

A Structural Model Assessing the Impact of the Service Marketing Mix on the Decision to Enroll in an Open University, Mediated by Brand Image

Narubodee Wathanakom¹, Nhatphaphat Juicharoen^{2,*} and Niranjan Devkota³

¹School of Management Science, Sukhothai Thammathirat Open University, Nonthaburi 11120, Thailand

²Rajamangala University of Technology Thanyaburi, Pathumthani 12110, Thailand

³Research Fellow, Policy Research Institute, Government of Nepal, Kathmandu 44600, Nepal

(*Corresponding author's e-mail: nhatphaphat_j@rmutt.ac.th)

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Abstract

This study examines the determinants influencing the decision to enroll in an open university by evaluating the model fit and the causal relationships among key variables. The main objective is to validate the empirical goodness of fit of the proposed causal model and to investigate the direct and indirect effects of influential factors, with brand image serving as a mediating variable. A multi-stage random sampling technique was used to select 500 students from Sukhothai Thammathirat Open University. Data were collected through a self-administered questionnaire and analyzed using descriptive statistics and covariance-based structural equation modeling (CB-SEM). The results showed that the model demonstrated acceptable fit indices (P-value = 0.000, N = 500; χ^2/df = 3.29; CFI = 0.928; TLI = 0.910; RMSEA = 0.068; SRMR = 0.038). Findings revealed that the components of people and physical evidence had both direct and indirect effects on enrollment decisions through brand image at the 0.01 significance level. Brand image and process also exerted significant direct influences on the decision to enroll. Although the study was limited to students from a single open university, the findings provide practical implications for improving enrollment strategies by strengthening brand image, enhancing service personnel, and upgrading physical facilities. Overall, this research contributes important insights to the limited literature on decision-making behavior in open university settings.

Keywords: Service marketing mix, The decision to enroll in an open university, Brand image

Introduction

Lifelong learning has become increasingly significant in recent years, with open universities playing a pivotal role in delivering accessible education tailored to individuals of diverse ages and backgrounds. The United Nations Educational, Scientific, and Cultural Organization (UNESCO) has spearheaded the promotion of learning throughout people's lives to achieve personal development, social cohesion, and economic development around the world (UNESCO Institute for Lifelong Learning, 2024). This is consistent with the United Nations' Sustainable Development Goals (SDGs), specifically SDG 4, which aims to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (United

Nations, 2015). Several countries around the world, e.g., Finland, Singapore, Japan, Germany, India, and Thailand, have enacted SDG 4 via equal access, quality of education, and lifelong learning (Niemi, 2021; Ng, 2023; Takahashi, 2016; Anger, 2019; Ram, 2024; Prajuablap, 2022). This prevailing trend is particularly critical amidst aging populations, swiftly evolving technological landscapes, and shifting workforce demands. As a result, many countries are increasingly relying on open universities to meet the escalating demand for continuous educational opportunities, encompassing initiatives focused on upskilling and reskilling their human resources (Zuhairi, 2020).

Open universities have been established to provide accessible and flexible learning opportunities to a wide range of individuals, regardless of their age, socio-economic status, location, and educational background. Hence, their role Governments are increasingly recognizing the role of open universities in promoting equal education opportunities and professional development has received increased recognition from governments, who in turn have provided increased support for these institutions (GOV.UK, 2022). Examples include the Indira Gandhi National Open University (IGNOU), the open university in the UK, the open university of China, the national open university of Nigeria (NOUN), the open University of Malaysia (OUM), University of the Philippines Open University (UPOU), the open university of Japan, and Sukhothai Thammathirat Open University (STOU). These initiatives demonstrate the commitment of governments to leveraging open universities as a means of promoting educational equity and inclusion. Globally, the number of students enrolled in open universities has been on the rise. For instance, the IGNOU in India, the world's largest pen university, has seen a remarkable annual growth rate of 17.4% to 1,348,948 million students in 2020 (IGNOU, 2020). Similarly, student enrollment in the open university in the UK, which is the largest open university in Europe, has increased from 126,620 in 2015/16 to over 150,000 students in 2021/22 (Statista, 2024). These figures demonstrate the growing popularity and important role of open universities in meeting the demand for lifelong learning opportunities on a global scale.

In Thailand, the demand for higher education has been growing minimally with a three-year compound annual growth rate (CAGR) of 2%. The total number of new students enrolled in higher education institutions in the first semester rose from 420,209 in 2021 to 445,180 in 2023, and the total number of students in higher education in 2023 was 1,782,425 (Ministry of Higher Education, Science, Research, and Innovation, 2024). There has been a minimal increase in enrollment numbers due to several factors. Firstly, the country has an aging society: 20% of the population is aged 60 or over, and just 8% are 16–25 years old (TDRI Quarterly Review, 2023). Furthermore, many Thai people have experienced barriers to accessing traditional closed universities, such as geographical distance and heavy

work commitments that do not allow for regular classroom attendance (Jueti, 2020). Open universities offer a solution to these challenges by providing lifelong learning opportunities and addressing the educational needs of the Thai population, particularly in terms of upskilling and reskilling. Only 13.8% of the Thai population have obtained a bachelor's degree, of which 70.2% live in Bangkok and 29.8% live in the upcountry regions (National Statistical Office Thailand, 2024).

STOU was established in 1978 as the first open University in Thailand with the purpose of expanding higher education access and lifelong learning for all Thai people. The institution was the first university in Southeast Asia to use the distance learning system to conduct teaching and learning for students, aiming to establish itself as a world-leading open university by leveraging cutting-edge technology and educational innovation (STOU, 2024). STOU has committed to widening access and upskilling Thai people by convincing them to enroll in higher education programs and nurturing them from entrance to graduation. As part of this commitment, STOU recently launched its Reinventing Plan 2022-2026 with two main objectives: (1) to transform STOU into a fully digital open university and (2) to innovate teaching and learning methodologies to align with the rapidly changing environment. One of the key action plans is to increase the number of students and learners with extended admission for younger adults aged 18 and above, new competency-based academic programs, flexible learning journeys, an installment plan for tuition fees, equation of academic achievements, work experience within the credit banking system, and a student consultation service (STOU Library, 2024). This demonstrates that STOU has applied a service marketing mix strategy to increase the number of students and fulfill their needs, supporting its academic products with superior student services.

Recent research studies have shown that the service marketing mix (7Ps), which includes product, price, place, promotion, people, process, and physical evidence, has been adopted by higher education institutions to meet the needs of their students (Pramiarsih, 2022), attract new potential students, and retain current students (Pardiyono, 2022; Tukur, 2019; Nuseir & Refae, 2022; Kusumawati, 2019). This implies that the service marketing mix will influence the

decision to enroll in a university. Wathanakom (2023) found out that service marketing mix were used to recruit and retain customers for service industry. Furthermore, Ryńca and Ziaecian (2021) have demonstrated that the 7Ps marketing mix has a profound impact on university branding. There is also evidence that the service marketing mix and marketing touchpoints have influenced student decision-making through university brand image (Arifin, 2020; Khanna, 2014). However, Open universities are fundamentally different conditions compared to traditional universities. This identified gap forms the basis of the present study. As a result, this research aims to investigate the impact of the service marketing mix on students' decision to enroll in an open university in Thailand, with a specific focus on the mediating role of brand image. In the context of higher education, the 7Ps may include factors such as program offerings, tuition fees, campus location, promotional activities, faculty and staff, administrative processes, and learning facilities (Ivy, 2008). Therefore, the current study contributes to new knowledge by extensively reviewing the previous literature to create a hypothesized structural equation modeling of the impact of the service marketing mix on the decision to enroll in an open university, mediated by brand image. This is achieved by testing the goodness of fit of a causal model of the service marketing mix affecting the decision to enroll in a specific open university in Thailand.

Research objectives

1. Examine the goodness of fit of a causal model representing the decision to enroll in an open university in Thailand among undergraduate students at STOU using empirical data.
2. Identify the direct and indirect effects, mediated by brand image, of the seven service marketing mix components—product, price, place, promotion, people, process, and physical evidence— influencing the decision to enroll at STOU in Thailand.

Literature review

This research is based on three main theoretical frameworks: the service marketing mix, brand image, and consumer purchase decision-making.

Service marketing mix (7Ps)

The service marketing mix refers to seven components that were developed from the typical 4Ps marketing mix to be appropriate for the service context. The name marketing mix is rooted in the analogy that marketers are supposed to function like professional chefs, mixing all of the marketing ingredients to satisfy customers' needs and wants (Baines et al., 2017). The service marketing mix or 7Ps consists of product, price, place, promotion, people, process, and physical evidence. Product refers to the tangible and intangible offerings that are catered to meet the customer's needs or wants, including physical goods, services, experiences, and ideas; the product is carefully developed to bring the brand proposition of the business to life and to encourage potential customers to purchase the product (Kotler & Keller, 2016). The product of an open university consists of available courses, teaching and learning methods, textbooks, and reputation with the aim of influencing the decision to enroll through brand perception. Pricing refers to the cost of product acquisition for the customer and takes many forms such as rent, fares, rates, commissions, and fees; it also allows marketers to earn profit by adding the surplus to the cost for the customer (Kotler & Keller, 2016). Pricing for an open university refers to tuition fees, value for money perception, and the cost of textbooks and educational equipment. Place refers to how marketers make the product available to the customer at the most convenient place and time with the lowest cost (Perreault, Cannon, & McCarthy, 2021). The channel of distribution is particularly important in making the product accessible (Baines et al., 2017). The place component of an open university includes the channels used for enrollment and course registration, accessibility of transportation, and one-stop services (Kotler et al., 2024). Promotion or marketing communication is employed to showcase product benefits and features to the customer, thus creating demand and encouraging repeat purchases. The promotion of an open university refers to advertising and offline and online public relations, word-of-mouth recommendations, and service branches (Baines et al., 2017). The people component refers to the human resources who provide services to the customer throughout the service journey, greeting the customer, delivering superior services, and ending the service session on a good note (Wirtz & Lovelock, 2018).

People are critical components of customer satisfaction in some service businesses, for example, hotels, airlines, and educational institutions (Wirtz & Lovelock, 2018). The people component for this study refers to staff being attentive, expert, and friendly with appropriate manners. Process is employed to ensure quality-of-service delivery given the inconsistent nature of service; therefore, process is normally used as a standardization of operating procedures abbreviated as SOP (Wirtz & Lovelock, 2018). For open universities, process refers to fast and convenient service, modern registration systems, high-quality teaching and learning systems, and reliable examination result notifications. Physical evidence refers to the tangible components of service, for example, buildings, interior decorations, and facilities (Wirtz & Lovelock, 2018). For universities, service quality can be demonstrated by appropriate security measures, well-equipped and modern classrooms, a variety of library learning resources and comprehensive and up-to-date textbooks.

Previous research has shown that the service marketing mix has a strong influence on choices regarding educational institutions among students because they play an important role in satisfying the customers' needs and creating demand for the educational service, especially when potential students or customers have a wide variety of choices (Sehgal, 2013; Tijjjang et al., 2017; Kwang, 2019; Pokhrel et al., 2018; Liu et al., 2018; Sajjatanawat & Yonwikai, 2020; Ryńca & Ziaean, 2021; Sulaimana & Harun, 2021). The 7Ps play an especially important role in attracting new potential students and, given the fierce level of competition in this industry, they should be adopted and implemented in higher education institutions to improve recruitment (Lau, 2020; Dally et al., 2021; Ho & Law, 2022). Therefore, the service marketing mix (7Ps) is appropriate for this study.

Higher education brand image

Branding is regarded as one of the most important contributors to success for service businesses since a strong brand can attract potential customers by overcoming any concerns regarding value for money, social acceptance, and safety based on the intangible nature of the service product (Wirtz & Lovelock, 2018). By standing out and becoming relevant, brands can differentiate themselves from competitors in the

marketplace. To build a well-recognized brand, marketers must gain insights into the key factors driving brand equity and the resultant willingness to purchase its product. Those key factors are brand awareness and brand meaning (Wirtz & Lovelock, 2018). Brand awareness refers to the extent to which consumers recognize and recall the brand, and brand meaning refers to the perceptions customers have when thinking about the brand (Kotler & Keller, 2016). If service businesses are able to increase brand awareness and differentiate themselves in the minds of their customers, they are more likely to be more successful. To evaluate the key factors, service businesses should measure brand image perception before and after marketing campaigns. Salinas et al. (2004) propose three dimensions of brand image: functional image, emotional image, and reputational image. These dimensions can be validated via confirmatory factor analysis of key components and indicators. The functional image encompasses functional aspects and benefits associated with the brand, while the affective image considers emotional and symbolic aspects that influence consumer attitudes. Reputational image is defined as the overall perception of the brand over time, leading to competitive advantages and positive economic outcomes. Alcaide-Pulido et al. (2022) applied this brand image measurement to higher education using confirmatory factor analysis, suggesting that the measurement scale can be applied to the higher education context. These scales will be used in this study. Previous studies show that a university's brand image has a significant influence on student choices regarding enrollment (Merchant et al., 2015; Kango et al., 2021). Furthermore, the service marketing mix has a positive effect on brand equity perception among students (Prabowo & Sriwidadi, 2019).

The decision to enroll in an open university

Consumer decision-making refers to the process in which consumers carefully consider the features and benefits of products or brands and rationally choose the one that best serves their needs or wants. This decision-making process extends beyond product features to include emotional connections with brands; therefore, brand image plays an essential role in affecting the purchase decision (Kotler et al., 2024). The decision-making process consists of five steps: problem

recognition, information search, evaluation of alternatives, the decision to purchase a product, and post-purchase evaluation. This final step involves an assessment of the benefits derived from purchasing the product, which allows consumers to assess whether the decision met their expectations. (Perreault et al., 2021). Previous research involving higher education focuses on the most important step in the decision-making process—the purchase decision—and indicates that marketing mixes and brand image have a strong influence on the decision to enroll in a university (Merchant et al., 2015; Kango et al., 2021; Pramiasih et

al., 2022). Therefore, the decision-making process is the focus of this study. Based on these observations and studies related to influencing factors in the decision to enroll in an open university, two research hypotheses have been formulated alongside a research framework:

1. The proposed causal model of the decision to enroll in an open university in Thailand is consistent with empirical data.

2. Mediated by brand image, the service marketing mix has both direct and indirect effects on the decision to enroll in an open university in Thailand.



Figure 1 The hypothesized structural model illustrating the proposed causal pathways. The model depicts the direct effects of the seven service marketing mix components on brand image and on the decision to enroll in an open university, as well as the indirect effects mediated through brand image.

Source: Prepared by the Author

Methodology

Population

The population considered in this study comprises undergraduate students at STOU. The institution recently reported that it has 123,115 undergraduate students (Ministry of Higher Education, Science, Research and Innovation, 2024).

Sampled data

Structural equation modeling (SEM) is an analysis method for testing a research hypothesis where a large sample size is required (Viratchai, 1999). Bentler and Chou (1987) suggest that an appropriate sample for estimating SEM parameters should not have less than 10 samples per one observed variable or indicator, whereas

Kline (2023) recommends a range of sample sizes from 10-20 units per observed variable or indicator. The structural equation model proposed in this study consists of 48 observed variables or indicators and 10 sample units per observed variable, with a minimum sample size of 480, which provides sufficiently robust data. This data has been extracted through multi-stage random sampling. First, undergraduate students were divided into twelve academic schools: Agriculture and Cooperatives, Communication Arts, Economics, Educational Studies, Health Science, Human Ecology, Law, Liberal Arts, Management Science, Nursing, Political Science, and Science and Technology. Then, one science school (Agricultural and Cooperatives) and one social science school (Management Science) were

randomly selected. A final systematic random sampling process was performed to collect 515 samples from both academic schools, ensuring the sample data requirements have been achieved. A total of 500 questionnaires were collected. After applying the exclusion criteria, specifically, the removal of 15 incomplete responses and those that did not satisfy the screening questions (respondents must be aged 18 or above), therefore 500 valid responses were retained for the structural equation modeling analysis.

Research instruments

A self-administered questionnaire was developed for this study containing four sections. The first ascertains the demographic profile of each respondent, including gender, age, occupation, field of study, and household income. Each question was formatted as a multiple-choice checklist. The second section concerns the service marketing mix and includes 31 questions: five questions relating to product, four questions relating to price, five questions relating to place, four questions relating to promotion, people with five questions, four

questions relating to process, and four questions relating to physical evidence. A five-point rating scale was used for all of these questions. The third section covers the three brand image dimensions: five questions relating to functional image, five questions relating to emotional image with five questions, and four questions relating to reputational image. These were measured using a five-point rating scale. Finally, the fourth section evaluates the decision to enroll in STOU with three questions measured using a five-point rating scale.

All questions were reviewed by three subject matter experts to ensure content validity, passing an index of Item Objective Congruence (IOC) threshold score higher than 0.5. All questions received a score of one. Next, the questionnaire was administered to 30 trial participants as a pilot study in order to test the reliability using the Cronbach's Alpha coefficient and the Pearson correction coefficient. The Cronbach's Alpha coefficient for all latent variables is higher than 0.80 (Carmines & Zeller, 1979), and the corrected-item total correlation is higher than 0.20. The full reliability test results are listed in Table 1.

Table 1 Questionnaire reliability test results

Latent Variables	Number of Questions	Cronbach's Alpha Coefficient	Corrected-Item Total Correlation
1. Product	5	0.855	0.573–0.726
2. Price	4	0.907	0.729–0.864
3. Place	5	0.860	0.628–0.795
4. Promotion	4	0.902	0.706–0.585
5. People	5	0.955	0.841–0.920
6. Process	4	0.909	0.659–0.865
7. Physical Evidence	4	0.935	0.753–0.887
8. Functional Image	5	0.951	0.770–0.913
9. Emotional Image	5	0.866	0.532–0.795
10. Reputational Image	4	0.943	0.704–0.953
6. Decision to Enroll in an open university	3	0.970	0.946–0.965
Total	48	0.982	0.482–0.893

Source: Results of analysis by the author

Data collection

As STOU is a distance-learning open university, its undergraduate students are geographically dispersed across Thailand and do not attend classes on campus.

Consequently, an online survey method was adopted as the primary data collection approach, which is both appropriate and consistent with the nature of the institution's student population. The self-administered

questionnaire was converted into an online format and hosted on Google Forms. The survey link was distributed to students enrolled in the two randomly selected schools; the School of Agriculture and Cooperatives and the School of Management Science, through the university's e-learning platform. The questionnaire was distributed and collected in June 2024. Two screening questions were used to qualify the intended respondents: (1) Are you 18 or older? and (2) Are you an undergraduate student of STOU?

Data analysis

The data was analyzed using descriptive statistics to describe the socio-demographics of the samples with frequency and percentage. SEM was employed to test the hypotheses on the structural equation model

goodness of fit and the direct and indirect effects of the service marketing mix on the decision to enroll in an open university, mediated by brand image.

Results and discussion

Results

From the calculated demographic information, the majority of participants in the sample are female (71.8%), aged between 26 and 33 years old (38.0%), and work as an employee (29.8%). Almost half of the participants have an average monthly income of 15,001 to 30,000 baht (45.6%). More than half are undergraduate students studying Management Science (56.4%). Full demographic information is presented in Table 2.

Table 2 Sample characteristics of the survey respondents

Variable	Categories	Respondents (n = 500)	Percentage
Gender	Male	141	28.2
	Female	359	71.8
Age	18–25	74	14.8
	26–33	190	38.0
	34–41	107	21.4
	42–49	80	16.0
	Above 50	49	9.8
Occupation	Government Officer	145	29.0
	Employee	149	29.8
	Business Owner	60	12.0
	Freelancer	76	15.2
	Fulltime Student	70	14.0
Average Monthly Income	Below 15,000 Baht	166	33.2
	15,001–30,000 Baht	228	45.6
	30,001–50,000 Baht	70	14.0
	50,001–100,000 Baht	28	5.6
	Above 100,000 Baht	8	1.6
Academic School	Management Science	282	56.4
	Agriculture and Cooperatives	218	43.6

Source: Results of analysis by the author

A structural equation model on the decision to enroll in an open university incorporating the service marketing mix and brand image has been developed based on the literature review discussed in the research

framework. The criterion used to measure the goodness of fit between the hypothesized model and the empirical data follows the approach established by Hair, et al. (2019), as detailed in Table 3.

Table 3 The proposed model goodness of fit index (GFI) for more than 250 samples on the 30 observed variables and questions

Statistics	Criteria
χ^2 P-Value	Significant P-value expected
CFI or TLI	Above 0.90
SRMR	0.80 or less (with a CFI above 0.92)
RMSEA	Below 0.70 (with a CFI of 0.90 or higher)

Source: Results of analysis by the author

Basic assumptions regarding the multicollinearity incidence must be tested before proceeding to the structural equation analysis. The Pearson correlation coefficient considers the correlation among the 48 observed variables, 31 of which are independent variables, 14 are mediated variables, and three are dependent variables.

All independent variables have a positive correlation with the other dependent variables and the decision to enroll in an open university with a significance level of 0.01, ranging from -0.22–0.56. The Pearson correlation coefficients of the 26 dependent variables are between 0.36–0.78; these figures are lower than the target criteria of 0.8, suggesting that the causal variables do not demonstrate a problem with multicollinearity. These results are listed in Tables 4–6.

The goodness of fit results of the proposed causal model with the collected empirical data have been analyzed with the Mplus program using the maximum likelihood method. The causal model was initially determined not to be consistent with the empirical data, so a modification allowed some observed variables to correlate. As a result, the final proposed causal model is consistent with the empirical data with GFI values of P-Value (0.000, N=500), /df = 3.29, CFI = 0.928, TLI = 0.910, RMSEA = 0.068, and SRMR = 0.038, as presented in Table 6.

Consistent with empirical data, the proposed causal model suggests that the service marketing mix and brand image have both direct and indirect effects on the g decision to enroll in STOU. For direct effects, this

causal model features four paths. Path 1 is BRD → DEE, implying that STOU's brand image has a positive direct effect on the decision to enroll with a 0.01 significance level and a standardized effect size () of 0.86 (t = 7.93). Path 2 follows PEO → DEE, meaning that the people component positively influences the decision to enroll with a 0.01 significance level and a standardized effect size () of 0.29 (t = 2.97). Path 3 is PRS → DEE, showing that process has a positive effect on the decision to enroll at a 0.01 significance level and a standardized effect size () of 0.31 (t = 2.83). Path 4 includes PHY → DEE, implying that physical evidence negatively influences the decision to enroll at a 0.01 significance level with a standardized effect size () of -0.36 (t = -3.86). These results are presented in Table 7 and Figure 2.

For the indirect effects, the proposed causal model confirms three paths. Path 1 is PLC → BRD → DEE, demonstrating that place indirectly influences the decision to enroll, mediated by brand image towards STOU with a standardized effect size () equal to $PLC \rightarrow BRD \times BRD \rightarrow DEE = 0.30 \times 0.86 = 0.26$. Path 2 is PEO → BRD → DEE, showing that place indirectly affects the decision to enroll with a standardized effect size () equal to $PEO \rightarrow BRD \times BRD \rightarrow DEE = 0.43 \times 0.86 = -0.37$. Finally, path 3 is PHY → BRD → DEE, demonstrating that physical evidence indirectly influences the decision to enroll with a standardized effect size () equal to $PHY \rightarrow BRD \times BRD \rightarrow DEE = -0.34 \times 0.86 = -0.29$. These indirect effect results are also presented in Table 7 and Figure 2.

Table 4 Correlation coefficient matrix for the factors of product, price, place, and promotion

r	Product					Price				Place					Promotion			
	PRD1	PRD2	PRD3	PRD4	PRD5	PRI1	PRI2	PRI3	PRI4	PLC1	PLC2	PLC3	PLC4	PLC5	PRO1	PRO2	PRO3	PRO4
PRD1	1.0																	
PRD2	0.59	1.0																
PRD3	0.60	0.75	1.0															
PRD4	0.63	0.62	0.71	1.0														
PRD5	0.61	0.66	0.65	0.68	1.0													
PRI1	0.57	0.51	0.54	0.50	0.56	1.0												
PRI2	0.60	0.59	0.58	0.52	0.63	0.77	1.0											
PRI3	0.58	0.48	0.49	0.49	0.61	0.70	0.71	1.0										
PRI4	0.58	0.53	0.54	0.53	0.54	0.79	0.70	0.75	1.0									
PLC1	0.60	0.58	0.55	0.58	0.57	0.71	0.73	0.67	0.71	1.0								
PLC2	0.48	0.49	0.44	0.47	0.51	0.60	0.60	0.56	0.70	0.67	1.0							
PLC3	0.63	0.57	0.48	0.55	0.55	0.63	0.68	0.63	0.71	0.73	0.73	1.0						
PLC4	0.65	0.57	0.50	0.52	0.57	0.62	0.71	0.64	0.68	0.80	0.58	0.72	1.0					
PLC5	0.57	0.58	0.49	0.53	0.53	0.67	0.74	0.63	0.67	0.70	0.69	0.74	0.71	1.0				
PRO1	0.57	0.47	0.46	0.46	0.50	0.56	0.61	0.59	0.62	0.63	0.55	0.70	0.57	0.61	1.0			
PRO2	0.48	0.44	0.43	0.45	0.47	0.51	0.56	0.58	0.60	0.56	0.56	0.58	0.53	0.65	0.71	1.0		
PRO3	0.44	0.47	0.36	0.41	0.41	0.45	0.50	0.48	0.56	0.55	0.54	0.56	0.50	0.59	0.62	0.78	1.0	
PRO4	0.47	0.42	0.39	0.47	0.49	0.51	0.59	0.52	0.61	0.57	0.53	0.61	0.51	0.64	0.73	0.75	0.74	1.0
PEO1	0.52	0.57	0.49	0.43	0.49	0.52	0.57	0.53	0.58	0.66	0.49	0.58	0.65	0.56	0.52	0.44	0.43	0.44
PEO2	0.53	0.58	0.57	0.48	0.54	0.55	0.63	0.55	0.56	0.61	0.49	0.63	0.67	0.56	0.53	0.41	0.39	0.44
PEO3	0.52	0.51	0.44	0.47	0.52	0.48	0.53	0.49	0.49	0.56	0.47	0.58	0.65	0.54	0.51	0.43	0.40	0.43
PEO4	0.50	0.58	0.55	0.42	0.51	0.54	0.62	0.54	0.57	0.61	0.47	0.60	0.64	0.53	0.55	0.40	0.37	0.40
PEO5	0.46	0.53	0.43	0.37	0.49	0.49	0.54	0.49	0.49	0.56	0.45	0.55	0.62	0.56	0.49	0.42	0.39	0.41
PRS1	0.56	0.47	0.49	0.58	0.54	0.54	0.57	0.57	0.53	0.53	0.51	0.68	0.52	0.61	0.63	0.54	0.48	0.55
PRS2	0.61	0.58	0.55	0.56	0.57	0.66	0.71	0.65	0.72	0.72	0.65	0.74	0.63	0.71	0.70	0.60	0.56	0.57
PRS3	0.57	0.58	0.57	0.53	0.64	0.63	0.71	0.64	0.68	0.67	0.56	0.72	0.60	0.64	0.71	0.57	0.57	0.66
PRS4	0.54	0.49	0.50	0.48	0.54	0.64	0.65	0.60	0.63	0.56	0.59	0.64	0.52	0.59	0.60	0.61	0.57	0.55
PHY1	0.48	0.40	0.40	0.42	0.43	0.49	0.56	0.45	0.52	0.53	0.39	0.58	0.54	0.53	0.56	0.41	0.42	0.46
PHY2	0.56	0.48	0.46	0.43	0.49	0.56	0.61	0.50	0.54	0.52	0.46	0.62	0.59	0.66	0.61	0.48	0.47	0.51
PHY3	0.56	0.49	0.48	0.49	0.47	0.52	0.59	0.54	0.50	0.50	0.45	0.61	0.60	0.61	0.58	0.55	0.46	0.48
PHY4	0.54	0.49	0.45	0.44	0.51	0.52	0.61	0.52	0.54	0.55	0.44	0.60	0.57	0.60	0.60	0.55	0.48	0.51
FUT1	0.53	0.54	0.48	0.44	0.55	0.54	0.57	0.53	0.52	0.58	0.50	0.53	0.58	0.56	0.53	0.47	0.41	0.44
FUT2	0.53	0.49	0.51	0.44	0.54	0.52	0.59	0.50	0.55	0.58	0.44	0.53	0.54	0.60	0.52	0.52	0.42	0.47
FUT3	0.48	0.48	0.52	0.43	0.50	0.53	0.60	0.50	0.53	0.54	0.44	0.51	0.54	0.61	0.50	0.56	0.38	0.49
FUT4	0.52	0.48	0.49	0.46	0.51	0.55	0.57	0.48	0.55	0.62	0.46	0.54	0.57	0.62	0.52	0.50	0.46	0.50
FUT5	0.56	0.56	0.55	0.49	0.61	0.69	0.71	0.64	0.62	0.65	0.56	0.65	0.62	0.68	0.60	0.53	0.48	0.53
EMO1	0.46	0.48	0.45	0.46	0.56	0.53	0.57	0.50	0.50	0.60	0.51	0.55	0.54	0.56	0.55	0.53	0.46	0.51
EMO2	0.48	0.47	0.46	0.42	0.47	0.46	0.50	0.38	0.41	0.48	0.40	0.54	0.47	0.50	0.53	0.44	0.38	0.47
EMO3	0.47	0.50	0.48	0.40	0.52	0.51	0.59	0.49	0.50	0.54	0.47	0.57	0.52	0.54	0.54	0.49	0.49	0.56
EMO4	0.51	0.52	0.48	0.44	0.57	0.60	0.64	0.53	0.53	0.64	0.47	0.61	0.62	0.59	0.57	0.49	0.45	0.52
EMO5	0.49	0.43	0.44	0.41	0.44	0.56	0.57	0.51	0.55	0.57	0.46	0.59	0.55	0.55	0.54	0.44	0.47	0.49
REP1	0.50	0.50	0.51	0.42	0.49	0.53	0.59	0.51	0.55	0.64	0.46	0.61	0.59	0.57	0.59	0.46	0.44	0.50
REP2	0.55	0.57	0.54	0.42	0.54	0.60	0.67	0.60	0.60	0.67	0.54	0.66	0.64	0.64	0.59	0.50	0.44	0.50
REP3	0.52	0.51	0.49	0.41	0.45	0.53	0.59	0.50	0.61	0.66	0.48	0.66	0.63	0.57	0.59	0.42	0.39	0.46
REP4	0.56	0.56	0.50	0.44	0.45	0.53	0.61	0.53	0.55	0.65	0.52	0.65	0.63	0.67	0.60	0.50	0.44	0.48
DEE1	0.53	0.55	0.46	0.43	0.49	0.54	0.60	0.52	0.53	0.62	0.53	0.60	0.59	0.61	0.52	0.39	0.42	0.45
DEE2	0.50	0.53	0.44	0.40	0.49	0.54	0.60	0.56	0.53	0.53	0.50	0.61	0.54	0.56	0.47	0.41	0.41	0.48
DEE3	0.47	0.55	0.43	0.39	0.45	0.51	0.57	0.49	0.47	0.58	0.47	0.57	0.52	0.58	0.49	0.37	0.34	0.40
M	4.65	4.69	4.69	4.66	4.68	4.61	4.65	4.60	4.65	4.70	4.51	4.62	4.72	4.61	4.62	4.43	4.47	4.54
SD	0.50	0.51	0.50	0.50	0.49	0.55	0.54	0.56	0.53	0.47	0.63	0.56	0.46	0.54	0.53	0.63	0.61	0.58

Source: Results of analysis by the author

Table 5 Correlation coefficient matrix for the factors of people, process, physical evidence, and functional image

r	People					Process				Physical Evidence				Functional Image				
	PEO1	PEO2	PEO3	PEO4	PEO5	PRS1	PRS2	PRS3	PRS4	PHY1	PHY2	PHY3	PHY4	FUT1	FUT2	FUT3	FUT4	FUT5
PEO1	1.0																	
PEO2	0.67	1.0																
PEO3	0.68	0.77	1.0															
PEO4	0.71	0.78	0.71	1.0														
PEO5	0.74	0.64	0.68	0.71	1.0													
PRS1	0.46	0.50	0.48	0.46	0.42	1.0												
PRS2	0.60	0.63	0.59	0.60	0.54	0.76	1.0											
PRS3	0.66	0.67	0.67	0.66	0.59	0.69	0.70	1.0										
PRS4	0.53	0.52	0.53	0.53	0.47	0.72	0.74	0.71	1.0									
PHY1	0.53	0.60	0.58	0.59	0.49	0.50	0.62	0.62	0.55	1.0								
PHY2	0.52	0.60	0.58	0.59	0.49	0.59	0.66	0.67	0.69	0.75	1.0							
PHY3	0.52	0.57	0.57	0.53	0.49	0.62	0.66	0.63	0.63	0.64	0.73	1.0						
PHY4	0.56	0.60	0.61	0.57	0.52	0.55	0.69	0.69	0.64	0.69	0.77	0.72	1.0					
FUT1	0.62	0.60	0.61	0.57	0.55	0.49	0.63	0.68	0.57	0.56	0.57	0.62	0.66	1.0				
FUT2	0.56	0.55	0.56	0.51	0.50	0.47	0.63	0.63	0.56	0.58	0.61	0.64	0.73	0.74	1.0			
FUT3	0.58	0.57	0.55	0.50	0.49	0.46	0.61	0.63	0.55	0.51	0.56	0.61	0.67	0.75	0.78	1.0		
FUT4	0.61	0.59	0.57	0.55	0.51	0.47	0.60	0.59	0.48	0.57	0.59	0.57	0.63	0.67	0.72	0.67	1.0	
FUT5	0.67	0.66	0.67	0.63	0.60	0.55	0.71	0.73	0.62	0.65	0.66	0.61	0.68	0.78	0.73	0.72	0.79	1.0
EMO1	0.58	0.58	0.64	0.54	0.55	0.54	0.68	0.65	0.63	0.55	0.56	0.64	0.70	0.66	0.66	0.70	0.65	0.70
EMO2	0.47	0.50	0.56	0.49	0.47	0.49	0.58	0.60	0.48	0.52	0.53	0.64	0.65	0.62	0.60	0.55	0.67	0.66
EMO3	0.59	0.58	0.62	0.62	0.59	0.53	0.60	0.64	0.57	0.58	0.61	0.58	0.62	0.56	0.59	0.54	0.66	0.67
EMO4	0.60	0.63	0.66	0.59	0.57	0.55	0.69	0.71	0.56	0.60	0.58	0.63	0.70	0.70	0.72	0.65	0.74	0.79
EMO5	0.57	0.62	0.59	0.57	0.50	0.54	0.67	0.64	0.59	0.62	0.63	0.60	0.65	0.60	0.59	0.59	0.74	0.72
REP1	0.64	0.64	0.65	0.61	0.54	0.52	0.60	0.69	0.61	0.56	0.65	0.58	0.64	0.60	0.63	0.61	0.69	0.67
REP2	0.69	0.66	0.69	0.63	0.63	0.51	0.73	0.72	0.55	0.57	0.59	0.58	0.62	0.72	0.69	0.67	0.71	0.79
REP3	0.68	0.65	0.62	0.64	0.54	0.55	0.67	0.68	0.60	0.58	0.64	0.58	0.62	0.70	0.62	0.65	0.67	0.71
REP4	0.68	0.64	0.64	0.60	0.61	0.52	0.68	0.65	0.54	0.57	0.63	0.63	0.65	0.72	0.69	0.66	0.68	0.76
DEE1	0.65	0.66	0.70	0.56	0.59	0.53	0.69	0.67	0.52	0.52	0.57	0.54	0.57	0.62	0.55	0.58	0.62	0.69
DEE2	0.60	0.61	0.62	0.54	0.57	0.51	0.61	0.59	0.51	0.47	0.52	0.48	0.52	0.52	0.53	0.54	0.54	0.62
DEE3	0.58	0.59	0.63	0.56	0.58	0.48	0.63	0.58	0.46	0.49	0.54	0.50	0.54	0.60	0.56	0.53	0.60	0.67
M	4.84	4.80	4.80	4.79	4.83	4.54	4.67	4.70	4.58	4.68	4.67	4.65	4.68	4.69	4.68	4.67	4.69	4.73
SD	0.38	0.43	0.46	0.42	0.40	0.60	0.52	0.50	0.55	0.49	0.48	0.49	0.49	0.47	0.48	0.51	0.48	0.46

Source: Results of analysis by the author

Table 6 Correlation coefficient matrix for the factors of emotional image, reputational image, and decision to enroll

r	Emotional Image					Reputational Image				Decision to Enroll		
	EMO1	EMO2	EMO3	EMO4	EMO5	REP1	REP2	REP3	REP4	DEE1	DEE2	DEE3
EMO1	1.0											
EMO2	0.74	1.0										
EMO3	0.70	0.74	1.0									
EMO4	0.77	0.77	0.73	1.0								
EMO5	0.69	0.72	0.74	0.77	1.0							
REP1	0.64	0.66	0.67	0.72	0.75	1.0						
REP2	0.71	0.66	0.73	0.78	0.68	0.77	1.0					
REP3	0.63	0.64	0.64	0.72	0.76	0.75	0.75	1.0				
REP4	0.69	0.71	0.68	0.75	0.66	0.73	0.76	0.77	1.0			
DEE1	0.65	0.58	0.68	0.72	0.66	0.68	0.77	0.71	0.72	1.0		
DEE2	0.53	0.47	0.67	0.58	0.59	0.63	0.68	0.64	0.62	0.77	1.0	
DEE3	0.62	0.60	0.68	0.68	0.59	0.61	0.78	0.64	0.77	0.79	0.78	1.0
M	4.71	4.67	4.70	4.70	4.69	4.75	4.76	4.77	4.72	4.77	4.76	4.77
SD	0.46	0.50	0.47	0.47	0.48	0.44	0.44	0.43	0.47	0.43	0.43	0.43

Source: Results of analysis by the author

Table 7 Effects of the service marketing mix and brand image on the decision to enroll in an open university

Dependent Variables	Brand Image (BRD)				Decision to Enroll in an open university (DEE)			
	R ² = 0.87				R ² = 0.86			
	DE	t-stat	IE	TE	DE	t-stat	IE	TE
Brand Image (BRD)	-	-	-	-	0.86**	7.93	-	0.86
Process (PRS)	0.31**	2.83	-	0.31	-	-	-	-
Place (PLC)	0.30**	2.87	-	0.30	-	-	0.26	0.26
People (PEO)	0.43**	6.47	-	0.43	0.29**	2.97	0.37	0.66
Physical Evidence (PHY)	0.34**	5.14	-	0.34	-0.36**	-3.86	-0.29	-0.65
Goodness of fit index (GFI)	χ^2 P-Value (0.000, N = 500), χ^2/df = 3.29, CFI = 0.928, TLI = 0.910, RMSEA = 0.068, SRMR = 0.038							

Note: ** = 0.01 significance level, DE = direct effect, IE = indirect effect, TE = total effect

Source: Results of analysis by the author

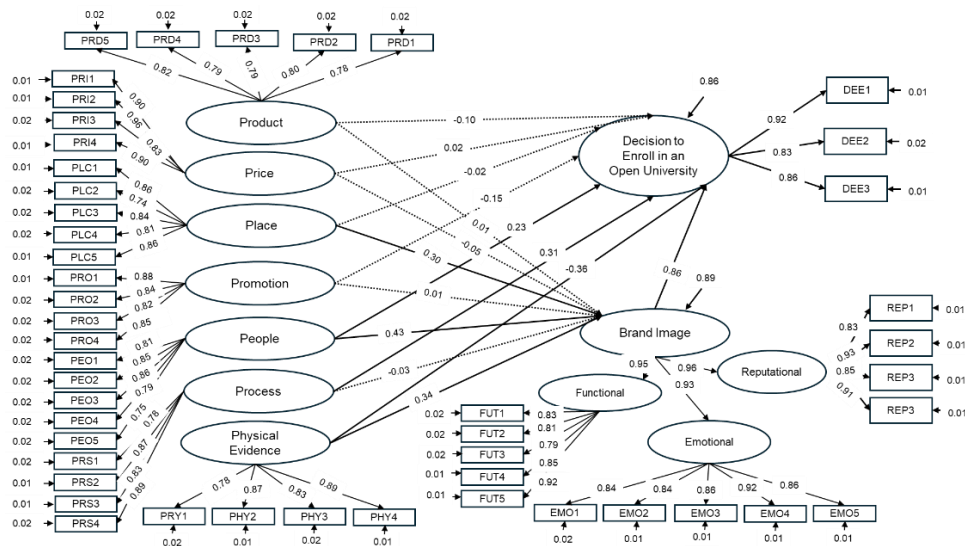


Figure 2 The empirically validated structural equation model. the figure presents the statistically significant direct and indirect pathways from the service marketing mix components to the decision to enroll, with brand image as the mediating variable.

Source: Results of analysis by the author

Discussion

Model fit and theoretical consistency

This study provides perspective on the influence of service marketing mixes and brand image on the decision to enroll in STOU, which is the only open university in Thailand. The findings suggest that (1) the proposed structural equation model of the service marketing mix and brand image influencing the decision to enroll in an open university is consistent with empirical data, and (2) some components of the service marketing mix have direct and indirect influences on the

decision to enroll in an open university mediated by brand image, with a significance level of 0.01. These results are consistent with the consumer decision-making process. Kotler et al. (2022) stated that the marketing mix is one of the stimuli of the consumer decision-making process and before deciding, consumers search and evaluate alternatives based on brand perception alongside other criteria. Therefore, both open universities and other higher educational institutions should leverage the right marketing mix to build a strong brand image perception among

prospective students. This will potentially lead to successful new student recruitment.

Furthermore, these observations are consistent with the customer-based brand equity building theory (Keller, 2001; Yoo & Donthu, 2001; Wang & Finn, 2013), which specifies that marketing initiatives have an impact on the brand equity perception of the customer and subsequently influence the decision to purchase or repurchase a product. In this research, brand image has been divided into three latent aspects: functional image, emotional image, and reputational image. Each aspect has dedicated indicators. This is aligned with the brand equity concept, whereby brand imagery derived from a perception of emotional and reputational heritage adds value to a brand on top of the brand's performance or functional benefits (Kerin & Hartley, 2024). These three dimensions of brand image measurement can be applied to gain insights into perceptions regarding an open university and other higher educational institutions, thus allowing them to establish a successful brand image before and after the marketing mix strategy formation to understand the situation and evaluate the performance of prior marketing campaigns.

Direct effects of service marketing mix and brand image

Of the direct predictors of the decision to enroll in an open university, brand image is observed to have the strongest positive influence. Physical evidence appears to have a negative effect, whereas process and people have positive impacts. These influence results are consistent with Merchant et al. (2015) and Kango et al. (2021), who found that brand image has a positive effect on new student recruitment. The observations on service marketing mix influence are partially consistent with Pardiyono et al. (2022) and Khanna et al. (2014), suggesting that physical evidence, process, and people are integral parts of a successful higher education marketing strategy. The negative direct effect of physical evidence on the decision to enroll can be theoretically explained through the service environment framework (Wirtz & Lovelock, 2018). In traditional universities, physical evidence such as campus facilities, laboratories, and libraries, serves as a primary quality signal that significantly influences enrollment decisions (Pardiyono et al., 2022). However, open universities fundamentally differ in their service delivery model:

education is predominantly delivered through digital platforms, self-directed materials, and virtual learning environments rather than through on-campus interaction (Zuhairi et al., 2020). Consequently, prospective students of open universities are likely to prioritize digital accessibility and flexibility over physical infrastructure when evaluating enrollment options. An over-emphasis on physical facilities may even create a perceived mismatch with the distance-learning identity associated with this type of institution. This is consistent with Vieira et al. (2012), who demonstrated that physical evidence carries less weight than people and other service marketing mix components in higher education service quality perceptions. Therefore, the key focus areas are the people and process components since they have a positive effect on the decision to enroll in an open university. This finding is partially aligned with Chawla (2013), who found that students regard people and process as critical factors in the higher education marketing mix.

Mediating role of brand image

It is particularly significant that brand image mediates people, physical evidence, and place. This result is partially consistent with Arifin et al. (2020), who found that brand image had a mediation effect on the decision to enroll in a university. Furthermore, Wibisono (2014) mentions that people, physical evidence, and process have a strong influence on a university's brand image. To establish a favorable image, an open university should focus on people, physical evidence, and place for several reasons. The people component of an open university refers to both academic and non-academic staff members who provide teaching and learning for students. Place involves a variety of channels used for applications and course registrations; given the nature of open universities, these services need to be accessible and flexible for students from different locations. Finally, physical evidence represents the brand image and identity of the university.

Practical implications

The findings of the current study largely contribute to the application of the service marketing mix and its extension to the open university context by considering brand image as an important mediator

between the mix of product, price, place, promotion, people, process, and physical evidence and the decision to enroll in such an institution. The results offer several actionable implications. First, regarding the ‘people’ dimension, open universities should invest in continuous professional development for staff, emphasizing interpersonal communication, empathetic engagement, and responsiveness to adult and distance learners as staff interactions are critical touchpoints shaping brand image. Second, concerning ‘process,’ institutions should prioritize improving digital service systems, including intuitive enrollment platforms, transparent communication channels, and user-friendly learning management systems tailored to working professionals. Third, branding strategies should

emphasize flexibility, accessibility, and the quality of the digital learning ecosystem, leveraging alumni testimonials and industry partnerships to strengthen brand image. Collectively integrated into a service marketing mix framework, these strategies can enhance recruitment while supporting lifelong learning objectives.

Conclusion

The results presented by this study suggest direct and indirect influences of the service marketing mix on the decision to enroll in an open university based on empirical data collected through a survey of the target population. These supported causal relationships are outlined in Table 8.

Table 8 Hypotheses test results

Research hypotheses	Result
1. The proposed causal model of the factors influencing the decision to enroll in an open university is consistent with empirical data.	Supported
2. The identified factors have direct and indirect effects on the decision to enroll in an open university.	Supported
2.1 Direct effects	
2.1.1 Brand image has a positive direct effect on the decision to enroll in an open university.	Supported
2.1.2 The people component has a positive direct effect on the decision to enroll in an open university.	Supported
2.2.3 Process has a positive direct effect on the decision to enroll in an open university.	Supported
2.2.4 Physical evidence has a negative direct effect on the decision to enroll in an open university.	Supported
2.2 Indirect effects	
2.2.1 The people component indirectly influences the decision to enroll in an open university, mediated by brand image.	Supported
2.2.2 Place indirectly influences the decision to enroll in an open university, mediated by brand image.	Supported
2.2.3 Physical evidence indirectly influences the decision to enroll in an open university, mediated by brand image.	Supported

The study confirmed that the proposed causal model aligns with empirical data. All research hypotheses were supported, indicating both direct and indirect effects on the decision to enroll in an open university. Key factors such as brand image, people, process, and physical evidence significantly influenced enrollment decisions. Notably, physical evidence had a negative direct effect but a positive indirect impact via brand image. These findings underscore the significance

of marketing mix elements, particularly brand image, in shaping student decision-making.

Limitations

Several limitations should be acknowledged. First, the data were collected exclusively from undergraduate students at STOU, the only open university in Thailand. This single-institution focus limits the external validity; caution should be exercised when generalising results to

open universities in other national or cultural contexts. Future studies should consider replicating the model across multiple institutions. Second, the sample was restricted to two of two academic schools; Agriculture and Cooperatives (science) and Management Science (social science), selected through stratified random sampling to ensure cross-disciplinary representation. While this provides a balanced sample, it does not capture the full diversity of student experiences across all schools. Third, the cross-sectional survey design captures perceptions at a single point in time and precludes the establishment of temporal causality. Longitudinal or experimental designs would be warranted in future research.

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Declaration of Generative AI in Scientific Writing

☐ Generative AI tools (ChatGPT by OpenAI) were used only for language-related purposes, including grammar correction, sentence refinement, and improving academic writing clarity.

☐ AI tools were also used for translation support between Thai and English to ensure accuracy and consistency of terminology.

☐ No AI tools were used to generate new scientific ideas, develop research frameworks, analyze data, or interpret findings. All academic content was created solely by the authors.

☐ All AI-assisted outputs were carefully reviewed, edited, and validated by the authors, who take full responsibility for the accuracy and integrity of the manuscript.

☐ AI tools were not listed as authors or co-authors, in accordance with ethical guidelines and journal policies.

CRediT author statement

Narubodee Wathanakom: Conceptualization, Methodology, Formal Analysis, Validation, Investigation, Writing – Original Draft. **Nhatphaphat Juicharoen:** Investigation, Formal Analysis, Visualization, Writing – Review & Editing. **Niranjan Devkota:** Methodology, Writing – Review & Editing.

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