

An Analysis of Factors of Importance to International Postgraduate Students from Asia Studying in Victorian Universities

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Abstract

Student satisfaction is a key strategic variable in maintaining a competitive position in the international education market by Australian universities. The universities are facing the challenge of rising student expectations of quality, service and value for money, and the need to increase the satisfaction level of their students to retain and improve international student numbers. This process requires universities to carefully analyse the key factors contributing to student satisfaction.

Using logistic regression analysis with factor scores and aggregated satisfaction scores, this study examines the relative importance of factors and their impact on the satisfaction levels of international postgraduate students from four Asian countries studying at Victorian universities. The study concludes that the dominant factors that impact on student satisfaction include the quality of education, student facilities, reputation of the institutions, the marketability of their degrees for better career prospects, and the overall customer value provided by the universities.

Introduction

International education is one of the fastest growing industries in Australia, contributing over \$4 billion export revenue to the country's economy (Nelson, 2002). Some researchers (Mazzarol and Hosie, 1999) assert, however, that the international tertiary education industry has entered the mature phase of its life cycle. Given the need to find alternative sources of income due to government funding constraints, competition among universities in Australia has intensified to attract and retain full fee paying students. In these circumstances, increasing the satisfaction levels of students studying in Australia has become a critical success factor.

The aim of this paper is to determine some of the key factors influencing post-choice satisfaction of full fee paying Asian postgraduate international students from China, India, Indonesia and Thailand studying in Victorian universities. Drawing on the expectations /perceptions paradigm based on the SERVQUAL instrument (Parasuraman, Zeithaml, and Berry 1994, and 1985), this paper analyses the relative satisfaction among the student groups. The analysis examines the relationship between three satisfaction scores (calculated from questionnaire feedback), and the factor scores (generated from factor analysis), to establish the importance of the factors in explaining students' satisfaction.

Under the paradigm of *service-recipient* which considers students as customers (Havarnek and Brodwin, 1998), universities need to be highly student-focused in their service delivery. According to the theory of customer satisfaction, customers rely heavily on psychological inputs such as expectations, which play an important role in framing satisfaction evaluations (Oliver, 1996). The evaluation of the quality and performance of a service such as university education, can take place only after experiencing or consuming because customers have limited tangible pre-choice cues. The perceptions formed during this evaluative process are

key indicators of customer satisfaction or dissatisfaction (Halstead *et al*, 1994)). In the present paper, the terms *pre-choice expectations* and *post-choice perceptions* are operationalised in order to investigate student satisfaction.

Literature Review

Customer satisfaction is the cornerstone of the marketing concept and one of the most widely studied and embraced constructs in marketing. It is key to customer retention and positive word-of-mouth communication (WOM) in the current context of services marketing (Harvis *et al*, 2000). Guolla (1999) points out that the degree of satisfaction determines the nature of WOM whether it is positive or negative. From an aggregate perspective, highly satisfied student recommend programs, return as graduate students, recruit prospective students or regularly donate as alumni. A study on an Australian university by Athiyaman (2000), further confirms the strong relationship that exists between student satisfaction and WOM and its impact on students' choice process. The link between WOM and customer retention is therefore significant.

While early research considered the satisfaction construct as a form of attitude, research in the 1980s revealed that satisfaction is more complex involving numerous measurement issues. Some researchers lamented that most of the CS/D research is focused on conceptual issues and underlying processes giving little attention to the pragmatic task of measurement (Yuksel and Rimmington, 1998).

One of the widely discussed and tested approaches in measuring customer satisfaction is Oliver's (1980) expectancy-disconfirmation model or one of its variants. Expectancy-disconfirmation is a derivative of adaptation-level theory and suggests that customers compare the actual product and service performance with their prior expectations. The paradigm postulates 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 and Wilton, 1990) expectations are met or exceeded the customer is satisfied. If the performance falls short of the expectations, the customer is dissatisfied.

Despite its limitations in the approach of using difference (gap) scores, the expectancy-disconfirmation paradigm has gained increasing acceptability as a basis for assessing post-purchase evaluations and the endorsement of a number of researchers since it was first introduced (Bolton *et al*, 1999; Spreng *et al*, 1996; Oliver 1996; Parasuraman *et al*, 1994 and 1985). The development of several variants of the model using the paradigm or the use of some form of the standard performance disconfirmation paradigm in which actual choice is compared to an internal standard during satisfaction formation is a further indication of its popularity as a measurement approach (Park and Choi, 1998). Moreover, the model has had strong support across a wide variety of products (Tse *et al*, 1990). The main rationale behind the model is that it provides a comparison standard to facilitate confirmation or disconfirmation (Yi, 1990), and is based on matching of service outcomes with previous experiences. Such comparisons are undertaken in the consumer's mind to establish a "calculated disconfirmation" which influences "subjective disconfirmation" (Ueltschy and Krampf, 2001; Anderson, Fornell and Lehmann, 1994) acknowledge this perspective in

several ways by claiming that satisfaction should be viewed as a judgement based on cumulative experience rather than transaction-specific exposure.

The application of CS/D has received wide recognition in the service industry. In particular, the increasing interest of higher educational institutions in student satisfaction research has contributed positively to satisfaction research on services (Geall, 2000). The “Student Satisfaction Approach” developed by the Centre for Research into Quality at the University of Central England (UCE) to evaluate student feedback for quality improvement, which is being practiced by a number of universities in the world, is a case in point. This trend, according to Townley (2001), is spurred by the need to maintain a competitive advantage and build a market share in order to secure government funding based on the concept of full-time equivalent students.

The work on post-choice satisfaction in international education, however, is very limited and studies focusing on international postgraduate students are rare. Some of the studies in the area included, DETYA (2000, and 1999); Kwan (1999); Tomovick *et al* (1996); Hausler *et al* (1995); Halstead *et al* (1994), and Burke (1986), which were largely focused on undergraduate students or individual programs. Research conducted on the postgraduate students was also confined to specific issues and no attempt has been made on a comparative analysis of the post-choice decision making behaviour of students from different countries of origin.

Methodology

The data used in this study are derived from a mail survey among international postgraduate students from China, India, Indonesia and Thailand studying in five universities in Victoria. Of the 573 useable responses received, the sample for this study was reduced to approximately 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 (Hair *et al* 1995).

The Survey Instrument

The questionnaire was an adaptation of the SERVQUAL instrument developed by Parasuraman, Zeithaml and Berry (1998, 1991, and 1994) 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.

Data Analysis

Factor analysis was performed on the data using Principal Components and Orthogonal (VARIMAX) method to identify the communalities of the variables and these resulted in four factors – Education standards and facilities (UNISAT1), Information and Guidance (UNISAT2), Customer value and study outcomes (UNISAT3) and Image, prestige and recognition (UNISAT4). All variables 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).

Factor scores and the measurement.

Factor scores are composite measure for each factor representing the characteristics of each subject, and have the advantage of representing a composite of all variables loading on the factor (Hair *et al*, 1995). Three types of satisfaction scores: (a) the raw difference (gap) score, (b) the arithmetic average of the ratio score, and (c) the geometric average of the ratio score, were then used in a logistic regression procedure to cross tabulate factor scores to ascertain the importance of the factors in explaining satisfaction.

Factors extracted

The following factors were extracted using the method of *Principal Component Analysis* and the *Varimax* Rotation Method with *Kaiser* normalization. The rotation converged in seven iterations:

Factor 1: UNISAT1 - Education Standards and Facilities (F1)

Modern library facilities, Good operating hours & library access, Modern computer facilities, Good access to computer labs, High standard of teaching with quality lecturers, Valuable feedback from lecturers. Good access to lecturers, High standard of lecture material. Manageable class sizes [*Reliability Alpha* = 0.9387]

Factor 2: UNISAT2 - Information and Guidance (F2)

International orientation programs, Social activities, Counselling services, Availability of information compared to other Universities, Availability of information through the Internet, Complaints process for services and facilities, Information and guidance from overseas consultants, Information through Australian Embassies. [*Reliability Alpha* = 0.9045]

Factor 3: UNISAT3 - Customer Value and Study Outcomes (F3)

Competitive fees, Flexible timetables, Fees that offer good value for money, Recognition of prior learning, Academic courses relevant to future job prospects, Completion of academic courses suited to own needs. [*Reliability Alpha* = 0.8729]

Factor 4: UNISAT4 -Image/Prestige and Recognition (F4)

High image and prestige Internationally, High image and prestige within Australia, High image and prestige within own country, Academic courses recognised in own country, Academic courses appropriate to own needs. [*Reliability Alpha* = 0.8995]

Results

A Chi-square test showed that three factors: UNISAT1, UNISAT3 and UNISAT4 were all significant ($p < 0.01$), and therefore positively related to satisfaction. UNISAT2, however, was insignificant at that level, although its impact on post-choice satisfaction should not be underestimated. It was clear that the students' concerns were mainly directed at the quality of education, student facilities, reputation of the institutions, the marketability of their degrees for better career prospects, and the overall customer value provided by the universities. The results of the logistic regression analysis with factor scores and the satisfaction scores are given by the following equations. These equations can be used to predict the probability of students being satisfied or not, for a given set of factor scores.

1. Difference score (S_D)
$$S_D = 1.7887 + 0.5687F1^{***} + 0.2228F2 + 0.8002F3^{***} + 0.5214F4^{***}$$
2. Arithmetic average of the ratio score (S_A)
$$S_A = 1.4141 + 0.6242F1^{***} + 0.3556F2^{**} + 0.8769F3^{***} + 0.5757F4^{***}$$
3. Geometric average of the ratio score (S_R)
$$S_R = 1.6818 + 0.7034F1^{***} + 0.2270F2 + 1.0554F3^{***} + 0.5794F4^{***}$$

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

Discussion and Conclusions

The factors that have a major impact on satisfaction of international postgraduate students from Asia were the main focus of this study. Asia continues to remain a potential market for full-fee paying international students studying in Australian universities, and the four countries investigated in this study are among the top ten sources. The research provides an insight into the factors that students consider important, and the satisfaction variables that comprise each of these factors, for prioritisation of action to increase the satisfaction levels of the students. Past research on university students has highlighted a variety of common factors that influence student satisfaction such as university facilities, teaching quality and study outcomes, which have been validated by this study.

In this increasingly competitive environment of higher education, student satisfaction is gaining tremendous importance among policymakers. The importance of this study is that it deals with culturally diverse student groups, and also with diverse learning backgrounds. The results would therefore be of particular interest to Australian universities specializing in this market segment. The estimated logistic equations will be useful in prioritising objectives and developing strategies and formulating policies with regard to services, which have a greater impact on student satisfaction. The approach can also be used to ascertain the differences among student groups in the factors they consider important.

Limitations and future research

A limitation of the study is that it is focused on five universities in Victoria and therefore the results may not be applicable to the other states nor are they applicable to undergraduate students. An extension of the study to other states of Australia would provide further insight. It would also be useful to test the validity of the factors on international students choosing study destinations other than Australia.

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