



Examining the Moderating Effects of Students' Characteristics on the Relationship between Perceived Quality and Satisfaction with University Services: The Evidence from Two Public Universities in Terengganu

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ABSTRACT

The success of economic development in East Coast Economic Region (ECER) is contributed by many factors such as investment from foreign countries, tourism industry, oil and gas industry as well as education industry. With regards to education industry, the number of higher educational institutions (HEIs) in ECER has increased. To achieve the mission of ECER in strengthening the education system and as an educational hub, it is of utmost importance, especially for universities in Terengganu to identify strategies in achieving the mission. The research to identify and understand the students' characteristics is important for marketers to attract and retain students especially for HEIs in ECER. Thus, the objectives of this research is to, (1) assess the relationship between perceived quality and overall satisfaction, and (2) test the moderating effects of students' characteristics' such as gender, race and state of origin on the relationship between perceived quality and satisfaction with university services. The regression analysis was used to analyze the hypotheses of the study and the results supported both hypotheses. For the first hypothesis, there was a significant positive relationship between perceived quality and satisfaction. For the second hypothesis, the moderating effects of students' characteristics supported the relationship between overall satisfaction and behavioural intentions. The analysis revealed that students' characteristics had significant impact as a moderator.

Keywords: East Coast Economic Region, Education Industry, Service Quality, Satisfaction, Regression Analysis

JEL Classification: M3

1. INTRODUCTION

The East Coast Economic Region (ECER) of Malaysia has experienced tremendous economic development in recent years (ECERDC, 2011). The success of economic development in ECER is contributed by many factors such as investments from foreign countries (e.g., China), tourism industry, oil and gas industry as well as education industry. With regards to education industry, the number of higher educational institutions (HEIs) in ECER including public and private universities has increased over the years. In Terengganu (one of the states in ECER), there are three public universities located in Kuala Nerus and Dungun. In this study, two of the universities were explored, namely Universiti Teknologi MARA (UiTM) and Universiti Malaysia Terengganu (UMT). The UiTM is more established than UMT since it was

established in the 1970's and is expanding their campuses in many parts in Malaysia. One of them is UiTM (Dungun). The UMT, on the other hand, is considered a "fresh" university and has undergone several governance, education and research re-structuring. To achieve the mission ECER of strengthening the education system and as an educational hub, it is of utmost importance, especially for the universities in Terengganu in identifying strategies to achieve the mission. In the competitive education market, where most countries are ambitious to become an educational hub, providing and promoting the quality of education and service is the key success factor (Mazzarol and Soutar, 2012).

The quality of service and education is the important element for HEIs which need to be taken into consideration seriously.

Nowadays, the reputation and image of HEIs are related to the quality of education and services provided to students (Pimpa and Suwannapirom, 2007). In fact, HEIs with excellent reputation of education and service quality was chosen by the public due to the value of money they invested (Mazzarol and Soutar, 2012; Alves and Raposo, 2006). The management of HEIs must understand that evidence from previous research showed that customers (i.e., students) satisfaction was determined by the quality of education and services provided by HEIs as perceived by the students (Yeo, 2008).

Previous study showed that the higher the quality of education and services, the more satisfied the customers would be (Petruzzellis et al., 2006) and produced a more positive behavioural intention. Thus, the quality of services and education plays a crucial role in promoting HEIs globally and ensuring the survival of HEIs (DeMoranvillea and Bienstock, 2003). This can be done by continuously improving and managing the quality of the education and services offered (Sahney et al., 2003).

As competition increases between HEIs, educational institutions increasingly resort to employing various promotional efforts in order to attract students. Despite the diversity of customers in HEIs (Yeo, 2008), there is a widespread consensus that students serve as the primary 'customer' for a university (Kanji et al., 1999). The need to undertake market research to understand student satisfaction level is justified by the intense competition among the players in the education industry. Students serve as a vital revenue stream (Mazzarol and Soutar, 2008) not only to HEIs but also to local businesses such as food, accommodations, travel and so on (Yao and Bai, 2008). Thus, HEIs compete fiercely against each other in order to gain advantage such as economic benefits. Therefore, there is a need to undertake market research in order to understand students' perceptions from their institutions (Joseph et al., 2005).

On the other hand, additional researches to better understand students' characteristics are worth the efforts and vital if HEIs intend to continue to attract and retain students. The notion of student retention is linked to the notion of student satisfaction with their university. Although there are several studies on the satisfaction of students (Arambewela and Hall, 2009; Arambewela et al., 2006; Mavondo et al., 2004), few studies have undertaken an empirical research into examining the moderating effects of students' demographics towards university services.

The research to identify and understand students' demographics is important for marketers to attract and retain students especially for HEIs in ECER. Thus, the objectives of this research is to, (1) assess the relationship between perceived quality and overall satisfaction and, (2) test the moderating effects of students' demographics such as gender, race and state of origin on the relationship between perceived quality and satisfaction with university services.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1. Perceived Quality

Perceived quality is defined as the consumer's judgment or attitude about an entity's overall excellence or superiority (Zeithmal, 1987). It is also viewed as the degree and direction of the discrepancy between consumer's perceptions and expectations (Parasuraman et al., 1988). In brief, perceived quality of a service is the outcome of an evaluation process, where the consumer compares expectations to the service they received (Grönroos, 1982). In any service-based business, the quality of service plays a significant role in influencing and determining customer satisfaction. Due to this reason, some businesses spend remarkable efforts to measure and improve the service quality (Madanoglu, 2005).

With regard to the education industry, service quality is an important source of competitive advantage. HEIs place quality as the priority and a competitive edge in attracting students. Hence, service quality becomes an important aspect to the HEIs due to several factors: (i) Thorough competition among universities, (ii) internalization spirit, (iii) higher expectation, (iv) increase in students' fees, and (v) education as a marketable service (Kwek et al., 2010).

The key to success is to work towards improving the quality of the services of the institutions which involves a thorough understanding of the needs of their students (Gamage et al., 2008). Thus, the HEIs in Terengganu should actively monitor the quality of the services that they offer (Vjollca and Shyle, 2015). In addition, HEIs in Terengganu should commit to provide continuous improvements in order to survive the increasingly intense competition for highly desirable students and to generate revenue at the same time.

2.2. Satisfaction

The key to sustaining competitive advantage lies in delivering high quality service that result in satisfied customers. Customer satisfaction is the crucial concept that explains achieving customer's needs and wants. Petruzzellis and Romanazzi (2010) indicated that the measurement of service quality can be tested by assessing student satisfaction, due to the fact that students are the actual customers within the HEIs. Students' satisfaction is the results of a complex set of factors with their intangibles and tangibles experiences (Appleton-Knapp and Krentler, 2006). Athiyaman (1997) referred to student satisfaction as a short-term attitude that results from the evaluation of their experience with the education service received. Arambewela (2005) and Alves and Raposo (2007) perceived student satisfaction as a key strategy in the long term survival of an institution and provides the institutions with a competitive advantage, positive word of mouth, present and future students and possible collaboration with other institutions. Thus, the loyalty in terms of word-of-mouth and re-enrollment are the main interests which may "guarantee the survival of university institutions" (Navarro et al., 2005. p. 509). Therefore, a better understanding of the students' satisfaction would link the institutions to achieve their mission (Telford and Masson, 2005),

to retain students and to improve the institutions performance (Douglas et al., 2006). Thus, this leads to the first hypothesis that is:

H1: There is a positive relationship between perceived quality and satisfaction.

2.3. Students' Demographics

The attitudes and behavior of students may also vary according to gender, race and state of origin (which state they come from). This diversity of background may have the potential to influence both their level of satisfaction with their university and the behavioural intentions. Hence, it is important that any measure of student satisfaction takes into account the possible effects of these moderating variables.

The findings from this area of research will allow universities to better segment their market and provide services that better meet students' specific needs, thereby facilitating more effective student retention strategies (Walsh et al., 2008). This study examines the moderating effects of students' characteristics on the relationship between perceived service quality and satisfaction. In so doing, it addresses an important research gap often overlooked in previous studies (Walsh et al., 2008). The following discussion provides deeper insights into the potential influence of each variable used to operationalize students' demographics.

2.3.1. Gender

For the purposes of this study, gender refers to the biological sex of an individual (Hoyer and MacInnis, 2010). Researchers considered it necessary to include gender in most studies involving demographic variables because males and females are widely regarded as possessing unique personalities and characteristics (Testa and Mueller, 2009). However, this has not been the case with most studies in relating student satisfaction with their university. Again, it is ironic given that studies that included gender reported gender-based differences. For example, female students have been found to place greater emphasis than their male counterparts on the physical and location aspects of a university (Joseph et al., 2005). Given the potential satisfaction difference according to gender and the fact that this demographic variable has often been overlooked, this study seeks to remedy this oversight by investigating the impact of gender on the relationship between perceived service quality and satisfaction with university services. Based on this argument, the second hypothesis is:

H2a: There is a moderating impact of gender to influence relationship between perceived quality and satisfaction.

2.3.2. Race

Malaysia is represented by multiple ethnic groups in the country. It can be divided into two major classifications: Bumiputera and non-bumiputera. Bumiputera is classified as Malays and indigenous people, and non-bumiputera are Chinese, Indians and others who do not fit into the broader ethnic groups. In 2010, the population of Malays and Bumiputera was 60.3%, Chinese was 24.6% and Indians was 7.1% (Demographic Transition in Malaysia: The Changing Roles of Women a Paper Presented by Madam Zarinah Mahari Demographic Statistics Division, Department of Statistics).

However, the effect of races that moderates the relationship between perceived quality and student satisfaction were not adequately addressed, particularly in the Malaysian HEI context. In conjunction with the issue, there is a study from Lightfoot and Blanchard (2011), which indicated races as a moderator between having many places within walking distance and physical activity. By regarding races as the dominant factor in the Malaysian perspective, this study seeks to identify the moderating effects of races towards the relationship of perceived quality and satisfaction within HEIs in Terengganu and thus, leads to the next hypothesis:

H2b: There is a moderating impact of race to influence relationship between perceived quality and satisfaction.

2.3.3. State of origin

Within the context of HEIs, the effect of nationality on student satisfaction has not been adequately addressed (Einarson and Matier, 2005; Umbach and Porter, 2002). This is ironic given that the few studies that included country of origin found that students of different nationalities evaluated university services differently (Lagrosen et al., 2004). For example, students from China was found to assign greater importance to study-related matters, and were therefore more concerned with academic factors compared to other nationalities. Conversely, students from the United States were more interested in campus life, and therefore assigned greater importance to student support services (Kwan and Ng, 1999). In another study, Japanese and Thai students reported different levels of satisfaction with all three factors investigated - academic services, non-academic services and facilities (Gamage et al., 2008).

As such, nationality has the potential to influence international students' level of satisfaction with their university (Jayawardena, 2001). By including this variable in this study, the resulting research will help universities to better customize their service offered to students from various nationalities, thereby creating the potential for higher satisfaction and retention levels. The next hypothesis is:

H2c: There is a moderating impact of state of origin to influence relationship between perceived quality and satisfaction.

2.4. Proposed Theoretical Framework

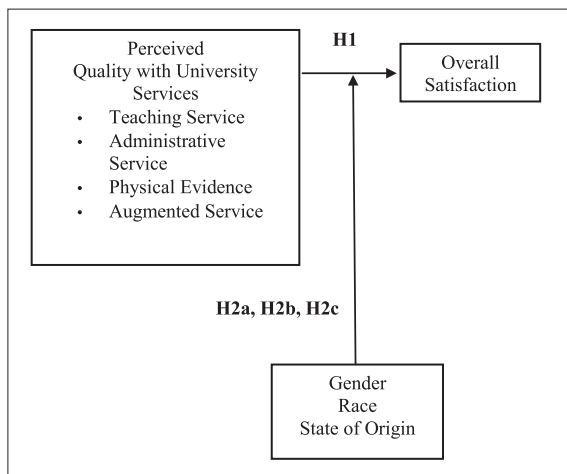
To begin the investigation of the issues proposed earlier, a conceptual framework is developed and presented that links together an examination of the relationship between perceived quality and satisfaction and the moderating effects of students' demographics (e.g., gender, race and state of origin) (Figure 1).

3. METHODS

3.1. Sampling and Sample

The sample in this study consisted of final year students studying at two universities in Kuala Terengganu, namely UMT and UiTM. The questionnaires were sent to the persons in charge after the approval was received from both universities to distribute the questionnaires. The persons in charge were first informed about "who" would be involved in the sample. The

Figure 1: The proposed theoretical framework



method of simple random sampling was applied in which the respondents were being chosen by chance (Aaker et al., 2008; Sekaran, 2003). Based on this technique, the sample would be selected equally (Aaker et al., 2008). The benefit of choosing this technique included the sample of the study would be less biased and offered the most generalization (Sekaran, 2003). The self-administered survey was utilized in this study as it is the common technique used for simple random sampling (Dillman et al., 2009). Thus, the students were selected regardless of gender, state and race.

A pre-test was conducted at the initial stage to ensure that the respondents' understood the questions in the questionnaire in addition to find any errors with regards to the questionnaire wordings. The questionnaires distributed to the students were written in English. The researchers' acknowledged that the students in the Malaysian universities have good English proficiency. After all, a pilot test was done to ensure that the items in the questionnaires were valid and reliable. The pre-test was tested on a small sample which included only 30 students (Sekaran, 2003). The Cronbach alpha results for each construct was 0.955 (perceived quality) and 0.952 (satisfaction). These scale showed they were considered acceptable and displayed a good indication of face or content validity.

In the next stage, the questionnaires were distributed to about 350 students at UMT and UiTM. In return, 277 numbers of questionnaires were collected (78.29% response rate). The response rate showed it covered or represented the final year students' population in both universities (Malhotra et al., 2002). The student demographic profile is shown in Table 1. The female students (70.8%) displayed higher participation rate compared to male students (27.8%). The students born in the 1990's dominated the survey with 93.9% of participation rate compared to students born in the 1980's (4.7%). In the meantime, the students originated from West Malaysia showed the highest number of participants in the survey (257, 93.9%) followed by students from East Malaysia (17, 6.1%). With regards to race, Malay ethnic students contributed to the highest number of participants (204, 73.6%), followed by other races (73, 25.3%).

Table 1: Student demographic respondent profile

| Student demographic | Number (%) |
|-------------------------|------------|
| Gender (n=277) | |
| Male | 77 (27.8) |
| Female | 196 (70.8) |
| Missing | 4 (1.44) |
| Year of birth (n=277) | |
| 1980's | 13 (4.7) |
| 1990's | 260 (93.9) |
| Missing | 4 (1.5) |
| State of origin (n=277) | |
| East Malaysia | 17 (6.1) |
| West Malaysia | 257 (92.8) |
| Missing | 3 (1.1) |
| Race (n=277) | |
| Malay | 204 (73.6) |
| Other races | 73 (25.3) |
| Missing | 3 (1.1) |

3.2. Construct Measures

3.2.1. Perceived quality

There were 24 items including academic and supported services available in a university in the questionnaires. Students were asked about their agreement with the perceived quality of the 24 services available in the universities. The services included teaching service, administrative service, physical evidence and augmented service. The construct of perceived quality was measured using 7 Likert-scale points (7 = strongly agreed to 1 = strongly disagreed).

3.2.2. Overall satisfaction

The construct of satisfaction was measured based on multiple-items measure (Yi, 1988) because it is "reliable" and allows computation of correlations between items (Churchill, 1979; Peter, 1979). The questions and scale of measuring overall satisfaction were adapted from previous studies with some modifications (Bitner and Hubbert, 1994; Huddleston et al., 2009). The items in this section were also measured in 7-point Likert scale ranging from 1 = strongly dissatisfied to 7 = strongly satisfied.

4. ANALYSIS, RESULTS AND DISCUSSION

4.1. Construct Validity

A confirmatory factor analysis (CFA) (Table 2) was run to measure the validity for each construct. The measurement model provided an acceptable fit with $\chi = 549.547$, $df = 220$, $RMSEA = 0.74$, $CFI = 0.934$, $TLI = 0.924$ and $GFI = 0.844$. The items of each construct showed factor loading above 0.7 (Bagozzi and Yi, 1988), average variance extracted values above 0.5 and composite reliability above 0.8 (Fornell and Larcker, 1981). Four items were deleted for not meeting the specification mentioned. Thus, the constructs showed the evidence of convergent validity.

Discriminant validity refers to the degree to which measures of conceptually distinct constructs differ (Churchill, 1979). A measure should not correlate too highly with measures from which it is supposed to differ, otherwise the measure may capture an isolated trait or is simply reflecting method variance (Churchill, 1979). Discriminant validity is established when the variance extracted from two constructs is greater than the square

of the correlation between those two constructs (Fornell and Larcker, 1981). The results of the discriminant validity analysis are presented in Table 3. These results strongly supported the notion that the measurement model possessed discriminant validity.

4.2. Moderating Effect

The moderating effect refers to a third variable influencing the relationship between two variables (Cohen et al., 2003). The dummy variables were created for each demographic characteristic and coded as either 0 or 1. These dummy variables were then entered into the equation model as potential moderators. Dummy variables were set for gender, M1 (1 for male and 0 for female), state of origin, M2 (1 for East Malaysia and 0 for West Malaysia) and race, M3 (1 for Malay and 0 for other races). In order to ensure the data satisfied all the necessary assumptions for regression analysis, it was checked for outliers, multicollinearity, normality, linearity and homoscedasticity of residuals. The results of this analysis revealed that the data satisfied all the assumptions necessary to perform regression analysis (Allen and Bennet, 2010).

For the purpose of this study, hierarchical regression was used to analyze the moderating effects of students' characteristics on the relationship between perceived quality and overall satisfaction. The results of the regression model fit and hierarchical regression are shown in Tables 4 and 5. Table 4 shows the main effect of perceived quality accounted for 60.5% (adjusted $R^2 = 0.366$) of the variance in the dependent variable of overall satisfaction. The moderating variables of gender, state of origin and race effects

accounted for 93% (adjusted $R^2 = 0.865$) of the variance in overall satisfaction.

Meanwhile, Table 5 shows the findings of the hypotheses of this study, which are H1 and H2. The first hypothesis (H1) hypothesized the positive relationship between perceived quality and satisfaction. The results showed significant relationship and thus, H1 is accepted. This finding is consistent with previous studies which showed that there is a positive relationship between perceived quality and satisfaction (Arambewela et al., 2006; Diamantis and Benos, 2007; Gamage et al., 2008; Telford and Masson, 2005). This suggests that students at both public universities in Terengganu displayed perceived quality and satisfaction with the services offered.

The second hypothesis (H2) is the moderating effects of students' characteristics on the relationship between overall satisfaction and behavioral intentions. This analysis revealed that students' characteristics have significant impact as a moderator (gender, $\beta = 0.734$; $P = 0.000$; state of origin, $\beta = 0.698$; $P = 0.000$; race, $\beta = 1.788$, $P = 0.000$) of the relationship between perceived quality and overall satisfaction (Hair et al., 2010). Thus, we showed that H2 is also supported. This suggests that gender, state of origin and race have impact as moderators on the relationship between perceived quality and overall satisfaction. Notably, this study has employed a novel approach in considering and determining the impact of moderating effects in the investigation within the context of higher education. In addition to these contributions, a number of recommendations for marketing strategies were considered in light of the outcomes derived from the data.

Table 2: Confirmatory factor analysis results

| Construct | Item (factor loading) | Composite reliability | AVE |
|------------------------|--|-----------------------|-------|
| Teaching service | A1 (0.762), A2 (0.799), A3 (0.800) | 0.830 | 0.620 |
| Administrative service | A4 (0.905), A5 (0.853), A6 (0.863), A7 (0.836) | 0.856 | 0.748 |
| Physical evidence | A8 (deleted), A9 (0.793), A10 (0.797), A11 (0.785), A12 (0.835) | 0.810 | 0.644 |
| Augmented service | A13 (0.783), A14 (0.740), A15 (0.724), A16 (deleted), A17 (deleted), A18 (0.737), A19 (deleted), A20 (0.797), A21 (0.785), A22 (0.856), A23 (0.787), A24 (0.729) | 0.895 | 0.766 |
| Overall satisfaction | D3 (0.923), D2 (0.973), D1 (0.937) | 0.930 | 0.816 |

Some items were deleted due to low factor loadings. AVE: Average variance extracted

Table 3: Mean, SD and discriminant validity

| Construct | Mean±SD | Teaching service | Administrative service | Physical evidence | Augmented service | Overall satisfaction |
|------------------------|------------|------------------|------------------------|-------------------|-------------------|----------------------|
| Teaching service | 5.37±1.00 | 0.620 | 0.487 | 0.523 | 0.570 | 0.26 |
| Administrative service | 4.44±1.29 | | 0.748 | 0.454 | 0.612 | 0.296 |
| Physical evidence | 4.85±1.102 | | | 0.644 | 0.814 | 0.526 |
| Augmented service | 4.63±1.13 | | | | 0.766 | 0.389 |
| Overall satisfaction | 4.79±1.062 | | | | | 0.816 |

The figures presented diagonally in bold are AVE. AVE: Average variance extracted, SD: Standard deviation

Table 4: Regression model fit

| Model | R | R ² | Adjusted R ² | SE Est. | Δ R ² | F change | Change statistics | | |
|-------|-------|----------------|-------------------------|---------|------------------|----------|-------------------|-----|---------------|
| | | | | | | | df1 | df2 | Sig. F change |
| 1 | 0.605 | 0.366 | 0.356 | 0.852 | 0.366 | 38.366 | 4 | 269 | 0.000 |
| 2 | 0.930 | 0.865 | 0.861 | 0.396 | 0.499 | 236.550 | 3 | 366 | 0.000 |

Dependent variable = Overall satisfaction, independent variable = perceived quality, *Significance at 0.05 level (Hair et al., 2010)

Table 5: Hierarchical regression

| Model | Unstandardized coefficients | | Standardized coefficients | | |
|--|-----------------------------|-------|---------------------------|---------|-------|
| | B | SE | Beta | t | Sig. |
| 1 | | | | | |
| (Constant) | 1.929 | 0.262 | | 7.353 | 0.000 |
| Perceived quality | 0.616 | 0.051 | 0.587 | 11.993 | 0.000 |
| Gender | -0.367 | 0.121 | -0.155 | -3.034 | 0.003 |
| State of origin | 0.253 | 0.230 | 0.056 | 1.101 | 0.272 |
| Race | 0.41 | 0.129 | 0.017 | 0.319 | 0.750 |
| 2 | | | | | |
| (Constant) | 3.868 | 0.137 | | 28.200 | 0.000 |
| Perceived quality | 0.182 | 0.028 | 0.173 | 6.585 | 0.000 |
| Gender | -1.831 | 0.227 | -0.776 | -8.073 | 0.000 |
| State of origin | -3.076 | 0.501 | -0.680 | -6.135 | 0.000 |
| Race | -3.845 | 0.157 | -1.581 | -24.568 | 0.000 |
| Overall satisfaction* gender | 0.367 | 0.048 | 0.734 | 7.642 | 0.000 |
| Overall satisfaction* state of origin | 0.644 | 0.102 | 0.698 | 6.302 | 0.000 |
| Overall satisfaction* race | 0.820 | 0.031 | 1.788 | 26.584 | 0.000 |

Model 1: The regression only involved the independent variables, dependent variables and students' characteristics, Model 2: The moderating effects were added to the regression; *Multiple; significance at 0.05 level. SE: Standard error

5. CONCLUSION AND RECOMMENDATIONS

The following recommendations may enhance the ability of the public universities in Terengganu to be an educational hub. The recommendations include a focus need for marketing segmentation across students' demographics. This can be done through educational fairs and by providing detailed testimonials from students who are satisfied with these particular services. By emphasizing these services as being exceptional, public universities in Terengganu could place themselves in a stronger position and differentiate their service offering from their competitors. According to Srikanthoo (2002), if a university is to succeed in the long term, it must develop the capacity for identifying the variables that are of most importance to students. Thus, it is recommended that public universities not only target local market and but also penetrate into international market. It is clear that the internationalization of education has created an extremely competitive market place that is different from the local market. It is recommended that the types of marketing strategies employed in creating and supporting the demand for international education should be considered more carefully. Public universities in Terengganu need to streamline their strategies for internationalization. As a conclusion, a more strategic approach to student recruitment should be taken to ensure that universities have evidence as guidelines to confirm the services that are performing well from the students' perspective, emphasizing on variety market segmentation. The universities that are informed about the needs and expectations of students are most likely to retain more sustainable student recruitment outcomes in this competitive environment.

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