# Constructing Marketing Indicators and Measuring the Satisfaction of Asian International Students in the Higher Education Sector

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**Abstract**

This paper addresses the construction of marketing mix strategies within the Taiwanese higher education sector and the applicability of such strategies to measure the satisfaction levels of Asian international students. Due to a declining birth rate in Asia as well as an oversupply of schools, recruitting international students is an effective tactic for higher education managers in Taiwan. To pool a representative sample of the population, international subjects were drawn from all higher education institutions in Taiwan. For this research, the author collected 328 valid questionnaires. Descriptive statistics indicated that the seven-factor model was of good fit and included attributes of product, place, price, promotion, people, reputation, and physical evidence. The results from the study highlighted the applicability of the importance-performance analysis (hereafter IPA) for managers attempting to improve their marketing mix strategies and resources from appropriate marketing sectors.

**Keywords:** confirmatory factor analysis, higher education, importance-performance analysis, international students, marketing mix strategy

## 1. Introduction

Recent trends in Asian higher education have seen considerable growth in the influx of international students from such countries as China, Japan, South Korea, and Singapore. At the same time, a declining birthrate and an oversupply of higher educational institutions are becoming become serious problems for higher education managers in Taiwan and in other Asian countries. Thus, an effective tactic to help solve these problems is increased recruitment of international students. In Taiwan, higher education institutions that are increasingly revenue-dependant on international student fees benefit greatly from this strategy. As a result, recruitment has received increasing attention among higher education institutions.

Across Taiwanese institutions, the enrollment of students from Asian countries has been steadily growing. From 1999-2000, 74% of international students came from Asian countries, while 26% came from non-Asian countries (Department of Statistics, 2014). From 2013 to 2014, 84% of students came from Asian countries including Indonesia, Vietnam, China, Macao, Singapore, South Korea, and Hong Kong. In short, the recruitment of Asian international students is an important issue in Taiwan.

Higher education institutions in Asia are currently challenged to improve their marketing mix in the face of increasing demand from international students. This competitive environment enables international students to be more selective in their choice of overseas schools. As a result, institutions are compelled to provide the most appropriate and current marketing mix strategies. McCarthy (1975) established the 4Ps of the marketing mix: product, price, place, and promotion. This strategy targets the sale of products and services. McCarthy's (1975) model has been criticized for its application only to the consumer market and being less applicable to the education sector. However, marketing mix strategies may be tailored to different situations. Given that marketing is now highly integrated into organizations and targets wider markets, the most commonly used strategies still rely on the 4Ps. The author has modified the 4Ps concept in lieu of revising a 7P marketing mix that is applicable to the recruitment of international students in higher education.

To overcome these challenges, marketing mix strategies began to attract the attention of Taiwanese higher education managers in the late 2000s. International students had been increasingly viewed as clients to whom

educational marketing strategies are targeted. This research assumes that perceptions and levels of satisfaction of these students are indicative of successful marketing mix strategies. Thus, the main contribution of this research is to examine potential gaps between attributes deemed important in the marketing mix strategies and the actual performance of these institutions as conceived from an importance-performance analysis (IPA). Further, the research will analyse the factors and derivation of the marketing mix strategies. If Taiwanese higher education managers are made aware of the educational attributes desired by international students, their marketing mix strategies could be suitably adapted.

## 2. Literature Review

This literature review will explore the existing knowledge in regard to the higher education sector-marketing mix strategies and the use of the IPA framework.

### 2.1 Marketing Mix Strategies in the Higher Education Sector

In the past, academic institutions enjoyed special status from their perceived uniqueness and purpose (Ramachandran, 2010). Students were not considered as customers within the higher education sector. As Ramachandran (2010) stated, higher education institutions differ from commercial institutions because of the nature and type of products they offer, the characteristics of commercial customers and the underlying product-development process. However, higher education institutions are now confronted with different types of internal and external challenges and thus schools have begun to implement marketing mix strategies in order to recruit students.

A marketing mix strategy is "the set of marketing tools that [firms use] to pursue its marketing objectives in the target market" (Kolter, 2000, p. 15). A classical marketing strategy is grouped as the following: 4Ps (product, price, place, and promotion), 5Ps (the addition of people), or 7Ps (the addition of physical facilities and processes) (Ivy, 2008). In 1960, McCarthy (1975) proposed the 4Ps classification system, which has since become widely used by marketers. The "product" is an item that includes what a consumer demands from an organization as well as the requisite product development strategies the marketer must consider. "Price" refers to the amount that customers are willing to pay for the product and is an important determinant of an organization's profitability. "Promotion" refers to the way that marketers provide information concerning a product and includes sales promotion, advertising, and so on. "Place" refers to the placement of products or services in a particular location that is convenient for consumers to access. To meet the needs of different customers and achieve organizational objectives, expert marketers must thus manipulate the elements of the marketing mix strategy. Booms and Bitner (1981) extended this 4P model to the 7Ps, adding three elements to the traditional model: people, and physical evidence, and process. This reflects the research of Ahmad et al. (2013), in which marketing-mix strategy components were proposed for private sector hospitals in Jeddah city, Saudi Arabia, and include health service, pricing, distribution, promotion, physical evidence, process, and personal strategies.

Higher education institutions in Taiwan have increasingly come to realize the importance of developing marketing mix strategies in order to maintain competitiveness in the education sector. However, there is a general lack of empirical marketing literature concerning international student recruitment from the perspective of Asian students. Institutions must develop clear marketing objectives that consider such issues as market segmentation, targeting and positioning, and consumer demographics (Ho & Hung, 2008). Managers of higher education institutions must use a combination of these "Ps" to develop a profit-yielding strategy and learn what strategies are effective. Currently, marketing mix strategies focus more on addressing student needs than on schools' needs.

Ivy (2008) studied a new marketing mix strategy based on MBA student attitudes and opinions toward marketing initiatives of business schools in South Africa. The approach included a quantitative survey of students registered at state subsidized universities. The factor analysis data indicated that there were seven distinct underlying factors in the marketing activities. This paper will highlight these factors that combine traditional marketing mix strategies (people, promotion, and price) and four extra elements—program, prominence, prospectus, and premiums. Ho and Hung (2008) developed a marketing mix strategy for a graduate institute at NCYU in Taiwan. Their results revealed that the five most important marketing mix strategies for students in school selection include employability, curriculum, academic reputation, faculty, and research environment.

Exporting higher education services has become increasingly important for many developed countries such as the UK, Australia, and Singapore (Cheung, Yuen, Yuen, & Cheng, 2010). Compared with these countries, the number of non-local students in Asia has been comparatively low over the last few decades. To capture the flow of Asian students, higher education institutions must implement appropriate marketing mix strategies. Cheung et al. (2010) discussed the most appropriate market-entry strategies for Hong Kong's education service providers to

export their higher education services to target markets.

In this paper, the author will extend the marketing mix for higher education institutions from the 4Ps to the 7Ps. Although place, promotion, price, and product are the four base marketing mix strategies that embody an accepted classification and simple framework for organizing marketing decisions and strategies, the author has added people, market positioning, and physical evidence. This research will establish that the development of marketing strategies in the higher education sector may be better served by the 7P model, which is illustrated as follows:

1) Product: In this study, "product" refers to the quality of teaching, curriculum, and services that higher education services in Taiwan could provide to international students in Asian target markets. Moreover, it is crucial that higher education services be based on the country's strengths—for example, Taiwan is a safe and convenient location for Asian international students.

2) Place: "Place" refers to organizational activities that make products available to target consumers. This includes distribution methods or channels that universities implement when providing target markets with a product, service, or information.

3) Price: For international students, price is an important factor when considering education abroad. For example, the Singaporean government is keen to provide scholarships and grants to reduce the financial burden of international student school fees (Cheung et al., 2010). Likewise, there are some scholarships available for international students in Taiwan.

4) Promotion: This strategy encompasses an array of marketing tools that universities can utilize to promote their offerings such as advertising, publicity, public relations, and sales promotional efforts (Ivy, 2008). Different promotional activities are used for different target markets. A number of promotional tools, including the university website, advertising, and word-of-mouth marketing will be targeted at international students for recruitment purposes in this study.

5) People: People are the most important element of any organization, contributing to service delivery and influencing customer perceptions. The "people" element of the marketing mix strategy includes all university staff that interacts with both prospective students before and after enrollment (Ivy, 2008). In this research, "people" included teachers, administrators, and students that all play important roles in the recruiting process (Cubillo, Sanchez, & Cervino, 2006).

6) Reputation: The reputation of a higher education institution plays an important role in the selection process. For instance, the reputation of host institutions associated with educational degree quality and recognition in students' home nations is a significant attribute (Mazzarol, 1998; Roberts, Chou, & Ching, 2010). In this paper, the reputation of higher education institutions was an important element of the marketing mix strategy.

7) Physical evidence: This is the tangible component of the service offering. A variety of tangible aspects are evaluated by a university's target market, ranging from teaching materials to the appearance of the buildings and lecture facilities (Ivy, 2008). In this research, physical evidence included advanced and modern facilities such as libraries and dormitories.

Marketing mix strategies vary across products and services. For every product or service that institutions offer, managers should undergo the 7P process for that product. The author presented the underlying factors that form the basis of marketing mix strategies in international student recruitment: product, place, price, promotion, people, reputation, and physical evidence.

*2.2 Importance-Performance Analysis*

Importance-performance analysis (IPA) is a simple yet effective marketing research technique that can be applied to study customer satisfaction as a function of expectations related to both importance and performance (Wu & Shieh, 2010). IPA involves the examination of customer attitudes towards services or products and has been applied across many markets such as hospitality, government, and education. For instance, Cvelbar and Dwyer (2013) used an IPA of sustainability factors for long-term strategic planning of Slovenian hotels. Ziegler, Dearden, and Rollins (2012) explored motivations and satisfaction levels of whale-shark tour participants on Isla Holbox, and IPA was used to compare scores and identify areas of management concern. Wong, Hideki, and George (2011) applied the methodology to measure e-government benefits from a user perspective.

As a tool for developing marketing strategies, IPA has gained popularity over recent years for its simplicity, ease of application, and diagnostic value (O'Neill & Palmer, 2004). Further, IPA is considered a component of marketing research techniques that analyze customer attitudes towards product service attributes and can help

practitioners prioritize improvement opportunities and direct quality-based marketing strategies (Wu, Tang, & Shyu, 2010). Measurement techniques are crucial in helping managers assess how well institutions are doing in order to recruit international students. In the higher education sector, IPA may help management to identify the strengths and weaknesses of higher education institutions.

Aigbedo and Parameswaran (2004) demonstrated how the IPA framework may be used to improve the services of a campus food service organization. O'Neill and Palmer (2004) critiqued the use of disconfirmation models and reported on a study of student perceptions of quality using IPA. The technique allowed specific failures in the quality of support issues to be identified and emphasized the importance of assessing a quality improvement program. The paper also provided evidence of the importance of service quality issues in the higher education sector, highlighting the practical value of IPA as a means of assessing and directing continuous quality improvement efforts. Gao (2012) applied the IPA framework to measure the satisfaction level of international postgraduate business students at a British university. The IPA matrix provided university policy makers with a toolkit of practical resource- allocation strategies.

IPA was first proposed by Martilla and James (1977) to provide management with a specific methodology in the development of marketing strategies. The methodology places performance on an X-axis and a Y-axis to form four quadrants. There are six steps in the IPA application: first, determining the relevant attributes to measure; second, separating the importance measures and performance measures to minimize compounding and order effects; third, position the vertical and horizontal axes on the grid; fourth, median values as a measure of central tendency are theoretically preferable to means; fifth, analyzing the importance-performance grid is systematically accomplished by considering each attribute; and sixth, differences between loyal and disloyal customer ratings may reveal important strategy implications (Martilla & James, 1977).

Martilla and James (1977) used four quadrants to identify the weaknesses and strengths of organizations. These four quadrants were composed of "Quadrant I: Keep up the good work," "Quadrant Ⅱ: Concentrate here," "Quadrant Ⅲ: Low priority," and "Quadrant Ⅳ: Possible overkill". A quadrant description consists of the following (see Figure 1): (Lai & To, 2010; Martilla & James, 1977; Wu, Tang, & Shyu, 2010; Yavas & Shemwell, 2001):

1) Keep up the good work (Quadrant I): Attributes in this quadrant are highly evaluated in both importance and performance. It can be considered as the opportunities to maintain current efforts and performance for organizations. In higher education sectors, managers should simply maintain their activities and keep up the good work.

2) Concentrate here (Quadrant Ⅱ): Although customers feel that these attributes are important, levels of satisfaction with the organization's performance are low. This quadrant signals that these attributes require special immediate marketing efforts to improve. In this quadrant, managers are considered the highest priority.

3) Low priority (Quadrant Ⅲ): Attributes in this quadrant are low in terms of both importance and performance. These attributes are of low priority and thus service providers may pay less attention to them. In higher education sectors, managers do not require additional efforts to attain these attributes.

4) Possible overkill (Quadrant Ⅳ): Customers feel that these attributes indicate excellent performance but are of low importance. Service providers may reallocate resources to these attributes. In higher education sectors, managers may reallocate or shift their efforts and resources to other quadrants.

| | |
|---|---|
| Quadrant Ⅱ<br>Concentrate here | Quadrant I<br>Keep up the good work |
| Quadrant Ⅲ<br>Low priority | Quadrant Ⅳ<br>Possible overkill |

Performance (left axis label)

Importance (bottom axis label)

Figure 1. The importance-performance analysis grid

## 3. Method

In this section the data sample is further explored, followed by a description of measurements and data analysis.

### 3.1 The Data Sample

To draw a representative population sample, subjects were drawn from international students attending all higher education institutions in Taiwan. Over the period of one month, the author collected questionnaires from 148 higher education institutions including universities, colleges, and universities of science and technology. The respondents were asked to complete a questionnaire and return it to the researcher after completion. After one month, the author collected 351 responses from Asian international students. After data screening, 23 questionnaires were excluded from the analysis, which left 328 valid questionnaires for this research (see Table 1).

First, the demographic profiles of respondents are described. Table 1 includes descriptive information that shows the demographic variables used in this study. Among the responses, 44.52% (146 international students) were male and 55.49% (182 international students) were female. The respondents were divided into freshman (24.70%), sophomore (25.91%), junior (24.09%), senior (14.93%), and graduate (10.37%) level students. There were 187 (57.01%) participants from public universities and 141 (42.99%) from private universities in Taiwan. Finally, the largest number of responses (50.30%) were from north Taiwan, compared to central and south Taiwan (24.09% and 25.61%, respectively).

Table 1. Descriptive statistics of respondent characteristics

| Characteristic | Number of Times (n=328) | Percentage (%) |
|---|---|---|
| **Gender** | | |
| Male | 146 | 44.52 |
| Female | 182 | 55.49 |
| **Grade** | | |
| Freshman | 81 | 24.70 |
| Sophomore | 85 | 25.91 |
| Junior | 79 | 24.09 |
| Senior | 49 | 14.93 |
| Graduate | 34 | 10.37 |
| **University** | | |
| Public | 187 | 57.01 |
| Private | 141 | 42.99 |
| **Location** | | |
| North | 165 | 50.30 |
| Middle | 79 | 24.09 |
| South | 84 | 25.61 |

### 3.2 Measures

Questionnaires are the most widely used method of data collection in marketing mix strategies, studies of customer satisfaction, and educational research. A survey questionnaire was used and self-administered. Most of the 28 items were adapted from the relevant literature and respondents were asked to score the effectiveness of marketing mix strategies in attracting them to certain degree programs. This was done using a seven-point Likert-type scale in which 1 was "Strongly disagree/un-important" and 7 was "Strongly agree/important".

The questionnaires were modified from 5Ps, 6Ps, and 7Ps types (Armstrong & Kotler, 2006; Kotler & Keller, 2012; Walker & Mullins, 2008) and were measured using a 27-item scale reflecting the 7Ps. The scales were developed and employed by the author through the process described below:

1) Product: Product is one of the most important elements of the marketing mix. On this scale, the four items

examined issues such as the quality of teaching, administration, curriculum, and school life.

2) Place: Place describes the availability of products and services for international students, including how to apply to school, how to acquire information about a school, and how to communicate with a school.

3) Price: Higher education tuition in Taiwan is cheaper than in other Asian countries. The four items issues examined here include yearly tuition and scholarships, among others.

4) Promotion: Promotional strategies encompass all of the tools universities use to provide information. These strategies include advertising, public relations, Internet marketing, among others.

5) People: People are an essential element of marketing mix strategies in every industry and include all university personnel who interact with international students, such as the administrative and teaching staff.

6) Reputation: Reputation is an important consideration. The value of a diploma and the institutional quality were both important items on this scale. Other items include the specialization of a degree program and the accessibility of certain occupations in students' home countries.

7) Physical evidence: This is the tangible component of the service offering. In this research, physical evidence included advanced and modern facilities such as libraries and comfortable dormitories.

The last part of the questionnaire gathered personal information about students including gender, grade, university location and whether the universities were private or public.

*3.3 Data Analysis*

First, the demographic profiles of respondents are described (see Table 1). Second, Cronbach's Alpha (α) and exploratory factor analysis (EFA) were used to test the reliability and validity of the measurements. To establish convergent and discriminant validity as well as reliability, the author used composite reliability (CR).

A major part of the data analysis was concerned with testing the confirmatory factor analysis (CFA) and the importance-performance analysis (IPA). In the next section, the author will demonstrate the usefulness of the IPA grid in the evaluation of marketing mix strategies from the perspective of Taiwanese international students.

## 4. Results

The author will explore the reliability and validity of the data before discussing the empirical results of the CFA and the IPA.

*4.1 Reliability and Validity of Data*

The survey questions operationalize the 7-point Likert scale for measurement. The reliability of a measure indicates consistency and stability with which a concept and goodness of fit are measured (Cavana, Delahaye, & Sekharan, 2001). The reliability of the data is checked with Cronbach's Alpha (α) value wherein the closer α is to 1. Reliability coefficients for each factor were considered acceptable if their value was greater than or equal to 0.70 (Nunnally, 1978). In this research, all marketing mix strategies had values ranging from 0.81 to 0.90. Table 2 presents the Cronbach's α coefficient for each factor. The author employed multiple measures of reliability; CR values were used to assess reliability. The CR values ranged from 0.869 to 0.928, thus exceeding the recommended 0.70 threshold (Bagozzi & Yi, 1988) and all CR values were greater than the recommended AVE values (Byrne, 2010). These figures are indicative of a satisfactory level of reliability and validity.

Exploratory factor analysis (EFA) is a method of data reduction and is used to uncover the underlying structure of a relatively large set of variables. Tabachnick and Fidell (1996) stipulated the general guidelines for sample size and determined that 200 observations is considered fair and 300 is considered good. EFA was used to establish validity for all items investigated in this research. The author used a principal axis factoring extraction with Varimax rotation for all the items to measure multidimensional constructs. The details of EFA are presented in Table 3. Based on the output shown, EFA was appropriate because the value of Kaiser-Meyer-Olkin was 0.938 and this value should be greater than 0.5. The Bartlett test of sphericity was significant (p=0.000; df=351). Twenty-seven variables have been condensed into seven separate factors. Hair et al. (1998) referred to loadings above 0.6 as "high" and those below 0.4 as "low" .The results are shown in Table 3.

Table 2. Reliability of measurement scales

| Marketing mix strategies | Cronbach's Alpha=0.95 | CR |
|---|---|---|
| Product | 0.86 | 0.763 |
| Place | 0.84 | 0.724 |
| Price | 0.81 | 0.804 |
| Promotion | 0.83 | 0.708 |
| People | 0.90 | 0.785 |
| Reputation | 0.83 | 0.784 |
| Physical evidence | 0.87 | 0.790 |

Table 3. Results of exploratory factor analysis

| Items | Price | Product | Place | Promotion | Reputation | Physical evidence | People |
|---|---|---|---|---|---|---|---|
| 1 | 0.72 | 0.31 | 0.09 | -0.02 | 0.27 | 0.12 | 0.11 |
| 2 | 0.79 | 0.16 | 0.07 | 0.16 | 0.09 | 0.18 | 0.05 |
| 3 | 0.68 | 0.26 | 0.13 | 0.07 | 0.10 | 0.29 | 0.15 |
| 4 | 0.61 | 0.13 | 0.34 | 0.08 | 0.02 | 0.08 | 0.21 |
| 5 | 0.28 | 0.70 | 0.22 | 0.02 | 0.15 | 0.25 | 0.17 |
| 6 | 0.38 | 0.63 | 0.16 | 0.24 | 0.11 | 0.13 | 0.25 |
| 7 | 0.32 | 0.63 | 0.01 | 0.36 | 0.04 | 0.06 | 0.28 |
| 8 | 0.19 | 0.71 | 0.15 | 0.04 | 0.16 | 0.32 | 0.18 |
| 9 | 0.20 | 0.38 | 0.62 | 0.16 | 0.15 | 0.09 | 0.26 |
| 10 | 0.23 | 0.43 | 0.52 | 0.18 | 0.14 | 0.11 | 0.37 |
| 11 | 0.14 | 0.14 | 0.61 | 0.49 | 0.19 | 0.05 | 0.15 |
| 12 | 0.17 | 0.02 | 0.76 | 0.19 | 0.14 | 0.20 | 0.14 |
| 13 | 0.15 | 0.18 | 0.47 | 0.50 | 0.10 | 0.36 | 0.24 |
| 14 | 0.14 | 0.06 | 0.23 | 0.80 | 0.10 | 0.22 | 0.23 |
| 15 | 0.03 | 0.22 | 0.26 | 0.69 | 0.23 | 0.22 | 0.10 |
| 16 | 0.10 | 0.38 | 0.28 | -0.03 | 0.67 | 0.26 | 0.10 |
| 17 | 0.11 | 0.22 | 0.31 | 0.08 | 0.75 | 0.27 | 0.07 |
| 18 | 0.13 | -0.01 | -0.06 | 0.38 | 0.76 | 0.08 | 0.22 |
| 19 | 0.26 | -0.01 | 0.13 | 0.14 | 0.57 | 0.36 | 0.34 |
| 20 | 0.17 | 0.24 | 0.16 | 0.15 | 0.25 | 0.74 | 0.28 |
| 21 | 0.18 | 0.19 | 0.12 | 0.19 | 0.19 | 0.71 | 0.25 |
| 22 | 0.14 | 0.21 | 0.08 | 0.25 | 0.19 | 0.74 | 0.16 |
| 23 | 0.30 | 0.08 | 0.15 | 0.06 | 0.15 | 0.59 | 0.30 |
| 24 | 0.15 | 0.19 | 0.17 | 0.20 | 0.08 | 0.43 | 0.66 |
| 25 | 0.18 | 0.23 | 0.29 | 0.10 | 0.16 | 0.31 | 0.73 |
| 26 | 0.13 | 0.31 | 0.23 | 0.12 | 0.17 | 0.32 | 0.72 |
| 27 | 0.15 | 0.21 | 0.11 | 0.26 | 0.26 | 0.18 | 0.65 |

*4.2 Empirical Results of Confirmatory Factor Analysis*

The next phase of data analysis employed the confirmatory factor analysis (CFA) in order to confirm seven factors. CFA was first developed by Jöreskog (1969) to determine how well a hypothesized measurement model fits to the study data. The model is based on previous theoretical and analytical research. LISREL is a commonly used structural equation modeling software program.

The CFA is a special form of factor analysis, most commonly used in social science research (Kline, 2010). Several statistical tests are completed when using the CFA to determine how well the model fits to the data. Absolute fit indices and relative fit indices determine the model of best fit. For example, in the absolute fit indices, the chi-square test reveals the difference between expected and observed covariance matrices. The test is affected by the sample sizes and other measures of fit have been developed. The root mean square error of approximation (RMSEA) avoids issues of sample size, and a value below 0.08 (from 0 to 1) or less is indicative of an acceptable fit. The root mean square residual (RMR) and standardized root mean square residual (SRMR) ranges from 0 to 1, with a value of 0.08 or less being indicative of an acceptable model. The goodness-of-fit index (GFI) is a measure of fit between the hypothesized model and the observed covariance matrix and has a cut off value of 0.90.

Relative fit indices sectors are also called "incremental fit indices" or "comparative fit indices" and include the normed fit index (NFI), the non-normed fit index (NNFI) and the comparative fit index (CFI). Values for both the NFI and NNFI should range between 0 and 1, with a cutoff of 0.90 or greater indicating a good model fit. CFI values of 0.90 or larger are considered indicative of an acceptable model fit.

In the current model, the author conducted a CFA using LISREL to evaluate how well the 27 items fit the previously observed, seven-factor structure. The relative chi-square ($\chi2/df$ = 2.71) indicated a good fit. SRMR (0.058) and RMSEA (0.072) were both lower than 0.08. Other results revealed that the NFI, the NNFI, the CFI, the IFI, and the RFI all exceeded 0.90, thus indicating a good fit to the data. However, the GFI (0.84) and AGFI (0.81) were slightly lower than 0.90. Burton, Lichtenstein, and Garretson (1998) reported that some researchers have recommended the GFI and AGFI as alternative measures of fit. In this model, the PNFI (0.87) and PGFI (0.70) all exceeded 0.50, placing them well within accepted guidelines. The above statistics suggest that the seven-factor model fits well and is a reasonable representative of the population (see Figure 2).
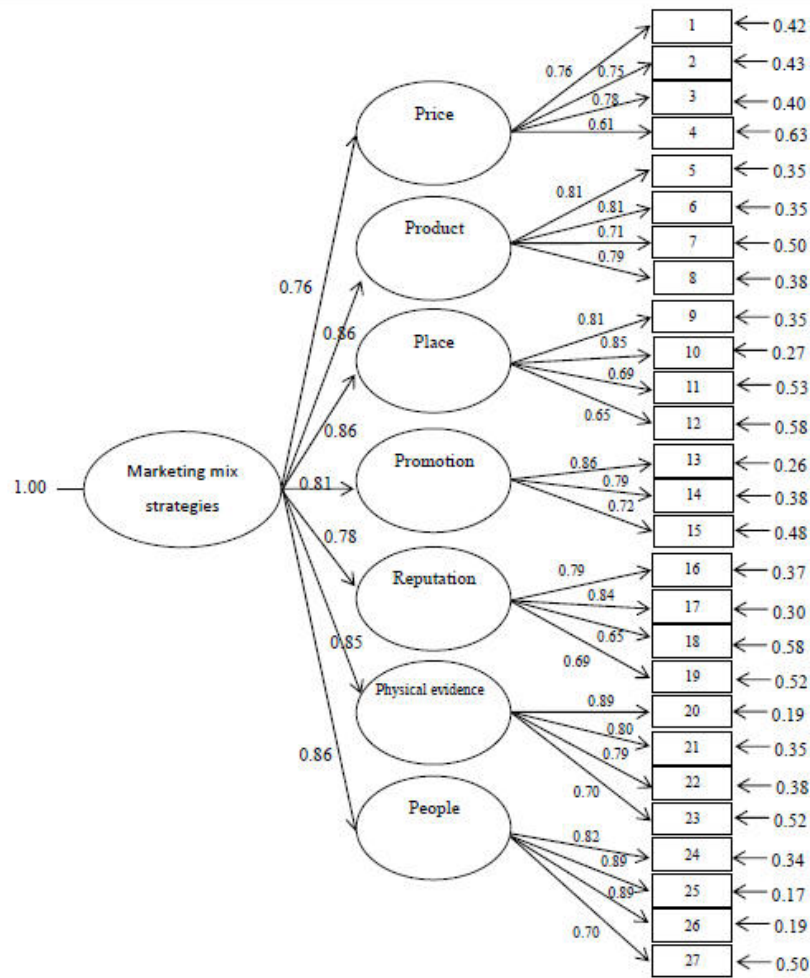
Figure 2. Results of the confirmatory factor analysis

*4.3 Empirical Results of the Importance-Performance Analysis (IPA)*

The author demonstrated that the IPA framework might assist higher education marketers to improve their marketing mix strategies. In this research, an IPA was used to measure and compare scores of international student perspectives in Taiwan. These results may help managers assess how well institutions are performing in terms of recruiting international students over time. This information could provide management with the insights required to identify the strengths and weaknesses of their institutions.

The next stage of analysis involved examining the responses received across the scale factors to assess international student perceptions of the marketing mix strategies and the corresponding relative importance that they assigned to each strategy. Figure 3 shows the IPA grid for attributes that were constructed after gathering information from international students. The IPA technique is discussed and applied to measure marketing mix strategies from the perspective of international students and to find focus areas for resource allocation. There are four factors in quadrant I, and three factors in quadrant III. Non-factors are located in quadrants II and IV.

Quadrant I is reflective of an optimal performance level in which that higher education institutions are perceived to be performing above average. Four marketing mix strategies (people, product, physical evidence, and price) were in this quadrant and viewed as "keep up the good work". Marketing mix strategies were highly evaluated both in importance and performance. These results may indicate that institutions should maintain current efforts and performance levels.

Quadrant III is indicative of areas in which a great deal of improvement is not required. Marketing mix strategies in this quadrant were ranked low in terms of both performance and importance and thus low priority and less attention should be paid. There are three factors (place, reputation, and promotion) in this quadrant. The IPA

evaluation tool may assist in providing guidance to formulate marketing mix strategies for the efficient allocation of resources and managers do not need to exert additional efforts to improve these attributes.
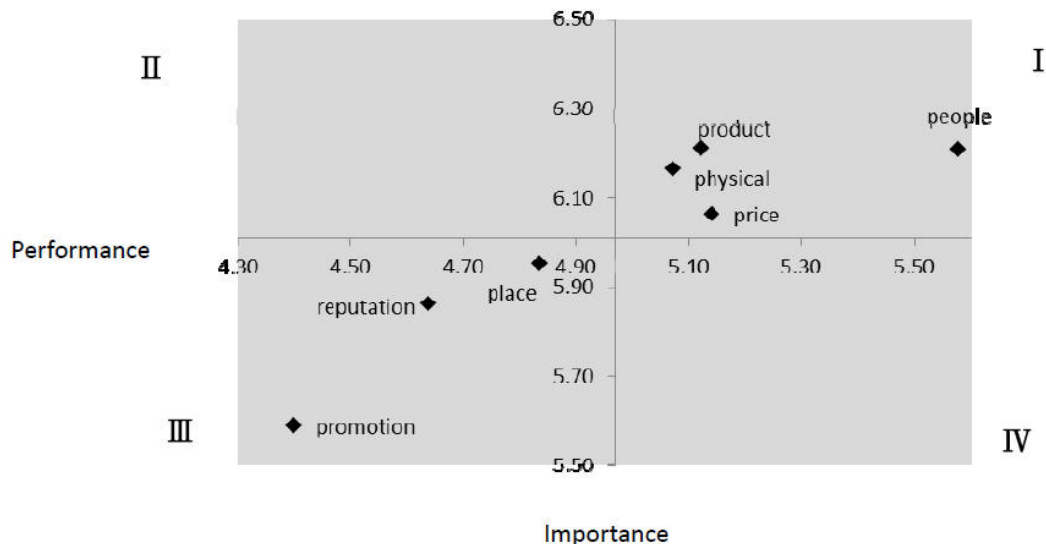


Figure 3. Importance-performance analysis matrix of marketing mix strategies

## 5. Conclusions

This paper has provided evidence of the importance of marketing mix strategies in the higher education sector in a free market economy. In this paper, the IPA was used as a means of assessing and directing continuous marketing-mix improvement efforts within the international student recruitment sector.

Following a comprehensive literature review, the author explored whether marketing mix strategies may be applicable to the education sector. Marketing mix strategies applied in the business sector have been adapted for use in the education sector. The overall results confirm that marketing mix strategies of recruiting international students are multidimensional constructs. For instance, an EFA and a CFA revealed a multidimensional seven-factor ("7Ps") mix that included product, place, price, promotion, people, reputation, and physical evidence. The marketing mix strategies of satisfaction experienced by international students are influenced by the above seven factors. Therefore, managers should implement these 7Ps in recruitment efforts of international students. Collection of international student feedback is an important quality-monitoring practice for education marketing-mix strategies.

This technique has a number of advantages over conventional marketing- measurement techniques. Using an IPA, dimensions may be plotted graphically on a two-dimensional grid matrix, which can expedite interpretation of results (Joseph & Joseph, 1997; O'Neill & Palmer, 2004). The study elucidates the usefulness of an IPA for managers who wish to improve their marketing mix strategies. Moreover, it may aid managers in identifying areas in which resources could be better directed in the recruiting sectors. The results of this study indicate that four marketing mix strategies are located in quadrant I. People, product, physical evidence, and price factors are perceived as performing well above average and deemed important by international students. The managers of higher education institutions must simply maintain their good work in these areas. Three other factors, place, reputation, and promotion, are located in quadrant III. Quadrant III is a region of low priority, and quadrants II and IV have no attributes. The results of the study highlight the usefulness of the IPA for managers who wish to improve their marketing mix strategies and better allocate resources.

## 6. Limitations and Suggestions for Further Research

The limitations of this study provide some further research areas. First, the author has used data from only one country, Taiwan. Further research could include a larger sample area from a greater variety of countries. Additionally, study participants came exclusively from Asian countries, thus, further research could include samples from other countries in Oceania, Europe, Africa, and North America. Finally, the quantitative analysis

used does not explain why the observed ratings occurred. As result, supplementary qualitative research would be useful.

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