadian, Speller and Jones (1997) concluded that companies with higher perceived quality goods and services will enjoy higher long term economic benefits. The correlation between the quality of goods and services and customer satisfaction, has led organizations to continuously upgrade their quality and measure their clients’ satisfaction.

Satisfaction measurement, however, is a difficult task to achieve as customer satisfaction is similar to attitude (Attiyaman, 1997). Quality too, according to Sureshchandar et al. (2002) is a form of attitude. In the case of higher education institutions, many broaden their scope of evaluation to include students’ total experience rather than limiting it only to the assessment of the quality of teaching and learning, (Aldridge & Rowley, 1998) as the interaction between students and the institutions do not stop nor confined only to classroom environment.

This research is designed to measure the quality of education delivered at Universiti Tun Abdul Razak and to decide which part of its service components that contributes the most to the
students’ level of satisfaction. Hence, both specific transaction and overall satisfaction with service quality will be determined.

The research will first discuss the construct of quality and customer satisfaction followed by a description of the university’s service components and current practice of quality measurements. The next section of this article discusses the methodology and findings of the research as well as suggestions for future research.

QUALITY, SATISFACTION & EDUCATION INSTITUTION

Researches on quality in higher education, although differ in their definitions of quality itself, its dimension and measurements (Lagrosen, Sayyed-Hashemi & Leitner, 2004; Zhao, 2003, Kwan & Ng, 1999; Cheng & Ting Tam, 1997) seem to agree in their dimensions and measurement that characteristics of quality is a prerequisite for the measurement process (Owlia & Aspinwall, 1996).

Education quality, according to Cheng (2003) is the character of an input, process and output of the education system that satisfy both internal and external stakeholders by meeting their explicit and implicit expectation. Jagadeesh (2000) in his article on the quality in management education however, defined education quality from the perspective of knowledge base and skill set of the graduates. Zhao (2003) proposes the quality of a university’s online education to be evaluated from the standpoint of its course effectiveness, adequacy of access to technological infrastructure, student satisfaction and academic satisfaction.

In their multi-models of quality in education, Cheng and Tam (1997) proposed seven models to conceptualize the quality of education. The models are the goal and specification model, the resource-input model, the process model, the satisfaction model, the legitimacy model, the absence of problem model and the organizational learning model. For Australian universities, the operating standard for the quality of education is reflected in terms of the retention rate, student progress rate, full-time employability of graduates, completion rate, and both good teaching and generic skills rating in course experience questionnaire (Zhao, 2003).

Devinder and Datta (2003) argue that institutions which want to deliver quality programs and services to students must be concerned with every aspect of the students’ experience on campus. In other words, education quality is not only limited to the lectures and notes received in class or advice and guidance given by lecturers during the consultation hours, but it also includes students’ experience while interacting with the various non-academic personnel and components in the university, the physical infrastructure provided by the university etc. This is consistent with the findings of Jones and Suh (2000), which concluded that transaction specific satisfaction influences overall satisfaction, and that both overall satisfaction and transaction specific satisfaction significantly influence repurchase intention. In fact, students are known to choose universities and programs to enroll based on factors like delivery method, time availability, on/off campus requirements and place to access learning materials (Cohen, Dove & Bachelder, 2001). Students are also found to place great importance for degree acceptance and the university’s reputation in the selection of university (Chun, 2005).

Taking into account the different views, definitions and dimensions of quality, researchers therefore vary in their measurement standards. Most researchers on service quality use customer satisfaction as the indicator for quality. The better the quality is, the more satisfied the customers should be. Accordingly, numerous studies on customer satisfaction proved a moderate to strong relationship between the level of customer satisfaction and the customer loyalty and repeat purchase (Athiyaman, 1997).

Although customer satisfaction is commonly used to indicate quality, researchers again vary in their standards measurement. McDougall and Levesque (2000) in their research on customer satisfaction stated that a more comprehensive model in customer satisfaction needs to incorporate...
perceived value as compared to the other quality measures like SERVPERF which argues that assessing quality on the basis of the difference between expectation and service received is fundamentally flawed (Aldridge & Rowley, 1998). In their study on the Hong Kong and China students, Kwan and Ng (1999) also used the gap analysis between expectations and perceptions as a quality indicator. Kwan and Ng (1999), on the other hand, construct their survey attributes on the basis of Hampton’s (1993) work. According to Spreng and Chio (2002), all things are held constant, which means that the higher the expectation is the more likely that the performance would not be as good as the expectations. This study also uses the satisfaction model, which incorporates perceived value and perceived performance as the measure of satisfaction. Specifically, the research is modeled based on Kwan and Ng’s (1999) construct, which uses seven factors to form education service.

The University

Universiti Tun Abdul Razak (UNITAR) was established in 1998 as a private E-learning university. It consists of three faculties namely Faculty of Business Administration, Faculty of Information Technology and Faculty of Humanities & Social Sciences with the current total number of students exceeding 7,500. The students are scattered throughout its ten study centre including one centre each in Cambodia and Indonesia.

According to Zhang (2004), there are many different definitions of e-learning. Although known as a E-learning university, UNITAR does not offer a full-fledged e-learning environment to its students as defined by Zhao (2003), but more of a hybrid technique combining interactive web-based learning materials, face-to-face meeting and internet based support system called Virtual On-line Instructional Support System or VOISS (Syed Othman AlHabshi, 2002). For Bachelor of Business Administration program, the learning model consists of six face-to-face meetings per course every semester with each meeting lasting two hours. The meetings are complemented with two two-hour on-line tutorials. The academic meetings are meant to further clarify the theories and knowledge presented in the interactive web-based learning material. They are also used to reinforce students’ understanding of the course materials.

However the integral part of the university’s learning system is the VOISS, which serves as a virtual campus and a course management centre. Students register for courses, view their grades and receive their account statement from the university’s finance department through the system. They also receive their assignment questions and guidelines and submit their answer via the system. The VOISS also has an on-line forum feature meant for both lecturers and students to discuss any issue related to their courses and for students to discuss among themselves. Students also view announcements made by various parties in the university using the system and have access to the virtual library, email and on-line tutorial through the system. Their learning material is also presented in VOISS.

As part of the quality management process, the university has applied for and has been granted the ISO9001: 2000 Quality System Certification by SIRIM on August 8, 2003 for all its services and programmes in its main campus in Kelana Jaya, Selangor. Surveys to determine students’ satisfaction with the quality of service delivered are also carried out on periodic basis by different departments and faculties in the university. In the faculties for example, teaching evaluation rating (TER) are distributed to students during the last two weeks of every semester to determine the performance of the lecturers based on the students’ perception. Marketing department, academic affairs department, finance department etc also carry out studies to determine students’ satisfaction in regard to their services. These departmental efforts on ensuring quality and satisfaction, however, are not consolidated. Thus, the overall picture of quality and satisfaction cannot be fully formed.
RESEARCH METHODOLOGY

This study adapted the methodology used by Kwan and Ng's (1999) study on the quality indicators in the Hong Kong and China’s higher education institutions. From the studies and based on the situation of an E-learning university, eight factors related to the quality of education have been identified. These factors are facilities, course contents, instruction medium, mode of teaching, concern for students, assessment, social activities, lecturers and faculty. From the eight factors, a total of 36 attributes were constructed and modified on the basis of Hampton’s and Kwan & Ng’s study. The mode of teaching factor has been left aside later due to irrelevant factor loadings. From the factors, students were asked to rate these attributes based on their expectations when joining a university as well as their perceived experiences in UNITAR. The difference in scores between the expectation and perceived experiences have been obtained for further analysis.

Questionnaire Design

There were 3 sections in the questionnaire. Section 1 focuses on the student's expectations towards a good university. Section 2 uses similar attributes as section 1. Students were asked to measure their perceived experiences with those attributes. A five point Likert scale ranging from not important at all to very important was used to measure the students’ expectations and the same scale ranging from not satisfied at all to very satisfied was used to measure the students’ perceived experiences in UNITAR. In addition, students were also asked to rate their overall satisfaction with the university education in terms of percentage. The respondents’ demographic data were sought in section 3.

Data Collection

Samples were confined to UNITAR’s Faculty of Business Administration’s students in its Kelana Jaya study centre. The study was conducted through questionnaires. From the 250 questionnaires distributed, a total of 146 responses were received, giving a response rate of 58%. From the 146 questionnaires, 5 were not used due to incomplete answers.

RESULTS AND DATA ANALYSIS

Analysis on demographic characteristics

Table 1 provides an overview of the respondents’ demographic data. The respondents’ mean age is 21.6 years old. 73% of them are female, reflecting clearly the composition of gender in the faculty where most of the students are female. Malay is the majority race in the faculty, followed by Indian and Chinese, and this is reflected in the number of respondents which shows that 50% of the respondents are Malays and most of them are full-time students. The mean CGPA for the BBA students are 2.86.
Table 1

**Demographic Data**

<table>
<thead>
<tr>
<th>Basic of comparison</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Age of respondents</td>
<td></td>
<td></td>
<td>21.6</td>
</tr>
<tr>
<td>B. Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>38</td>
<td>27.0</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>103</td>
<td>73.0</td>
<td></td>
</tr>
<tr>
<td>C. Race</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malay</td>
<td>72</td>
<td>51.1</td>
<td></td>
</tr>
<tr>
<td>Chinese</td>
<td>25</td>
<td>17.7</td>
<td></td>
</tr>
<tr>
<td>Indian</td>
<td>40</td>
<td>28.4</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>4</td>
<td>2.8</td>
<td></td>
</tr>
<tr>
<td>D. Status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full time students</td>
<td>102</td>
<td>72.3</td>
<td></td>
</tr>
<tr>
<td>Part time students</td>
<td>39</td>
<td>27.7</td>
<td></td>
</tr>
<tr>
<td>E. Level of study</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree year 1</td>
<td>11</td>
<td>7.8</td>
<td></td>
</tr>
<tr>
<td>Degree year 2</td>
<td>18</td>
<td>12.8</td>
<td></td>
</tr>
<tr>
<td>Degree year 3</td>
<td>86</td>
<td>61</td>
<td></td>
</tr>
<tr>
<td>Degree year 4</td>
<td>26</td>
<td>18.4</td>
<td></td>
</tr>
<tr>
<td>F. CGPA</td>
<td></td>
<td></td>
<td>2.86</td>
</tr>
</tbody>
</table>

**Analysis of the data**

The gap scores on the 36 statements for each respondent were computed by subtracting the experience score from the corresponding expectation score. Factor analysis with principal component extraction, using a varimax rotation was run to analyze the gap scores. A total of nine factors were extracted from the factor analysis, which explained 68.3% of the overall variance.

The factor solution did not provide a clean factor structure with clear-cut factor loadings. Attributes with a factor loading below 0.5 are deleted. Based on these criteria, seven factors comprising 24 statements were identified. Factor 8 and 9 were dropped, as they were irrelevant to the analysis. The items for each factor were tested for internal consistency reliability using the Cronbach’s Coefficient Alpha. The Cronbach’s Coefficient Alpha for all the factors are more than 0.7. Table 2 shows the mean gap scores of the 24 statements and their factor loadings.

The first factor identified is the course content. It refers to the appropriateness of the course taken to the personal and career development of the student. The second factor is the facilities, loaded with six statements, relates to the availability and accessibility of the overall facilities available to the students. The facilities include the adequacy of computer, the library, recreational and classroom facilities. The third factor, lecturers and faculty, loaded with four statements relate to the facilitation obtained in the learning process by being able to access both academic and non-academic support from their lecturers and faculty. Factor four concentrates on the importance of social activities in the university life. The fifth factor is the concern for students, which evaluates the approachability and the concern shown by the counselors towards the students. The sixth is a factor on assessment, where the students are provided with a fair assessment scheme, and the last factor is on the instruction medium where the medium used is the English language.
As for the gap scores, it was computed by subtracting the experience from the expectation. The larger the gap scores indicate that the students’ experiences at UNITAR are far from satisfactory. From table 2, it is made known that all scores are shown as positive. This is acceptable as the perceived experiences are hard to be ideal. However, from the mean gap scores, it shows that the respondents are not satisfied with the facilities rendered at UNITAR. The mean gap scores for the availability of library, computer, recreational, classroom activities are among the highest. On the other hand, factor 7 i.e. instruction medium has the lowest mean gap scores. This means that the perceived experiences are almost the same as the expectations. Respondents seem to be satisfied that English is the formal medium used in the university.

From the mean gap scores, the researchers hope to study further the overall student satisfaction on the seven factors identified. To study the determinants of the students’ overall satisfaction, a stepwise regression analysis has been conducted. The dependent variable is the overall students’ satisfaction toward the university in percentage while the independent variables are the mean scores of the seven factors identified. The fitted stepwise equation obtained is shown below,

\[
\text{Overall satisfaction} = 67.03 - 3.52 \text{ facilities} - 3.93 \text{ instruction} - 4.32 \text{ course content} - 3.30 \text{ lecturer & faculty}
\]

\[(t = -2.047)^* \quad (t = -2.685)^* \quad (t = -2.256)^* \quad (t = -2.189)^* \]

\[ F\text{-value} = 14.952^* \]

Based on the stepwise regression, four factors namely facilities, instruction medium, course content and lecturer and faculty will affect the overall satisfaction. Another three factors have been deleted as they are not significantly correlated with the overall satisfaction. The R square for the equation is 33%, which means that 33% of the variation in the overall satisfaction can be explained by the four variables in the model. The results also showed F value, indicating the significance of the equations at \( p < 0.05 \). In checking the aptness of the fitted model, it was found that all the partial plots show no apparent pattern. In addition, as the variance inflation factor (VIF) for all the factors are less than 10, thus there is no multi-co linearity problem exist.

From the regression equation, the most important factor in determining the level of satisfaction is course content, followed by the instruction medium, facilities, lecturers and faculty. All the factors have negative relationship with the overall satisfaction. The relationship shown is expected as the mean gap scores has been used in the analysis.

Table 2

**Summary on Gap Scores of Factors**

<table>
<thead>
<tr>
<th>Factor &amp; attributes</th>
<th>Mean gap score</th>
<th>Factor loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor 1: Course Content</td>
<td>Cronbach’s Alpha=0.859</td>
<td></td>
</tr>
<tr>
<td>14. The appropriateness of requirements for your course</td>
<td>0.621</td>
<td>0.679</td>
</tr>
<tr>
<td>15. The chance to develop your abilities and prepare for your career</td>
<td>0.909</td>
<td>0.797</td>
</tr>
<tr>
<td>16. The quality of materials emphasized in course</td>
<td>0.879</td>
<td>0.738</td>
</tr>
<tr>
<td>17. The usefulness of the course syllabus in fulfilling your personal needs</td>
<td>0.794</td>
<td>0.690</td>
</tr>
<tr>
<td>18. The usefulness of the module components offered in your career development</td>
<td>0.807</td>
<td>0.791</td>
</tr>
<tr>
<td>Factor 2: Facilities</td>
<td>Cronbach’s Alpha=0.862</td>
<td></td>
</tr>
<tr>
<td>4. The availability of library facilities</td>
<td>1.657</td>
<td>0.558</td>
</tr>
<tr>
<td>5. The places provided for students to relax during the day</td>
<td>1.744</td>
<td>0.603</td>
</tr>
</tbody>
</table>
DISCUSSION AND CONCLUSION

The purpose of this study is to assess the perceptions of UNITAR's undergraduate business students towards the performance of the university. Mean gap scores have been obtained by subtracting the perceived experiences score from the expectation score. The high mean gap score shown on the availability of facilities especially places for students to relax during the day, library facilities and computing facilities is as expected since the majority of the respondents are full time students, who spent most of their time in the university’s vicinity and expect the university to provide better facilities for them. The high score may also be attributed to the high expectation of the students on the facilities matter before joining UNITAR as Price, Matzdorf, Smith and Agahi (2003), reported that availability of computers, areas for students and library facilities ranked in the top five most important factors for students in deciding which university to enroll.

The large gap between students’ expectation of the lecturers and faculty, as well as with the counselors’ concern for students with their perceived experience is likely due to the lack of socialization between students and the three parties. The current academic model of the university
allocates only six face-to-face meetings and two online tutorials per semester of four months. Interactions between students and lecturers outside of the six meetings are normally conducted through emails, online forum, and online bulletin board. As for their interaction with the faculty, meetings between the two are very minimal, for example during new intake’s orientation week and when the faculty makes a major change in its program structure and needs to explain the effects of the changes to the students. In terms of counseling service, there is no formal requirement for students to meet counselors unless they are in a probationary academic status. Although the university operates as a virtual institution, most of the students are young and dependent on lecturers and the faculty in their studies. Thus, they expect more interaction with both the faculty and lecturers. This is inline with the study of Kotze and Plessis (2003), which signifies that students are co-producers of education which means that universities need to continuously interact with students in order to change students’ perception towards university life. 

As from the stepwise regression, the students regard course content as the most important factor to their satisfaction. It shows that standard or quality of the course is an important factor to the student’s satisfaction. As students pay the fees, it can be understood that they would like to get the maximum value from the program. The quality and reputation of the courses as a result become the most important factor. It was found that students expect to have significant gains in the knowledge and expect to use it as a tool for their career development. From time to time, the faculty does review and restructure its course content to meet the market demand. Besides, National Accreditation Board (LAN) is also helping the faculty in maintaining its programs’ quality.

The medium of instruction is another factor that is important as a quality indicator to students’ satisfaction. In UNITAR, all the lectures and activities are conducted in English. Besides, the students need to submit their assignments and answer their examination in English. Nowadays, English is the dominant language in the information technology. For example, 80% of web pages from the Internet are in English (Sprague & Gearing, 1999). As higher education is considered as the key to jobs which pay good salaries, confer social status and prestige, and provide avenue for social mobility (Mohamad Hanapi & Mohd Shah, 2003), using English as the instructional medium is certainly a right policy as it has certainly increased the competitiveness of the students in the job market. This can be further justified by a report from Sprague and Gearing (1999) saying that the English language is turning from a mere useful skill into a prerequisite for access to the best job and highest income. Thus, using the English language as an instruction medium certainly increases the proficiency of UNITAR students boosts their confidence during their job interview process and makes them more marketable than other universities’ students who use Malay language as the instruction medium. This point can be further strengthened by the move of the Malaysian Ministry of Education, where they have decided to use the English language as a teaching medium for information technology and engineering courses, taking into account the high unemployment rate of the students due to poor proficiency level of the language. 

When dealing with facilities, students consider a quality university as being one that has excellent library, sport, recreational, computing, classroom and academic facilities. From the study, apparently the students think that the library facilities are not up to their satisfaction. Most of them feel that there are not enough of references in the library. The reason that UNITAR does not have many books is mainly due to the fact that as a E-learning university, it puts more focus on its virtual library, online databases and online materials rather than on books. The mindset of the students might have to be changed and programmed to use the online materials available in the virtual library. Furthermore, the places provided for students to relax during the day are also not enough. As an E-learning university focuses on elearning, UNITAR is a bit “space less” in the sense that it does not have a campus to facilitate all the recreational activities. The management of the university does realize that there is a lack in this and try to improve the recreational facilities. However, the computing facilities in UNITAR receive a quite-good feedback from the students. The university’s course management system (VOISS) with its ten different functions such as assignment, email, quiz, examination results etc can be accessed by the students from any internet-ready computer anywhere and at anytime. This feature actually helps the E-learning university in managing the students and simultaneously increases the computer competency of the students.
Limitations and future direction of study

This study is confined to UNITAR’s Faculty of Business Administration’s students. Hence, generalization cannot be made based on this study’s result alone. Therefore, the researchers believe that future research should include the students from all faculties. This will provide a more comprehensive view of students’ satisfaction and the quality of education in the university. Furthermore, the current study is based solely on questionnaire where data collected is limited to the operational definition determined by the researchers. Future research may consider complementing the quantitative technique currently used with the qualitative ones for a better insight of the topic. Besides, further research may study the impact of the demographic variables on each of the service components. Comparisons may be made according to races, type of students and gender on achieving the satisfaction and on working towards quality UNITAR’s education service.
REFERENCES


