Embracing the E-era: Constructing Internet Marketing Strategies and Practices in Teacher Education Departments

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Abstract

This research uses confirmation factor analysis both to construct a measurement model of Internet marketing strategies and to conduct an importance-performance analysis to examine how teacher education departments provide such strategies. The unit of analysis in this research is students and focuses on their attitudes toward the quality of Internet marketing at teacher education departments in Taiwan. The author used a questionnaire to collect data. Six hundred and sixty-four usable questionnaires and 12 invalid questionnaires were collected. The effective response rate was 69 %. The model of the existence of four-factor structure (need, convenience, cost and communication) was tested using AMOS and goodness of fit. Thus, it was concluded that the four-factor model both fits well and represents a reasonably close approximation of the population. Next, the results of the study highlight the usefulness of importance-performance analysis for helping management improve its Internet marketing strategies. This study finds that the managers of teacher education departments should not only focus on concentrating their benefits but also allocate resources to improve Internet marketing strategies.

Keywords: confirmation factor analysis, importance-performance analysis, internet marketing, teacher education department, website

1. Introduction

According to global Internet usage statistics published by the Convea organization, an increasing number of people have access to the Internet (Convea, 2003). The Internet is a worldwide computer network that can be accessed via a computer, a mobile telephone, a game machine, a PDA, or another device. Approximately 40% of the world's population has an Internet connection today, whereas in 2001, the rate was less than 10%. In 2014, there were 2,925,249,355 Internet users in the world (population 7,243,784,121); nearly 48.4% of Internet users worldwide live in Asia (Internet lives stats, 2014). Internet users have been increasing rapidly and doubling in size for many years. Many other business models are using the Internet to promote their business via websites, email, Facebook, and so on. Internet marketing involves using a website to communicate an organization's message. As a result, using the Internet and websites has become an important marketing strategy.

Mohammed et al. (2003) claim that consumers build a relationship with an organization through its website in four stages: from awareness to exploration to commitment and possibly through dissolution. These four stages represent a consumer-centric framework that creates profitable relationships with consumers. The manager can use a department website to implement effective Internet marketing programs and build strong relationships with students. Therefore, Internet marketing enables schools to conduct marketing activities that can retain and recruit more students in teacher education departments.

In Taiwan, to support the social development of evolutionary democracy and to improve teacher quality, the "Teacher Education Act" was passed by the Ministry of Education in 1994 and the "Teachers' Act" was passed in 1995. According to some scholars, teacher education policy was confronted by the biggest challenge. The Ministry of Education initiated a series of progressive policies for efficacious education and thus expects to improve both the quality and quantity of teachers (Lin, Wang, & Teng, 2007). For teacher education departments in Taiwan, protecting the superior and eliminating the inferior become important aims during a competitive period of low fertility rates.

It is more difficult to recruit excellent students to teacher-education departments during times of low fertility rates and departmental financial difficulties. This phenomenon is due to teacher education departments becoming less attractive to high school students. In such departments, marketing has received increasing attention. The Internet is creating a shared real-time commercial space, the likes of which has never existed before, and it provides organizations with an opportunity to do things differently (Dutta & Segev, 1999). For teacher education departments, the Internet can comprise an important marketing strategy. One useful approach to this consumer (student)-focused marketing mix is known as the 4Cs (consumer need, cost, communication, and convenience). Consequently, this research is based on the student dimension of the 4C marketing-mix model, which reforms the 4P (price, product, promotion, and place) marketing mix for Internet marketing strategies.

The literature has engaged in discussions about Internet marketing in many industries. However, less research has focused on departments of higher education, especially teacher education departments. This study focuses on constructing Internet marketing strategies of teacher education departments and demonstrating the use of the importance-performance framework to help management improve its marketing strategies. The structure of this article is as follows: The literature review section is first. In the methodology and measurement section, the author describes the data collection and the sample, instrument and design, and data-analysis method. In the results and analysis section, the author describes the respondents' demographic profile, reliability and validity, the measurement model, and the importance-performance analysis of Internet marketing strategies. Based on the above results, there are numerous relevant directions for future research and highlighted implications of findings for research and practice in the conclusion and suggestions section.

2. Literature Review

In this section, the author first discussed the meaning of Internet marketing and then described how this study used importance-performance analysis.

2.1 Internet Marketing

Internet marketing involves applying the Internet and related digital technologies to achieve marketing objectives and support the modern concept of marketing (Chaffey et al., 2006, p. 6). The Internet's potential to transform commerce is immense, as are the challenges and opportunities for businesses as they participate in the Gold Rush of the information age (Dutta, Kwan, & Segev, 1998, p. 541). Managers can use websites to communicate with their consumers and to achieve the goals of Internet marketing strategies. The image of the student as consumer is derived from the prevalence of what has come to be known as consumerism in modern Western society (Kay, Bickel, & Birtwistle, 2006, p. 86). Students are treated as consumers and schools must use appropriate marketing strategies to obtain and recruit them.

Today, almost every legitimate corporation has a website; by the end of 1996, more than 80% of America's Fortune 500 firms had websites (Dutta, Kwan, & Segev, 1998). Users can learn more about products and services by interacting with a website. The Internet also enables a greater accumulation of consumer knowledge because it is oriented toward consumers' needs and wants (Tankosic & Trnavcevic, 2008, p. 137). Today's higher education managers must make many choices related to marketing strategies. Websites are invariably used when Internet marketing strategies are applied.

In this research, Internet marketing and marketing mixes are combined to form an Internet marketing mix. A market mix is a business tool that is often associated with the 4Ps (price, product, promotion, and place). The 4Ps were first proposed by McCarthy (1964) during the 1960s, and since that time, they have been used by managers worldwide. The 4Ps are not appropriate for the new and competitive market; the 4Cs address the new nature of products and services. Lauterborn (1990) has proposed that the marketers should focus on the 4Cs concept instead of the 4Ps because the approach of the 4C model represents a consumer centric view of the marketing mix.

The 4Cs are more consumer-oriented. Four factors of Internet marketing strategies are adapted from the 4C marketing mix, including consumer need (instead of product), consumer cost (instead of price), consumer communication (instead of promotion), and consumer convenience (instead of place). Pursuant to the 4Cs of Internet marketing strategies, the organization must first know what the consumer wants and needs. The most critical challenge facing educators is how to implement the most appropriate methods for recruiting and retaining teacher-education students. First, the managers must know what students need and want. Second, consumer cost is a more appropriate consideration than price in higher education sectors. Price is only a part of the total cost and many factors affect consumer cost, for example, the cost of time. Third, consumer communication is cooperative and creates a dialogue with potential consumers based on their needs and wants (Lauterborn, 1990; Schultz, Tannenbaum, & Lauterborn, 1993). Managers can use the Internet and websites to communicate with

their students in teacher education departments. Fourth, consumer convenience is significant. In the Internet era, websites can satisfy the needs and wants of consumers (students), who are not limited to a few places that can satisfy those needs and wants. With the rise of Internet marketing, convenience takes into account the ease of finding information about the department where students study in higher education institutions. In this paper, the Internet marketing mix is defined as the set of tools available to the higher education institution to shape the website marketing of its offer to students to account for consumer needs, cost, communication, and convenience.

2.2 Importance-Performance Analysis

As a tool to develop marketing strategies, importance-performance analysis (IPA) has gained popularity over recent years for its simplicity, ease of application and diagnostic value (O'Neill & Palmer, 2004). IPA is best described as an absolute measure of performance (Martilla & James, 1977). An increasing number of papers demonstrate the use of IPA framework to assist managers in higher education institutions to improve their quality and service (Nale, et al., 2000; O'Neill, & Palmer, 2004; Pike, 2004). IPA is now an important tool in the higher education sector.

IPA provides management with a useful focus for developing marketing strategies (Martilla & James, 1977). By defining a two-dimensional matrix with the vertical axis signifying the importance of the attribute from low to high and the horizontal axis representing the perceived performance of the object from low to high, the analysis yields prescriptions for four strategies (Yavas & Shemwell, 2001). Quadrant descriptions consist of the following (Aigbedo & Parameswaran, 2004; Lai & To, 2010; Martilla & James, 1977; Wu, Tang, & Shyu, 2010; Yavas & Shemwell, 2001):

. Quadrant A/ Keep up the good work: Attributes in this quadrant are evaluated high in both performance and importance. Managers of higher education institutions merely need to maintain their current efforts and performance.

. Quadrant B/Concentrate here: Attributes located in quadrant B have high importance, but low performance is viewed as a major weakness for the organization. Students felt that higher-education institutions needed to engage in special marketing strategies. This quadrant is a critical area in which managers should not only concentrate on improvement but also and locate more resources.

. Quadrant C/Low priority: Attributes located in Quadrant C reflect low performance and importance ratings, which means that these attributes required no additional resources. Managers of higher-education institutions can pay less attention to this quadrant.

. Quadrant D/Possible overkill: Attributes located in Quadrant D represent high performance scores coupled with low importance scores. These attributes are regarded as being unimportant to consumers; therefore, managers can reallocate resources to other quadrants.
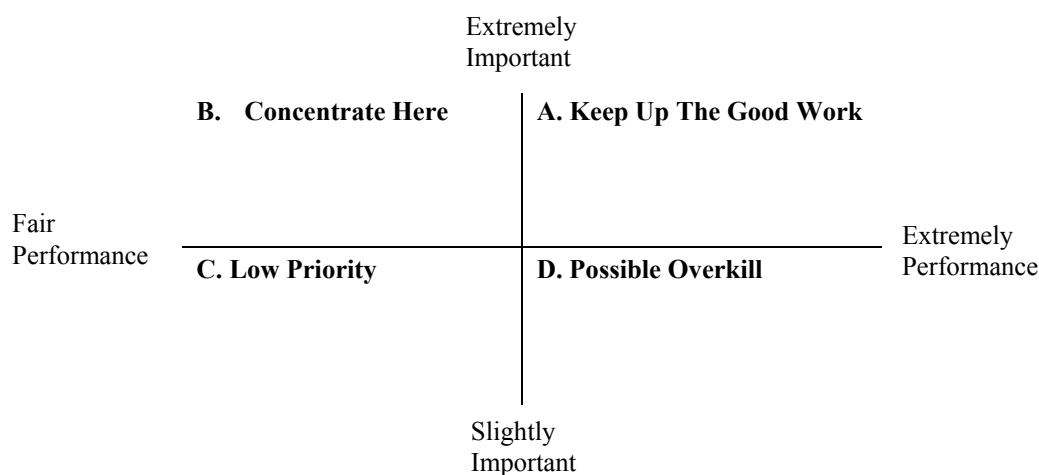

Figure 1. The IPA grid

IPA is an effective technique that can be applied to study consumer satisfaction. Since its inception in 1977, the IPA methodology has been widely applied in many sectors to evaluate the levels of consumer satisfaction. For example, Wong, Hideki, and George (2011) use IPA to evaluate the benefits of a e-government project, Yavas

and Shemwell (2001) modify IPA in a health-care setting, Shieh and Wu (2009) apply IPA to examine the services provided by the convenience store located at an Asian university, and so on. The use of the IPA method in higher education has received increasing attention. O'Neill and Palmer (2004) use IPA to explore the issue of service quality evaluation in the higher-education sector. Consequently, the simplicity of IPA has led to its recent use as a tool for developing marketing strategies in higher-education institutions.

3. Methodology and Measurement

In this section, the author discussed the data collection and sample in section 3.1, the instrument and design in section 3.2, and the data-analysis method in section 3.3.

3.1 Data Collection and the Sample

The unit of analysis in this research is the student level and focuses on student attitudes toward the quality of Internet marketing conducted by teacher education departments in Taiwan. The author applied a questionnaire to collect data. There are 120 teacher education departments in Taiwan, e.g., the Department of History, the Department of Chinese, the Department of Education, the Department of Physical Education, and so forth. Data for this study were collected using paper questionnaires.

The author mailed 8 questionnaires to every university-level teacher education department in Taiwan. Accordingly, 968 questionnaires were distributed to those departments' students over a one-month period in January 2015. The respondents were asked to return the completed questionnaires by mail within 3 weeks. The response rate was approximately 70 percent. After eliminating improperly completed questionnaires, 664 usable questionnaires and 12 invalid questionnaires were collected. The effective response rate was 69 %.

3.2 Instrument and Design

The research was designed to establish Internet marketing strategies that contribute to managing higher education institutions. Many organizations use the Internet to promote themselves via websites, email, Facebook, and so on. The author selected website strategies as one of many Internet tools used by teacher education departments. The survey's questions employed a Liker scale of 1-7 for most to least important and most to least satisfying. The respondents were asked to consider each type of Internet marketing strategy and rank the strategies that had been the most important and satisfactory for them. The values for the performance scale range from 1 (Strongly disagree) to 7 (Strongly agree), whereas the values for the importance scale ranges from 7 (Not important at all) to 7 (Extremely important). Other information includes demographics such grades, gender, and so on.

An Internet marketing mix is defined as "the set of tools available to the higher education institution to shape the website marketing of its offer to students according to consumer needs, cost, communication, and convenience". In this study, the instrument included 16 items to measure Internet marketing in the higher-education sector. The 16 items derived from the literature review and the measurement of Internet marketing strategies include four factors: consumer need, consumer cost, consumer communication, and consumer convenience.

A. Consumer need: The measurement of this factor includes 4 items. The "consumer need" factor refers to teacher education departments' need to know students' wants and needs when they use a department website.

B. Consumer cost: The measurement of "consumer cost" also includes 4 items. The "consumer cost" factor refers to students' wish to spend their time or money using a department's website.

C. Consumer communication: The measurement of this factor includes 4 items. The "consumer communication" factor refers to students' ability to communicate with departments through departmental websites. Managers also use Internet and websites to communicate with students of teacher education departments.

D. Consumer convenience: The measurement of "consumer convenience" includes 4 items. In the Internet era, a website can satisfy students' needs and wants and is not limited to the use of only a few places to satisfy those needs and wants. With the rise of Internet marketing, convenience takes into account the ease of finding information about students' higher-education departments.

To assess not only the clarity of the question but also the validity and reliability of the variable measures, a pilot study was first conducted by collecting surveys based on 100 students in teacher education departments. An alpha coefficient between 0.50 and 0.60 is considered to be sufficient for a pilot study (Nunnally, 1978). In this paper, the range for Cronbach's Alpha was between 0.70 and 0.90, therefore indicating the internal consistency of the constructs.

3.3 Data Analysis Method

The data for this research were obtained through a questionnaire; the resulting data were analyzed using SPSS and Lisrel. First, SPSS 17.0 was used to examine the descriptive frequencies, including the number of respondents and sample percentage, based on the respondents' profiles. The author also calculated Cronbach's Alpha coefficients to check internal consistency and reliability. Second, the measurement model was estimated using CFA to examine the overall fit, reliability, and validity of the Internet marketing strategy model. Structural Equation Modeling (SEM) was used for data analysis, whereas maximum likelihood estimation was used to acquire estimates of the model parameters (Wang & Li, 2010, p. 159). Third, IPA is best described as an absolute measure of performance (Martilla & James, 1977), and the author used it to assess the Internet marketing strategies of teacher education departments of higher education institutions.

4. Results and Analysis

In results and analysis section, the author discussed the respondents' demographic profile in section 4.1, reliability and validity in section 4.1, the CFA of Internet marketing strategies in section 4.3, and the IPA of Internet marketing strategies in section 4.4.

4.1 Demographic Profile of the Respondents

This study's response rate was approximately 70 percent. Six hundred and sixty-four usable questionnaires and 12 invalid questionnaires were collected. The effective response rate was 69%. Table 1 summarizes the demographics of the respondents and the overall mean scores for the 16 items.

Table 1 contains descriptive information about the demographic variables of the sample used in this research. Of these 664 samples, 30.1% (200) were male and 69.9% (464) were female. Respondents were students in the departments of education (37.3%, 248), science (20.5%, 136), humanities and liberal arts (34.3%, 228), and others (7.9%, 52). There were 143 freshman (21.5%), 236 sophomores (35.5%), 156 juniors (23.5%), and 129 seniors (and higher) (19.4%) represented in the sample.

Table 1. Descriptive statistics of respondent characteristics

Characteristic	Number of times (n=664)	Percentage (%)
Gender		
Male	200	30.1
Female	464	69.9
College		
Education	248	37.3
Science	136	20.5
Humanities and Liberal Arts	228	34.3
Others	52	7.9
Grade		
Freshman	143	21.5
Sophomore	236	35.5
Junior	156	23.5
Senior and above	129	19.4

4.2 Reliability and Validity

Reliability is the portion of the overall variance in a measure, which is true score variance in the research. Reliability assessments are used to test the consistency of the stability of the study results, and the coefficient alpha is used to estimate the degree of reliability, with estimates ranging from 0 to 1.0. The higher the coefficient, the stronger the linear relationship of the items being correlated and the higher the internal consistency (O'Neill & Palmer, 2004: 45). Conventionally, Cronbach's $\alpha > 0.7$ indicates satisfactory internal consistency reliability (Nunnally & Bernstein, 1994). The Cronbach's α of Need, Convenience, Cost, and Communication were 0.901, 0.929, 0.908, and 0.944. The overall reliability was alpha = 0.969 for the performance scales. Above-alpha values indicated satisfactory internal consistency reliability.

Validity is a term used to describe the properties of measures, divided into three types: content validity,

criterion-related validity, and construct validity. Content and construct validity are used in this research. When a test has content validity, an expert judge may rate each item's relevance. Seven experts were invited to judge the scale of this research. Construct validity defines how well a test measures up to its claims; it was assessed using exploratory factor analysis (Worthington & Whittaker, 2006). In this research, the author applied exploratory factor analysis to respondents' answers. The results were significant at $x^2 = 10775.528$ (p = 0.00). A Kaiser-Meyer-Olkin measure of sampling adequacy was computed to quantify the degree of variable inter-correlation; the results indicated an index of 0.965, which is considered to be good because the KMO value exceeds the recommended value of 0.6 and the Bartlett test of sphericity results support the factorability of the correlation matrix (Pallant, 2005). These results indicate that the sampled data were suitable for factor analysis. The 16 items were rotated using a principal component analysis with varimax rotation; attributes with rotated factor loadings with absolute values of more than 0.50 were considered to be very significant (Hair, Anderson, Ronald, Tatham, & Black, 1998). This result explains the change to an 82.013% cumulative percentage of variance, and the factor analysis revealed four factors. The factor analysis revealed that each item had good construct validity.

The author also employed multiple measures of reliability; Composite reliability (CR) values were used to assess the component reliability. According to Fornell and Larcker (1981) the CR should be higher than 0.80 and the average variance extracted (AVE) must exceed the acceptable value of 0.50 to ensure a good fit between constructs and underlying items. The CR values ranged from 0.900 to 0.950, exceeding the recommended 0.80. AVE values assess construct discriminant validity; here, the AVE values of the constructs ranged from 0.694 to 0.828, thus exceeding the acceptable value of 0.50. Byrne (2010) indicated that all CR values must be greater than the recommended AVE values. The above figures indicate this study's satisfactory reliability and validity (see Table 2).

Table 2. Standardized loading, AVE, CR, and Cronbach's α of the constructs

Construct	Factors	Standardized loading	Cronbach's α	CR	AVE
Need	N1	0.85	0.901	0.900	0.694
	N2	0.80			
	N3	0.82			
	N4	0.86			
Convenience	Con1	0.90	0.929	0.924	0.754
	Con2	0.84			
	Con3	0.89			
	Con4	0.88			
Cost	Cos1	0.86	0.908	0.911	0.719
	Cos2	0.81			
	Cos3	0.85			
	Cos4	0.87			
Communication	Com1	0.88	0.944	0.945	0.810
	Com2	0.92			
	Com3	0.92			
	Com4	0.88			
Internet marketing	Need	0.91	0.969	0.950	0.826
	Convenience	0.94			
	Cost	0.94			
	Communication	0.84			

4.3 Confirmatory Factor Analysis of Internet Marketing Strategies

Confirmatory factor analysis (CFA) is used to test how well the measured variables represent the number of constructs. The author conducted a CFA to evaluate how well the 16 Internet marketing items fit the observations set forth above. A hypothesized model of the existence of a four-factor structure (need, convenience, cost and communication) was tested using AMOS (Analysis of Moment Structures). There are specific measures that can

be calculated to determine goodness of fit. Most researchers use chi-square goodness, chi-square/*df*, standardized root mean square residual (SRMR), root mean square error of approximation (RMSEA), the goodness of fit index (GFI), the adjusted goodness of fit index (AGFI), the parsimony goodness of fit index (PGFI), the normed fit index (NFI), the relative fit index (RFI), the incremental fit index (IFI), and the comparative fit index (CFI).

CFA relied on several statistical tests to determine the adequacy of a model fit to the data (Suhr, 2006). This paper uses the following criteria to determine good model fit: chi-square/*df* ratio less than 5, GFI, NFI, RFI, CFI, IFI and CFI all above 0.90 (values range from 0 to 1, and close to 1 indicates a perfect fit, whereas values close to zero indicate a bad fit). The RMSEA ranges from 0 to 1, with smaller values indicating better model fit, and a value of 0.08 or less is indicative of acceptable model fit. Other criteria—e.g., SRMR and PNFI—are below 0.50 (Bentler, 1990; Browne & Cudek, 1993; Kline, 2010; Raked & Marcoulides, 2006). The thresholds are listed in Table 3.

Table 3. Decision criteria and result

Fit indices	Threshold	Result/value
χ^2/df	<5.00	4.954
RMSEA	<0.08	0.077
SRMR	<0.05	0.029
GFI	>0.90	0.911
NFI	>0.90	0.954
RFI	>0.90	0.945
IFI	>0.90	0.963
CFI	>0.90	0.963
AGFI	>0.80	0.879
PNFI	>0.50	0.795

The data were analyzed through CFA using AMOS. The chi-square/df values are 4.954 (< 5.00), RMSEA values are 0.077 (< 0.08), and SRMR values are 0.029 (< 0.05). The above test results revealed that the model has a good fit. The test results revealed that the GFI (0.911), NFI (0.954), RFI (0.945), IFI (0.963), and CFI (0.963) all exceed 0.90. The standard values also represent how well this model fits the population. The AGFI is 0.879, higher than the recommended maximum of 0.80. The PNFI (0.795) exceeds 0.50, which is well within accepted guidelines. Thus, it was concluded that the four-factor model fits well and represents a reasonably close approximation to the population.

4.4 The IPA of Internet Marketing Strategies

The next stage in the analysis was to examine the responses across the scale items to assess students' perceptions of Internet marketing and the relative importance assigned by respondents to each item in teacher education departments. In addition, a paired-samples t-test was used to conduct an evaluation where mean importance scores differed significantly from mean performance scores in all cases at the 0.001 level. The results showed that respondents' importance scores are larger than performance scores, and a paired-samples t-test was significant (See Table 4). This result reflects the existence of an Internet marketing performance gap in teacher education departments. Internet marketing strategies are important, but they must be seriously improved by managers of teacher education departments.

Figure 2 shows the importance-performance grid for the four factors constructed using the information obtained from students of teacher education departments. IPA can provide management with a useful focus for developing marketing strategies by defining a two-dimensional matrix with the vertical axis signifying the importance of the attribute from low to high and the horizontal axis representing the perceived performance of the object from low to high. There are four quadrants: Concentrate here, Keep up the good word, Low priority, and Possible overkill. In this study, the instrument included 16 items to measure Internet marketing in the higher education sector. The 16 items derived from the literature review, and the measurement of the Internet marketing strategies includes four factors: consumer need, consumer cost, consumer communication, and consumer convenience.

The Quadrant A results shown in Figure 2 suggest that the department is performing well and should keep up the good work. Quadrant A was composed of two factors: Need and Cost. Quadrant B, composed of only one factor, suggests that a department is not performing well enough in spite of the very high value placed on it by the

students. Students felt that institutions of higher education needed to engage in special marketing efforts. This quadrant is a critical area that managers should concentrate on improving. Quadrant C illustrates quite clearly that the departments are performing well below average. It is a low-priority region and managers of higher-education institutions can pay less attention to this quadrant in their teacher education departments. Quadrant D attributes represents high performance scores coupled with low importance scores. The respondents suggest that the department is doing more than necessary with respect to these attributes. This response is reflective of a misuse of the department's resources with respect to Internet marketing strategies, and managers can reallocate resources to other quadrants. This research discovered no factors located in Quadrant D.

Table 4. Mean difference between each item importance and performance

| items	Importance (A)		Performance (B)		A-B	t-value	Sig. (two-tailed)
	Average	Variance	Average	Variance			
Need							
1	6.00	1.066	4.76	1.338	1.238	20.481***	0.00
2	6.32	0.905	5.24	1.360	1.086	19.579***	0.00
3	6.15	1.014	5.05	1.321	1.102	20.389***	0.00
4	6.12	1.055	4.71	1.392	1.407	22.837***	0.00
Convenience							
1	6.10	1.039	4.65	1.375	1.450	23.658***	0.00
2	6.18	0.996	4.70	1.466	1.339	22.079***	0.00
3	6.15	0.986	4.70	1.466	1.446	22.449***	
4	6.19	0.968	4.67	1.478	1.514	23.249***	0.00
Cost							
1	6.21	0.968	6.10	1.362	1.105	19.898***	0.00
2	6.12	1.057	4.90	1.456	1.221	18.869***	0.00
3	6.01	1.151	4.89	1.334	1.117	18.889***	
4	6.13	1.055	5.03	1.338	1.098	19.647***	0.00
communication							
1	5.99	1.080	4.50	1.498	1.486	22.221***	0.00
2	5.80	1.215	4.40	1.453	1.398	22.072***	0.00
3	5.90	1.184	4.49	1.471	1.416	22.243***	0.00
4	5.78	1.275	4.32	1.526	1.452	22.155***	0.00

$p^{***} < 0.001$
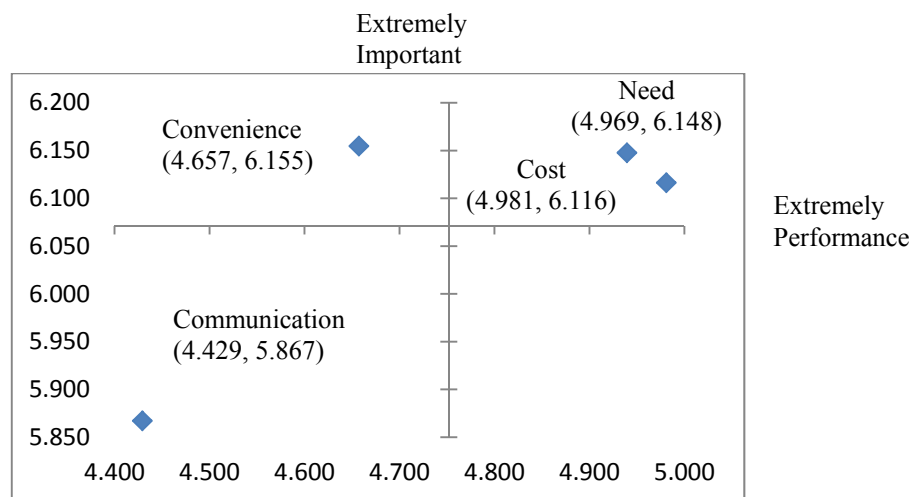
Figure 2. IPA matrix of Internet marketing dimensions

Quadrant B is reflective of the fact that some teacher education departments' Internet-marketing strategies are not performing to their full potential. It is essential that university improvement efforts and resources be prioritized in this area. The result indicates that "Convenience" is the strategy on which the departments need to concentrate. There are four Convenience items, three of which are located in Quadrant B (Concentrate Here area), including the following: to enable students to find information quickly, to make use of the website more convenient, and to enable students to become familiar with department information.

5. Conclusion and Suggestions

The purpose of this study is both to construct Internet marketing strategies for teacher education departments and to demonstrate the use of the importance-performance framework for helping managers improve their strategies. All of the values indicate this study's satisfactory reliability and validity. Internet marketing involves the application of the Internet and related digital technologies both to achieve marketing objectives and to support the modern-marketing concept (Chaffey, et al., 2006, p. 6). Students are treated as consumers and departments need to practice appropriate marketing strategies to obtain and recruit them: departmental websites are an important tool. In this research, four factors for Internet marketing strategies are adapted from the four Cs marketing mix, including consumer need, consumer cost, consumer communication, and consumer convenience. In this paper, an Internet marketing mix is defined as "the set of tools available to the higher education institution to shape the website marketing of its offer to students in accordance with consumer needs, cost, communication, and convenience".

This study's most important finding has been produced by the structure validation of the test by the CFA. The model of the existence of the four-factor structure was tested using AMOS and goodness of fit. Thus, it was concluded that the four-factor model fits well and represents a reasonably close approximation to the population. This is an important finding given the importance of better recruiting by teacher education departments to attract more students using Internet marketing strategies.

For the "Need" factor, departmental websites can support student learning, give them curriculum information, and so on. For the "Convenience" factor, departments maintain websites for student convenience, for example, by making them faster and more convenient. In this study, there are four items of Convenience, three of which are located in Quadrant B (Concentrate Here area), including the following: to enable students to find information quickly, to use departmental websites in a manner that is more convenient, and to ensure that students are well-informed about the department. In Taiwan, departmental improvement efforts and resources should be prioritized in this area. For the "Cost" factor, students can spend little time and money using departmental websites. For the "Communication" factor, students can communicate with departments through their websites, and managers use the Internet and websites to communicate with their students in teacher education departments.

For teacher education departments, protecting the superior and eliminating the inferior become important during a competitive period of low fertility rates worldwide. It is more difficult to recruit excellent students to teacher education departments during the time of low fertility rates and departmental financial difficulties. Internet marketing can play an important role in recruiting and retaining excellent students in teacher education departments. The CFA is used to test how well the measured variables represent the number of constructs in this study. A hypothesized model of the existence of a four-factor structure (need, convenience, cost and communication) was tested and showed a good model fit. Thus, it was concluded that the four-factor model fits well and represents a reasonably close approximation to the population. Internet marketing strategies in the business area can be applied to the educational area.

Next, IPA is a low-cost, easily understood technique that can yield important insights into which aspect of the marketing mix a firm should provide with more attention, together with identity areas that may consume too many resources (Martilla & James, 1977, p. 79). The results of the study highlight the usefulness of the IPA for helping management improve their Internet marketing strategies. The IPA offers numerous advantages for evaluating student acceptance of Internet marketing programs in teacher education departments. The items that currently perform effectively should keep up the good work. In this study, we see that managers of teacher education departments should focus on the "concentrate here" benefits and allocate resources to improve their Internet marketing strategies.

Students felt that institutions of higher education needed to engage in special marketing efforts, particularly related to "convenience". For Internet-era managers of teacher education departments, student needs and wants can be satisfied by websites, which are not limited to only a few places to satisfy those needs and wants. With the rise of Internet marketing, convenience takes into account the ease of finding information about the departments

in Taiwan's higher-education institutions, especially the rapidity with which students find information, thus increasing the convenience of website use and enabling the students to become familiar with departmental information.

Some suggestions for future studies are noted. First, researchers may consider examining the generalizability of Internet marketing strategies to various groups of educators. The group may include students from other departments in Taiwan or even from other countries. Second, this study collected and evaluated student feedback about their perceptions of Internet marketing strategies in teacher education departments. The quantitative approach followed in this paper reveals some factors important to these students. Research employing qualitative methods in support of quantitative findings could explicate students' underlying experiences. Finally, research on cultural differences is warranted.

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