The Relevance of Demographic Variables in Assessing Student Satisfaction: A Study of International Postgraduate Students

Rodney Arambewela and John Hall, Deakin University
Dr. Segu Zuhair, Victoria University

Abstract

Servicing an increasingly diverse international student community in the globally competitive education market is a challenge faced by Australian universities. Market forecasts indicate a seven-fold increase in the number of students seeking higher education overseas by 2025 (Bohm et al, 2002) and with the growing diversity and competitiveness of the industry, universities will need to focus on factors influencing student satisfaction to improve service quality where required.

This paper, using logistic regression, ANOVA, and MANOVA, investigates the influence of country, age and gender with regard to satisfaction among international postgraduate students from four Asian countries studying in universities in Victoria. The results indicate that there is an inverse relationship between age and satisfaction among postgraduate students while the gender of the students does not have an impact on satisfaction, and that significant differences are evident between the four countries investigated with respect to the levels of satisfaction.

Keywords: Student satisfaction, demographics, international postgraduate students.

Introduction

Marketing theory suggests that addressing the needs of customer segments ensures customer satisfaction and loyalty leading to organizational success. Customer satisfaction is considered as a major outcome of marketing activity and serves to link processes, culminating in purchase and consumption with post-purchase phenomena such as attitudinal change, customer retention, repeat purchase, brand loyalty, positive word-of-mouth communication (WOM) and complaining behaviour in the current context of services marketing (Harvis et al, 2000; Athiyaman, 2000; Guolla, 1999; Churchill and Suprenant, 1982). The challenge to Australian education institutions would be to manage these processes by carefully analysing the impact of key variables contributing to student satisfaction.

The objective of this paper to examine the importance and relationship of country of origin, age and gender and satisfaction among four cohorts of Asian international postgraduate students from China, India, Indonesia and Thailand studying in Victorian universities.

Country of origin, age and gender are recognized as important variables influencing satisfaction and choice in the international education environment. The impact of country of origin has been documented in many studies (IDP, 1995; Blight, 1995; Duan, 1997; Lawley, 1998). Age as a variable to predict satisfaction has been used in many studies in the past. For example, Hickson and Oshagbemi, 1999; Verhoef, Frances, and Hoekstra, 2002; Homburg and Giering, 2001; Gilbert and Hewlett, 2003; Barak, Mathur and Zhang, 2003 used age as variable in assessing service quality environments. Similarly, Al-Tamimi and Al-Amiri (2003) looked at both age and gender as variables to measure service quality while Deux and
Major (1987) focused on gender in their study arguing that the behaviour of men and women differ widely as a function of personal choice, although they are relatively equal in their potentialities for most behaviours. Bern (1981) also acknowledged the differences in the behaviour of men and women in many situations. The use of country of origin, age and gender as variables in this study, therefore, has a strong theoretical basis. The countries included in the study are also the key sources of international postgraduate students to Australia and recent statistics indicate a continuous growth in student enrolments for postgraduate studies in Australia (AEI, 2000).

The study draws on the expectations/perceptions paradigm based on the Service Quality instrument SERVQUAL (Parasuraman et al, 1994, and 1985) and analyses the variances in the overall satisfaction among the student groups using age as a variable. The expectancy-disconfirmation model or its variants remain one of the most widely discussed and tested approaches in measuring customer satisfaction (Arambewela, 2003; Bolton et al, 1999; Spreng et al, 1996; Oliver 1996; Parasuraman et al, 1994 and 1985; Tse et al, 1990; Oliver, 1980). The model suggests that customer satisfaction is related to the size and direction of disconfirmation, which is defined as the difference between an individual’s pre-purchase (pre-choice) expectations (or some other comparison standard) and post-purchase (post-choice) performance of the product as perceived by the customer (Tse et al, 1990). Despite the criticisms levelled against its approach of using difference (gap) scores, the expectancy-disconfirmation paradigm has gained increasing acceptability as a basis for assessing post purchase evaluations (Bolton et al, 1999; Park and Choi, 1998; Spreng et al, 1996; Oliver 1996; Parasuraman et al, 1994 and 1985; Yi, 1990). Moreover, the model has had strong support across a wide variety of products and services (Tse et al, 1990).

While the growing interest in student satisfaction research by higher educational institutions have contributed positively to satisfaction research in services, the work on post-choice satisfaction in international education and particularly on international postgraduate students is limited. (Arambewela, 2003, Townley, 2001, Geall, 2000) Most of the past studies have focused on undergraduate students or individual programs (DETYA 2000, and 1999; Kwan 1999; Tomovick et al, 1996; Halstead et al, 1994, and Burke 1986). The research on postgraduate students is also narrow in scope confined to specific issues and providing very little insight into comparative analysis of the post-choice decision making behaviour of students from different countries of origin (Arambewela, 2003). Another reason for focusing on the overseas postgraduate students is the continuous growth in enrolment of international students into postgraduate programs as compared to domestic students (Arambewela, 2003, AEI, 2000).

**Method**

The data used in this study is derived from a mail survey conducted in 2002 among international postgraduate students from China, India, Indonesia and Thailand studying in five universities in Victoria. The instrument used to collect the data was an adaptation of the SERVQUAL instrument developed by Parasuraman et al (1994, and 1985) and was designed to measure the gap between student responses on expectations and perceptions of the university as a study destination on a seven point bi-polar scale. The responses were sought on 36 statements representing aspects of the operations and services of the university under desired (ideal) expectations of choice and post-choice perceptions. The desired expectations are considered to have a better explanatory power than the predictive expectations used by
many researchers (Spreng et al., 1996). The variables associated with these statements were constructed with input from previous studies and focus group interviews. The methods adopted to determine the importance of the country of origin, age and gender on satisfaction included factor analysis, means score analysis, MANOVA, ANOVA, and logistics regression. Satisfaction scores based on the gap between expectation and perception was calculated to assist the analysis.

Sample

The sampling was aimed at reaching every international postgraduate student belonging to the four nationality groups in the universities surveyed. The questionnaires were administered through the International offices of the respective universities and mailed out to students using their own student databases. Of the 573 useable responses received, the sample for this study was reduced to an approximate uniform sample size from each country and each university, employing a systematic random sampling approach, which produced 371 respondents. This was to ensure equality of variance across the student groups for the same variables and reliability and validity of predictions (Hair et al, 1995).

Data Analysis and Results

The variables used in the instrument were tested for inter-item reliability and consistency of the questionnaire using Cronbach alpha. The overall significance of the correlation matrix was significant with a p-value of < 0.01, and a Bartlett Test of Sphericity value of 7632.2, which indicated that the data matrix had sufficient correlation to conduct factor analysis. Moreover, the overall Kaiser-Meyer-Olkin (KMO) measure of sample adequacy had highly acceptable value of 0.948 (Hair et al, 1995). Table 1 shows the reliability alphas related to each of the factors that were used to evaluate CS/D, the mean scores and the ranking.

Table 1. Factors and reliability alpha

<table>
<thead>
<tr>
<th>Factors and Variables</th>
<th>Reliability Alpha</th>
<th>Mean Score</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor 1: Education Standards and Facilities</td>
<td>0.9387</td>
<td>6.2</td>
<td>5.0</td>
</tr>
<tr>
<td>Factor 2: Communication and Guidance</td>
<td>0.9045</td>
<td>5.8</td>
<td>4.6</td>
</tr>
<tr>
<td>Factor 3: Customer Value and Study Outcomes</td>
<td>0.8729</td>
<td>6.0</td>
<td>4.9</td>
</tr>
<tr>
<td>Factor 4: Image/Prestige and Recognition</td>
<td>0.8995</td>
<td>6.0</td>
<td>5.1</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis. Rotation Method: Varimax

The mean scores for Communication and Guidance were lower than the other factors indicating its lower influence on satisfaction.

Logistic regression

The logistic regression resulted in three factors being significant in influencing satisfaction. The following equation shows that factors 1, 3 and 4 are significant while factor 2 is insignificant.
\[ S_{DSU} = 1.7887 + 0.5687 \text{UNISAT1}^{***} + 0.2228 \text{UNISAT2} + 0.8002 \text{UNISAT3}^{***} + 0.5214 \text{UNISAT4}^{***} \]

(** Denotes significance at <0.05, and *** significance at <0.01)

The equations highlight the importance and value of these factors to predict the probability of students being satisfied or not. From a university policy-making perspective, these equations provide useful insights into the significance of the factors and their relative importance in explaining satisfaction, at an aggregate level.

**Country of Origin**

The comparative mean scores for each country of origin are shown in table 2.

**Table: 2 Comparative Mean Scores**

<table>
<thead>
<tr>
<th>Factor</th>
<th>China</th>
<th>India</th>
<th>Indonesia</th>
<th>Thailand</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>E</td>
<td>E</td>
<td>E</td>
<td>E</td>
</tr>
<tr>
<td>Factor 1: Education Standards and Facilities</td>
<td>5.8</td>
<td>5.2</td>
<td>6.6</td>
<td>4.8</td>
</tr>
<tr>
<td>Factor 2: Communication and Guidance</td>
<td>5.2</td>
<td>4.7</td>
<td>6.4</td>
<td>4.5</td>
</tr>
<tr>
<td>Factor 3: Customer Value and Study Outcomes</td>
<td>5.4</td>
<td>4.9</td>
<td>6.5</td>
<td>5.1</td>
</tr>
<tr>
<td>Factor 4: Image/Prestige and Recognition</td>
<td>5.6</td>
<td>5.2</td>
<td>6.6</td>
<td>4.9</td>
</tr>
</tbody>
</table>

E = Expectations, P = Perceptions.

The above means scores indicate that Indian students have the highest expectations and lowest perceptions, followed by Thai and Indonesian students. Comparatively, Chinese students have relatively lower ratings for expectations and higher ratings for perceptions, resulting in a lower gap between expectations and perceptions. The analysis of this gap suggests that Indian students are the most dissatisfied among all student groups followed by Thai, Indonesian and Chinese students. With very high ratings for expectations, Indian students seem to be the least satisfied, and in comparison, Chinese students are the most satisfied. The reasons for such differences could be explained by drawing on past empirical research conducted on the impact of the cultural, social-economic, and demographic characteristics of the consumer groups on their behaviour and satisfaction.

**Table 3: ANOVA test of the differences in satisfaction - Country.**

<table>
<thead>
<tr>
<th>Country</th>
<th>India</th>
<th>Indonesia</th>
<th>Thailand</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>India</td>
<td></td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td></td>
<td></td>
<td>√</td>
</tr>
<tr>
<td>Thailand</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Differences between countries (√ = Significant .05, 0 = Not significant)

As shown in table 3, the ANOVA test of the differences between the countries of origin indicated that the satisfaction level of students from India appears to be significantly different from all other countries. The differences also exist between Indonesia and China. However, the results indicate that the differences between Thailand and Indonesia are not significant.
It is clear therefore that the differences in the cultural, socio-economic and the demographic characteristics students may have had an impact on their expectations and perceptions of university as a study destination and perceived experiences of satisfaction outcomes.

**Table 4: Overall satisfaction of student groups**

<table>
<thead>
<tr>
<th>Country of origin</th>
<th>% Satisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chinese (n=98)</td>
<td>45.5</td>
</tr>
<tr>
<td>Indian (n=95)</td>
<td>4.2</td>
</tr>
<tr>
<td>Indonesian (n=99)</td>
<td>18.2</td>
</tr>
<tr>
<td>Thai (n=89)</td>
<td>13.5</td>
</tr>
</tbody>
</table>

Table 4 above is a frequency analysis of the overall satisfaction among student groups, which indicates that the total number of satisfied students vary between the student groups. It shows the percentage distribution of the number of satisfied and dissatisfied students where Indian students account for the lowest number of satisfied students with an average of only 4.2% of the total, followed by students from Thailand (13.5%), Indonesia (18.2%), and China (45.5%)

In summary, the student groups shared the common characteristic of having high ratings on expectations than on perceptions, but the ratings between the groups differed significantly with vastly different effects on satisfaction.

**Age and Gender**

The predictive ability of age and gender was analysed using a logistic regression on the categorical transforms of the satisfaction scores. Age emerges as a factor with the highest impact on the variability of the dependent variable whereas gender does not have any significant influence on student satisfaction. The results show that the equation has high goodness-of-fit values as indicated by the $R^2_p$ value.

$$S = 1.123 - 0.123 \text{sex} - 0.619 \text{age}^{***} \quad (R^2_p = 75.3)$$

Where: $S = 1$, if the average of the difference scores is $> 6$ and $= 0$ otherwise; $^{***}$ Denotes significance at $\leq 1\%$.

The influence of age and gender was also assessed using MANOVA and ANOVA with regard to each factor and the variables that made up each factor, neither the variables nor the factors were found not to be significantly different according to gender. While each factor and each variable did vary significantly (.05) according to Age

**Conclusions and implications**

The study shows that the levels of satisfaction vary significantly between the countries of origin while age has an inverse relationship with student satisfaction, with the level of satisfaction decreasing with age. This relationship can be expressed in two logical dimensions. Firstly, the decrease in satisfaction with age signifies that the maturity of the student has a significant impact on overall satisfaction i.e. mature and experienced students become more demanding than younger inexperienced students. Past research indicates that the differences in consumer behaviour are associated with maturity and experience. For example, research conducted on non-traditional students at a Scandinavian university by
Rautopuro and Vaisanen (2001) found that the university experience differed between younger and older students. Secondly, the variance in age between the nationalities of student groups would provide an insight into the influence of culture on satisfaction. This aspect has not been investigated in this paper. The relationship of gender with satisfaction was not significant. These findings have direct relevance for universities when designing and delivering services to maximize opportunities to increase satisfaction levels of international students in order to achieve a competitive edge.

The focus of this study on postgraduate students is justifiable in view of the paucity of research on postgraduate students compared to undergraduate students. Moreover, it is recognized that postgraduate students are different in a number of ways to undergraduate students relating to demographic, psychographic and experiential factors.

References


Geall, V., 2000. The Expectations and Experience of First-Year Students at City of University of Hong Kong. Quality in Higher Education. 6(1), 77-89.


