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Identifying critical service quality attributes for higher education in hospitality and tourism: Applications of the Kano model and importance-performance analysis (IPA)

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This study aims to identify critical education elements using the Kano model and importance-performance analysis (IPA), and thus provide recommendations for college hospitality and tourism programmes. It makes an empirical contribution to the question of quality in hospitality and tourism education. The population sampled was hospitality and tourism students in higher education. A total of 338 valid questionnaires were collected, with a response rate of 61.4%. The results suggest that education elements can be categorized by their different quality attributes. The two most important elements perceived by students were, 1) teachers assess the academic performance of students in a true, correct, and reasonable way, and 2) teachers can provide students with information on future employment.

Key words: Hospitality and tourism higher education, SERVQUAL, Kano’s model, IPA.

INTRODUCTION

According to the World Travel and Tourism Council, the global tourism industry contributed approximately 9.2% of the world gross domestic product (GDP) in 2009. Tourism has become a significant factor in the economic development of many countries. The Taiwan Tourism Bureau reports that 5,567,277 tourists came to Taiwan in 2010, an increase of 26.67% over the figure for 2009 (Tourism Bureau Statistics, 2011). Due to this fast growth in the Taiwanese tourism industry, there is increasing demand not only for hospitality-related businesses themselves, but also for services providing education and training to meet the demands of the tourism industry for human resources (United Nations World Tourism Organization, 2010). To coordinate the development of the industry, with its multiplicity of structures, the hospitality and tourism industry needs to provide relevant higher education programmes. In 1998, 16 universities or institutes offered majors in hospitality and tourism in Taiwan, but that number increased to 84 by 2010 (Ministry of Education Accounting office, 2010). Thus, as suggested by Horng et al. (2009), the need to evaluate HTLPs (hospitality, tourism and leisure related programmes) accurately has become ever more important in Taiwan and in the rest of the world.

The growth in tourism programs has created high expectations within the tourism and travel industry that...
higher-quality education programmes will emerge to match the industry’s structural changes and increases in consumer demand. It has also brought about an increase in the quality of teaching in tourism majors (Bosselman, 1996; Wilson et al., 1997). Current HTLPs have to meet the expectations and standards of industry organisations. HTLPs must emphasise specialized study at the highest level of quality to train specialist personnel to meet the demands of the industry. Therefore, improving service quality and increasing customer satisfaction are the main focus in HTLPs. Quality in an educational context depends on whether the education provided meets students’ actual needs and expectations (Tan and Kek, 2004). The level of satisfaction achieved depends on how students perceive their education (Astin, 1993). In these terms, higher education is facing pressure globally to improve the quality of the educational services provided (Heck and Johnsrud, 2000). Consumers value most of those service providers who can provide the highest level of quality. This is true in both profit and non-profit service industries. Education is a non-profit service industry (Wright and O’Neill, 2002), and in the context of this industry, the consumers are students. Their demands and expectations guide higher education providers to develop better management and education programs (Wright, 1996). Close listening to students is necessary in order to understand their views and to achieve the educational success that brings competitive advantage in education. Thus, we should identify the critical educational elements of HTLPs and then boost student satisfaction by making targeted improvements.

An integrated approach that combines the Kano model with an IPA offers a solution to the challenge of exploring the critical elements of education. The Kano model is used because it ‘uniquely identifies customers’ requirements in detail by assigning different categories to different requirements’ (Sireli et al., 2007), thus giving an accurate account of student opinions. Most importantly, ‘efficient-improvement elements’ can be identified: that is, elements that simultaneously increase customer satisfaction and decrease customer dissatisfaction (Matzler and Hinterhuber, 1998; Deng and Lee, 2007). IPA produces a list of Concentrate Here elements, which are the most urgent areas for improvement in education service quality. In order to fully operationalize the voice and customer satisfaction of HTLP students, education elements are categorized based on the Kano model and education service quality is explored using IPA. Having determined a list of education elements, those that are categorized both as efficient-improvement and as Concentrate Here are critical for the improvement of the quality of HTLPs. To sum up, the purposes of this study was to categorize the education elements based on the Kano model and to explore the education service quality by using IPA. After found out the elements, to identify the critical education elements based on the Kano model and IPA. Then give some suggestions for the first-line teachers and school managers in hospitality and tourism programmes.

Higher education

As living standards continue to increase, people are determined to see similar improvements in their depth and breadth of knowledge. Higher education enhances employment skills and is a source of new technologies; it is also a key factor in developing a country’s international competitiveness (Jiang, 2000). To coordinate the development of the hospitality and tourism industry, with its multiplicity of structures, the industry needs to provide relevant higher education programmes. According to Statistical Discovery, between the years 1990 to 1998 there were 149 bachelors degree major programmes related to hospitality offered in the United States. This increased to 206 bachelor degree majors in 2006, representing growth of nearly 40% (United States Department of Education, 2006). Britain has also seen rapid growth in hospitality as a major since 1990. The number of students studying hospitality-related subjects grew from 1,666 in 1995 to 2,363 in 1998, representing an increase of 42% over four years (Stuart-Hoyle, 2003). Between 1964 and 1994, South Korea established 53 hospitality-related bachelors degrees in 26 universities, with both masters and doctorate degrees also offered. The number of students seeking higher education in the hospitality industry in Korea is still on the increase (Kim et al., 2008). In Taiwan, sixteen universities or institutes are equipped to provide a major in hospitality and tourism, offering eighteen separate bachelor programs. The number of students in this field has increased along with global trends: from 4,511 to 37,649 between the years of 1987 and 1997. The number of male students increased from 1,415 to 14,092; the number of female students increased from 3,096 to 23,557. Over the past five years, the number of students in hospitality-related majors has grown 50% again (Ministry of Education Accounting office, 2010). Because of changes in the hospitality and tourism industry, the number of university departments serving the industry is growing. This creates competition among institutions. Hospitality and tourism departments work to enhance their quality of education in order to meet student demand, and create added value to attract new students.

Service quality in education

The concept of ‘service quality’ is based on a customer-oriented perspective, evaluating the customer’s level of satisfaction with the services provided by an organisation. Berry (1995) argues that service quality plays an important role and can positively affect an organisation. Education service quality is an approach to quality of education as a kind of service quality. Schools are the service providers, and students are the customers. Thus,
the school should consider its students to be customers, and would value their needs, constantly improving the quality of education (for example, school equipment, the effectiveness of school administration, teaching quality, etc.) and establishing a culture of good education. In the education context, researchers define service quality as the differences between the customer’s actual experience with a certain service provider and their original expectations. Parasuraman et al. (1988) note that essentially, it is the number of positive and negative service features in process of interaction between the service provider and the customer. Parasuraman et al. (1998) propose a SERVQUAL scale and identify five essential aspects of quality: tangibility, reliability, responsibility, assurance and empathy.

These aspects are used to define the assessment standard, and create an effective measure for evaluating service quality. Markovic (2006) finds that SERVQUAL is a reliable scale, and also that this scale is applicable to the management of higher education, and that it can be successfully used to evaluate service quality in higher education (Seymour, 1992; Hampton, 1992; Ruby, 1996; Waugh, 2002). Each aspect of service quality should be measured using consumer attitudes. Kerlin (2000) applies the five aspects of service quality of the SERVQUAL scale to evaluate student satisfaction with services provided in universities, finding that students place less value on service reliability than they do on tangibility. Tan et al. (2010) examine the link between service quality as measured by the SERVQUAL scale and knowledge sharing. Brookes (2003) conducted research into student perspectives on their experience in higher education. This research probed the variability of service quality in 22 schools through in-depth interviews and questionnaires. The research results show that schools valued hardware and people as enhancing the effectiveness of their programmes. The present study uses the concepts developed by Parasuraman et al. (1985, 1988) to investigate the views of the primary customers (students) on education quality in hospitality and tourism programmes.

The Kano model and IPA: An integrated approach

An integrated approach that combines the Kano model and IPA can help to solve the challenge of exploring the critical elements of education. Kano et al. (1984) propose a two-dimensional quality model (Figure 1), which categorizes the attributes of a product or service based on how well it satisfies customer needs by looking at a customer experiences (Tan and Pawitra, 2001). Shen et al. (2000) describe the core idea of Kano model as an answer to the challenge of (a) how to satisfy the customer and (b) to make them happy. The Kano model, separates elements of the education service into five quality categories to understand student quality expectations. Yang (2005) summarized the five categories of the Kano model as follows: (1) attractive: an attribute that gives satisfaction if present yet no dissatisfaction if absent; (2) one-dimensional: an attribute that is positively and linearly related to customer satisfaction, that is to say, the greater the degree of fulfilment of the attribute, the greater the degree of customer satisfaction; (3) must-be: an attribute whose absence will result in customer dissatisfaction but whose presence does not significantly contribute to customer satisfaction; (4) indifferent: an attribute whose presence or absence does not cause any satisfaction or dissatisfaction for customers; and (5) reverse: an attribute whose presence causes customer dissatisfaction and whose absence results in customer satisfaction.

The Kano model categorizes the elements desired in an education, and this analysis assists in obtaining a better understanding of student expectations. Based on the Kano model, Matzler and Hinterhuber (1998) develop a ‘customer satisfaction coefficient’ to identify the extent to which meeting a product/service requirement increases customer satisfaction or whether fulfilling this product/service requirement merely prevents the customer from becoming dissatisfied. The customer satisfaction coefficient is symbolic of ‘how strongly a product/service feature may influence satisfaction or, in the case of its non-fulfilment, customer dissatisfaction’ (Matzler and Hinterhuber, 1998,). The customer satisfaction coefficient uses Equations 1 and 2 below. Based on the customer satisfaction coefficient, Deng and Lee (2007) further suggest that if a certain product and service element can increase customer satisfaction and decrease customer dissatisfaction at the same time, this element is a highly efficient lever for improving the quality of product and service offerings, and thus can be said to possess an efficiency advantage. Such elements, termed ‘Efficient-Improvement Elements’ in this study, offer an efficient route to satisfying students in higher education.

Coefficient for increasing customer satisfaction (Berger et al., 1993):

\[(CS) = \frac{(A+O)}{(A+O+M+I)}\]  

(1)

Coefficient for increasing customer dissatisfaction (Berger et al., 1993):

\[(CD) = \frac{(O+M)}{(A+O+M+I)^{-1}}\]  

(2)

IPA was originally introduced as a way of examining customer satisfaction as a function of both what is ‘important’ for consumers and ‘performance’ for consumers. Specific services or products were then used as the basis for prioritizing the attributes (Sampson and Showalter, 1999). IPA involves a dual mechanism: the use of expectations and satisfaction not only to assess user preferences but also to assess the suppliers in question based on their performance attributes (O’Sullivan, 1991). Oliver (1997) and Haemoon (2001) find that IPA can be used to determine the important
Figure 1. The Kano model of the quality attributes. Source: Yang (2005).

Figure 2. Importance-performance analysis model. Source: O’Sullivan (1991).

determinants of decision-making when customers are seeking to buy a product or service. O’Sullivan (1991) expresses IPA scores on a figure with performance levels for various quality attributes on the horizontal axis, while the vertical axis expresses the importance of the quality attributes. A score is given to each of the quality attributes, after which the average scores for importance and satisfaction are used to draw new axes dividing the figure into four areas: (1) Keep up the good work: These attributes are perceived to be very important to respondents; at the same time, the organization seems to have exhibited high levels of performance in these areas. (2) Concentrate here: These attributes are perceived to be very important to respondents, but performance levels are fairly low. This sends a direct message that improvement efforts should be concentrated here. (3) Low Priority: These attributes have low importance, and performance is low. (4) Possible overkill: This attributes have low importance but organizational performance is relatively high (Figure 2).

RESEARCH METHODS

Sample

Over the last three years, the school of Tourism of Ming Chuan University has been ranked the best of all the tourism-related departments or schools at private colleges in Taiwan. In addition, Ming Chuan University was the first to upgrade its tourism program by setting up the School of Tourism, consisting of the Tourism Department, the Leisure and Recreation Administration Department, and the Hospitality Management Department. Murray (1997) finds
that student opinion can serve as an effective tool for measuring and improving the quality of teaching. Harvey (1995) also indicates that comments from students can develop an institution's culture and improve teaching quality. Therefore, this study takes students at the School of Tourism of Ming Chuan University as the sample population for this study, including students from the Tourism, Hospitality Administration and Leisure and Recreation Administration Departments. Purposive sampling was adopted. Sampling time was arranged so that students were interviewed during the free time between their compulsory courses. Before starting the investigation, one graduate student was trained as an interviewer, so that she was familiar with the content of the questionnaire, and thus be able to answer questions from respondents.

The interviewers first introduced themselves and explained the purpose of the interview. The respondents were asked to fill out the questionnaires by themselves. If the respondents had any questions, the interviewers would answer. A total of 550 questionnaires were distributed and 338 usable samples were returned, representing a response rate of 61.4%.

**Questionnaire design**

The education expectations questionnaire items were developed from the literature review, based on the SERVQUAL scale. The survey instrument was also examined by three education experts to check the validity of the wording of the questionnaire. The twenty six items were as listed in Table 1. The Kano model measurement involves pairs of one positive and one negative question for each element; this provides a systematic way of grouping student requirements into different Kano categories. For each question, students chose from one of the following responses: ‘very unimportant’, ‘unimportant’, ‘neutral’, ‘important’, ‘very important’ or ‘do not like’. Students’ experience of education was another aspect of this study. Therefore, after the Kano measurements, each respondent was also asked to rate the degree of importance (very unimportant = 1 to very important = 5) and they attach to each area of education, and their institution’s performance (strongly disagree = 1 to strongly agree = 5).

**Pre-analysis**

Several statistical techniques were used in this study, including exploratory factor analysis (EFA), confirmatory factor analysis (CFA) and reliability analysis. Following Churchill (1979), an iterative-scale purification procedure was used to develop a reduced, more parsimonious scale. EFA was then used to identify the underlying dimensions of the scale. After excluding items with factor loading below 0.4 and items strongly loading on more than one factor, five factors were found. These five factors explained 59.034% of the variance over the 26 items which remained after deletion of items from the original 38 using various deletion criteria. A reliability coefficient was calculated to test the internal consistency of the items. Cronbach’s α is a reliability coefficient that indicates how well the items in a set are positively correlated to one another. The closer Cronbach’s α is to 1, the higher the internal consistency reliability (Sekaran, 2000). The reliability coefficients range from 0.822 to 0.933. The high a values indicate good internal consistency among the items, and the high value for the overall scale demonstrates convergent validity for the questionnaire (Parasuraman et al., 1991). Furthermore, CFA is used to identify sub-dimensions in the education quality scale. Based on the patterns of the factor loading, there were five factors over 26 education items. The collected responses (n = 200) were analyzed by CFA using a Structural Equation Modeling (SEM) package (AMOS 6.0). Because of the large sample, the χ² statistic is too high (Baggozzi and Yi, 1988), but the SEM statistics (for example, GFI = 0.904, CFI = 0.879, and RMSEA = 0.070) reach the suggested confidence levels for the model. To establish convergent validity, most of the standardized factor loadings were above the recommended value for a CFA of 0.40 (Anderson and Gerbing, 1988).

**RESEARCH AND ANALYSIS RESULTS**

**Responses and summary statistics**

The number of valid responses was 338. The respondents were 80.5% female and 19.5% male; 26.3% were freshmen, 21.8% were sophomores, 25.7% were juniors and 26.3% were seniors; 37.4% were from the tourism department, 31.4% were from the hospitality management department and 31.2% were from the leisure and recreation administration department; 70% lived in the north of Taiwan.

**Kano model results**

Items found to be ‘attractive qualities’ are Q24, Q1, Q7, Q4 and Q21. ‘Indifferent qualities’ are Q14, Q20, and Q26. ‘One-dimensional qualities’ are Q15, Q2, Q3, Q10, Q11, Q16, Q9, Q8 and Q19. ‘Must-be qualities’ are Q23, Q17, Q12, Q25, Q13, Q18, Q5 and Q22. Next, we considered customer satisfaction (CS) and customer dissatisfaction (CD). The CS average was 0.496 for the x-axis and the CD average was -0.542 for the y-axis; from this, we created a customer satisfaction matrix figure. Items falling in the first quadrant are the areas which need improvement: Q1, Q7, Q14, Q21, Q24 and Q26 (Figure 3).

**IPA model results**

There are 6 items in the ‘keep up the good work’ category, 6 items in the ‘concentrate here’ category, 8 items in the ‘low priority’ category, 6 items in the ‘possible overkill’ category (Figure 4).

**Critical education items**

Based on the results illustrated in Figures 3 and 4, any items which are simultaneously ‘efficient-improvement’ and ‘concentrate here’ are critical. These are the critical education elements that hospitality and tourism programmes should consider their first priority in order to provide students with a quality education. In IPA, there are 6 items in the ‘concentrate here’ category; and the ‘customer satisfaction matrix’ has 6 efficient improvement items. The overlap between the two is the statements ‘Q7: Teachers assess the academic performance of students in
Table 1. Factor analysis results of higher education service quality measurement.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Items</th>
<th>Factor loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching</td>
<td>1) Teachers possess a wealth of teaching experience and practical experience, and students can absorb much of the relevant knowledge.</td>
<td>0.778</td>
</tr>
<tr>
<td></td>
<td>2) Teachers are devoted to teaching.</td>
<td>0.759</td>
</tr>
<tr>
<td></td>
<td>3) Teachers can teach and guide me using a structured, systematic, and progressive learning process.</td>
<td>0.670</td>
</tr>
<tr>
<td></td>
<td>4) Teachers use diverse teaching methods to educate and train students to think and make judgments.</td>
<td>0.662</td>
</tr>
<tr>
<td></td>
<td>5) Teachers have professional licenses and expertise.</td>
<td>0.572</td>
</tr>
<tr>
<td></td>
<td>6) The school sets up a clear annual calendar for all its teaching activities, including the date and time of their implementation. Activities are carried out as planned.</td>
<td>0.474</td>
</tr>
<tr>
<td>Reward and response</td>
<td>1) Teachers assess the academic performance of students in a true, correct, and reasonable way.</td>
<td>0.745</td>
</tr>
<tr>
<td></td>
<td>2) Teachers are able to respond to a student's questions in an appropriate manner.</td>
<td>0.716</td>
</tr>
<tr>
<td></td>
<td>3) Administrative staff of the school are friendly, cordial and capable in providing good service.</td>
<td>0.695</td>
</tr>
<tr>
<td></td>
<td>4) School staff take initiative to solve students' problems in the fastest possible way.</td>
<td>0.660</td>
</tr>
<tr>
<td></td>
<td>5) There is a channel by which students can appropriately respond to curricula, including the comments on the level of difficulty of lectures and teaching materials.</td>
<td>0.584</td>
</tr>
<tr>
<td></td>
<td>6) Teachers at the school give fast feedback to my suggestions or comments in the course of learning.</td>
<td>0.572</td>
</tr>
<tr>
<td>Organizational trust</td>
<td>1) The department provides a good learning environment and rich library resources (such as reading rooms, tourism periodicals, and CD-ROMs).</td>
<td>0.718</td>
</tr>
<tr>
<td></td>
<td>2) The department has a trustworthy teaching philosophy.</td>
<td>0.684</td>
</tr>
<tr>
<td></td>
<td>3) The department features well-established practices and culture and wins public praise.</td>
<td>0.594</td>
</tr>
<tr>
<td></td>
<td>4) There is a channel by which students can appropriately respond to curricula, including the comments on the level of difficulty of lectures and teaching materials.</td>
<td>0.562</td>
</tr>
<tr>
<td></td>
<td>5) Teachers and staff deserve the respect and trust of the students.</td>
<td>0.493</td>
</tr>
<tr>
<td>Student-teacher interaction</td>
<td>1) Teachers provide students with guidance on life.</td>
<td>0.771</td>
</tr>
<tr>
<td></td>
<td>2) Teachers in the department continue to give students feedback and encouragement.</td>
<td>0.745</td>
</tr>
<tr>
<td></td>
<td>3) Teachers have positive interactions with and provide advising services for students (Office Hour).</td>
<td>0.678</td>
</tr>
<tr>
<td></td>
<td>4) Teachers can provide students with future employment information</td>
<td>0.590</td>
</tr>
<tr>
<td></td>
<td>5) Teachers advocate further education and provide guidance.</td>
<td>0.567</td>
</tr>
<tr>
<td>Teaching equipment</td>
<td>1) The department provides a good classroom environment, including adequate lighting, good ventilation, and good sound insulation.</td>
<td>0.689</td>
</tr>
<tr>
<td></td>
<td>2) The department provides adequately professional classrooms and equipment (such as an in-school travel agency, a kitchen, an aviation classroom, a golf course).</td>
<td>0.636</td>
</tr>
</tbody>
</table>
Table 1. Continued.

<table>
<thead>
<tr>
<th>Description</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>3) The department provides modern teaching facilities (such as computers and audio-visual equipment)</td>
<td>0.611</td>
</tr>
<tr>
<td>4) The department provides a safe environment, facilities, and equipment (such as fire extinguishers, alarms) and maintains them well</td>
<td>0.523</td>
</tr>
</tbody>
</table>

| Eigen values | 3.964 | 3.563 | 3.508 | 3.457 | 2.627 |
| % of Variance | 13.669 | 12.287 | 12.098 | 11.920 | 9.060 |
| Cumulative % | 13.669 | 25.955 | 38.054 | 49.974 | 59.034 |
| Cronbach's alpha | 0.913 | 0.855 | 0.874 | 0.933 | 0.822 |
| Kaiser-Meyer-Olkin | 0.915 | | | | |

Figure 3. Customer satisfaction matrix.

Figure 4. Importance-performance model (IPA).
a true, correct, and reasonable way’, and ‘Q21: Teachers can provide students with future employment information’. These are the two critical education elements.

DISCUSSION AND CONCLUSIONS

This study provides a method for identifying critical education elements for higher education. The critical education elements identified in this case are: ‘Teachers assess the academic performance of students in a true, correct and reasonable way’ and ‘Teachers can provide students with future employment information’.

Implications for teachers

It is recommended that teachers not only share their course plans and midterm/final exam grading policies, but also help students to understand their grading structure. When teachers demonstrate the grading process, they also need to remember each student’s right to privacy. Institutions should arrange student-teacher interviews during instructors’ office hours. The teachers can gain a clearer picture of the students’ background in terms of learning, life, family, education and potential career paths. Based on what they have learned from the students, teachers should provide encouragement or help, including scholarships, support, awards or any kind of encouragement. This mechanism would enable teachers to learn more about the students and help students to access care, encouragement and assistance.

Implications for managers

We recommend that colleges offer courses that lead directly to professional licenses/qualifications. Colleges should also encourage the students to participate in external events such as trade fairs. The college should invite experienced professionals to give speeches or suggest career paths. Bulletins for the students with information on how and where to get essential licenses or job vacancies would also be appropriate on the college website. Each college should encourage its teachers to put into practice the most important elements of education and service for students, not focus on the students’ grades.

Future research

In this study, the experimental population of students was from only one university. If data could be obtained from a wider range of individuals (such as school principals, faculty, administrators, janitors or even the community) the analysis would be even more helpful. A lot of researchers have found that the SERVQUAL concept does not necessarily apply to the entire service industry, and there are many other means of analysis, such as SERVPERF and non-difference. This study made successful use of SERVQUAL in conjunction with questionnaires. But for future research, it is suggested that more interviews be conducted to provide a more detailed analysis.

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