

## **Discriminant Analysis of Marketing Mix Factors' Influence Using the Hotel Services**

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### ***Abstract***

*This research aims to study behavior and discriminant analysis of marketing mix factors influence using the hotel services. The samples in this study consisted of 1,467 customers in 6 hotels which were owned and operated by Rajabhat University in Bangkok Metropolitan Area. The research tools were personal characteristics questionnaires, behavior and marketing perspective in using the hotel services.*

*The results of the research were as follows:*

*Customer with their companions mainly stay one night and use other services.*

*Customer comment of marketing mix factors influence using the hotel services found that high overall level were the staff, process, physical Evidence and presentation, Price, Product and Promotion.*

*Discriminant analysis of marketing mix factors influence using the hotel services showed as follows:*

*-discriminant factors the companions were price and people or employees.*

*-discriminant factors the period of using the hotel services were promotions, product and place.*

*-discriminant factors using other services were promotions and people or employees.*

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**Keywords:** *Discriminant Analysis, Marketing Mix Factors, Using the Hotel Services*

## **1. Introduction**

The Tourism sector plays an important role in Thai economy. As a Service industry, its revenue is on the highest rank of Gross Revenue of the country. Due to high growth of Hospitality industry and the number of visitors, it is necessary to provide more accommodations. Six hotels which were owned by Rajabhat University in Bangkok Metropolitan Area are the alternatives. The purposes of the operation are to train on-the-job experiences for their students as a source of practical research, set the standard of hotel management, being one stop services, business learning center, achievement the competition and hotel accommodation. At this time, hotel business faces the competition from outside environments such as economy, politics, technology and etc. For this reasons, marketing strategies are the critical part of hotel business such as the new marketing events and sales promotion. The expenses of customer tend to increase. Adaptation of Thai Hotel Hospitality towards using services.

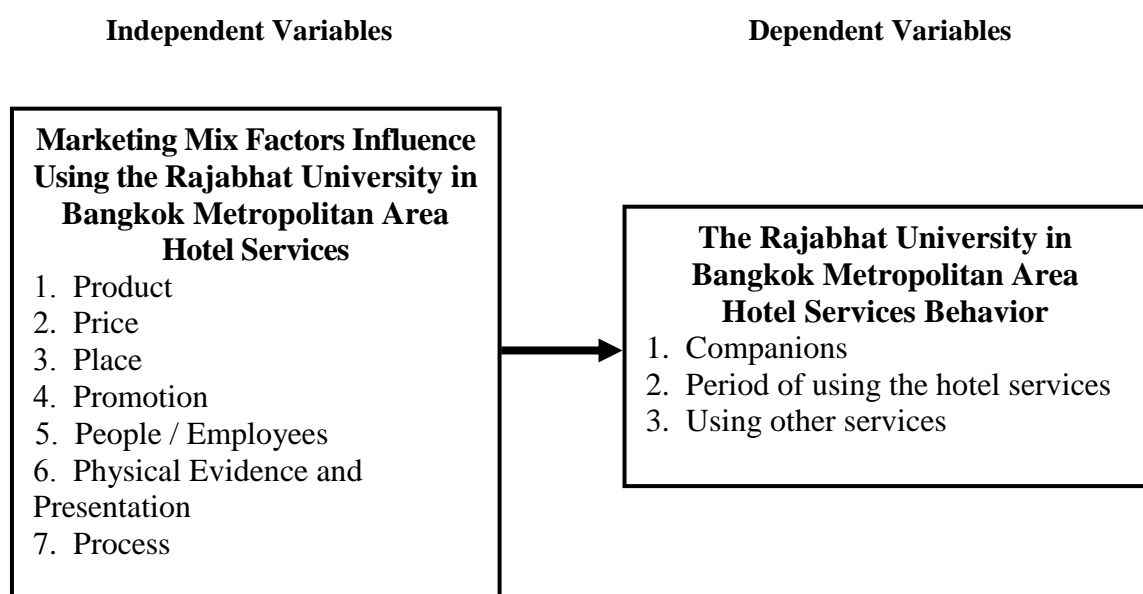
Therefore, the researchers were interested in discriminant analysis of marketing mix factors influence using the hotel services for marketing operation planning with appropriate in service sector.

## **2. Material and Methodology**

### **2.1 Purpose**

1. Study using the Rajabhat University in Bangkok Metropolitan Area hotel services behavior.
2. Discriminant analysis of marketing mix factors influence using hotel services.

### **2.2 Conceptual Framework**



## **2.3 Population and Sampling**

The Cluster random sampling used in this study consisted of 9,770 customers (July 2010) from Rajabhat University in Bangkok Metropolitan Area hotels. 1,467 samples were determined by R.V. Krejcie and D.W. Morgan.

## **2.4 Method**

In this research, 1,467 questionnaires were used in Rajabhat University in Bangkok Metropolitan area hotels for data analysis.

## **2.5 Summary Statistics**

1. Analysis of descriptive statistics for distribution of each variable by using Frequency, percentage, mean and standard deviation.
2. Discriminant analysis of marketing mix factors influence using the Rajabhat University in Bangkok Metropolitan area hotel services.

## **3. Results**

1. The results of using the hotel services individual characteristics analysis found those customers from Rajabhat University in Bangkok Metropolitan area hotels: the majorities were 845 females (57.60%), the 20 age and over were 1,358 (92.60%), Thai nationalities were 1,367 (93.20%), bachelor degrees were 849 (57.90%), government officers / state enterprise employees were 493 (33.60%) and income per month-baht 10,000-25,000 were 615 (41.90%).
2. The results of the Rajabhat University in Bangkok Metropolitan area hotel services behavior found that those customers of Rajabhat University in Bangkok Metropolitan area hotels: the accompanying majorities were 1,070 (72.90%), one day using hotel services were 580 (39.50%) and using other services 905 (61.70%).

**Table 1: Summary statistics and correlations N and Percentage for using the Rajabhat University in Bangkok Metropolitan area hotel services behavior.**

<b>Using hotel services behavior</b>	<b>N</b>	<b>Percentage</b>
1. accompany		
Yes	1070	72.90
No	397	27.10
2. period of using service		
One day	580	39.50
Two days	523	35.70
More than two days	364	24.80
3. other services		
Yes	905	61.70
No	562	38.30
<b>Total</b>	<b>1467</b>	<b>100.00</b>

3. Comments on the important Marketing mix factors influence using the Rajabhat University in Bangkok Metropolitan area hotel services found that the views of service users were at a high level ( $\bar{X} = 3.67$ , SD. = 0.61). The first was the people / employees, followed by process, physical evidence and presentation, price, product and promotion respectively.

**Table 2:  $\bar{X}$  and SD. for using the Rajabhat University in Bangkok Metropolitan area hotel services behavior.**

<b>Marketing mix factors influence using the Rajabhat University in Bangkok Metropolitan area hotel services</b>	<b><math>\bar{X}</math></b>	<b>SD.</b>	<b>Level of comment</b>	<b>Rating</b>
1. Product	3.46	.74	high	6
2. Price	3.68	.69	high	5
3. Place	3.75	.73	high	4
4. Promotion	3.18	.88	moderate	7
5. People / Employees	3.96	.76	high	1
6. Physical Evidence and Presentation	3.80	.73	high	3
7. Process	3.86	.74	high	2
<b>Total</b>	<b>3.67</b>	<b>.61</b>	<b>high</b>	

4. Stepwise method discriminant analysis of marketing mix factors influence using the Rajabhat University in Bangkok Metropolitan area hotel services by Wilks's Lambda were presented as follows:

4.1 Analysis of marketing mix factors influence accompany of using the Rajabhat University in Bangkok Metropolitan area hotel services

4.1.1 Discriminant factors with and without accompany using the Rajabhat University in Bangkok Metropolitan area hotel services.

Discriminant factor analysis with and without the accompany of marketing mix factors influence using the Rajabhat University in Bangkok Metropolitan area hotel services found that there were two factors price ( $X_2$ ) and people / employees ( $X_5$ ). See table 3-

**Table 3: Priorities and values of the variables in the equation is the standard classification with and without accompany in the Rajabhat University in Bangkok Metropolitan area hotel services.**

<b>Item</b>	<b>Factors</b>	<b>Wilks's Lambda</b>	<b>standardized coefficients variable</b>
1	price ( $X_2$ )	.990	1.250
2	People / Employees ( $X_5$ )	.987	-.622

$\lambda = .013$ ,  $RC = 0.115$ ,  $\Lambda = 0.987$ ,  $\chi^2 = 19.561$ ,  $df = 2$ ,  $P = 0.000$ ,  $\alpha = 0.01$

From table 3 the classification in raw scores and standard scores respectively.

**Equation in raw scores**  

$$Y = -3.465 + 1.820X_2 - 0.817X_5$$

**Equation in standard score**  

$$Z = 1.250X_2 - 0.622X_5$$

4.1.2 The prediction of with accompany and without accompany group in using the Rajabhat University in Bangkok Metropolitan area hotel services

Discriminant can be used to predict with accompany and without accompany group in using the Rajabhat University in Bangkok Metropolitan area hotel services: Found that can be classified with accompany correctly 54.7 percent, without accompany were correctly 57.2 percent and in both groups were correctly 55.4 percent

**Table 4: The results of with accompany and without accompany discriminant of the Rajabhat University in Bangkok Metropolitan area hotel services.**

Real group	N	Expected group	
		Accompany	No accompany
1. with accompany	1070	585 (54.7%)	485 (45.3%)
2. without accompany	397	170 (42.8%)	227 (57.2%)
<b>The correct prediction was 55.4%</b>			

4.2 Discriminant analysis the period of marketing mix factors influence using the Rajabhat University in Bangkok Metropolitan area hotel services.

4.2.1 Discriminant factors of group in the period of marketing mix factors influence using the Rajabhat University in Bangkok Metropolitan area hotel services.

Results of 7 P discriminant analysis were used for the period of using the Rajabhat University in Bangkok Metropolitan area hotels services found that the factors could be classified: the promotion (X4), products (X1) and the place (X3). See table 5 -

**Table 5: Priorities and standardized coefficients variable discriminant in the period of using the Rajabhat University in Bangkok Metropolitan area hotel services**

Item	Factors	Wilks's Lambda	Standardized coefficients variable	
			Function 1	Function 2
1	Promotion (X4)	.992	1.234	-.292
2	Product (X1)	.976	-1.109	-.676
3	Place (X3)	.970	.053	1.288

Function 1:  $\lambda = .025$ ,  $RC = 0.156$ ,  $\Lambda = 0.970$ ,  $\chi^2 = 44.969$ ,  $df = 6$ ,  $P = 0.000$ ,  $\alpha = 0.01$

Function 2:  $\lambda = .006$ ,  $RC = 0.077$ ,  $\Lambda = 0.994$ ,  $\chi^2 = 8.758$ ,  $df = 2$ ,  $P = 0.013$ ,  $\alpha = 0.01$

From table 3 Raw and standard scores discriminant respectively.

Function	Equation in raw scores	Equation in standard score
1	$Y = 0.432 - 1.485X_4 + 0.072X_1 + 1.393X_3$	$Z = 1.234X_4 - 1.109X_1 + 0.053X_3$
2	$Y = -2.367 - 0.905X_4 + 1.745X_1 - 0.330X_3$	$Z = -0.292X_4 - 0.676X_1 + 1.288X_3$

4.2.2 Group prediction in the period of using the Rajabhat University in Bangkok Metropolitan area hotel services.

Discriminant can be used to predict the accompany groups in the period of using the Rajabhat University in Bangkok Metropolitan area hotel services: one day discriminant was correct (33.8%), two days discriminant was correct (40.5%), more than two days discriminant was correct (43.7) and three groups discriminant were correct (38.7%) . See table 6

**Table 6: Results of discriminant in the period of using the Rajabhat University in Bangkok Metropolitan area hotels services group.**

Real group	N	Expected group		
		One day	Two days	More than two days
1. Using hotel services one day	580	196 (33.8%)	196 (33.8%)	188 (32.4%)
2. Using hotel services two days	523	145 (27.7%)	212 (40.5%)	166 (31.7%)
3 . Using hotel services more than two days	364	93 (25.5%)	112 (30.8%)	159 (43.7%)
<b>The percentage prediction was correct. (38.7%)</b>				

4.3 Discriminant analysis of marketing mix factors influence using the Rajabhat University in Bangkok Metropolitan area other hotel services.

4.3.1 Discriminant factors of group in using or not using the Rajabhat University in Bangkok Metropolitan area other hotel services.

Results of 7 P discriminant analysis were used of using or not using the Rajabhat University in Bangkok Metropolitan area other hotel services found that two factors were: the promotion (X4) and people / employees (X5).See table 7.

**Table 7: Priorities and standardized coefficients variable discriminant in using or not using the Rajabhat University in Bangkok Metropolitan area other hotel services**

Item	Factors	Wilks's Lambda	Standardized coefficients variable
1	Promotion (X <sub>4</sub> )	.995	.963
2	People / Employees (X <sub>5</sub> )	.986	-.858

$\lambda = .014$ ,  $RC = 0.116$ ,  $\Lambda = 0.986$ ,  $\chi^2 = 19.944$ ,  $df = 2$ ,  $P = 0.000$ ,  $\alpha = 0.01$

From table 3 Raw and standard scores discriminant respectively.

**Equation in raw scores**

$$Y = 1.014 + 1.086X_4 - 1.129X_5$$

**Equation in standard score**

$$Z = 0.963X_4 - 0.858X_5$$

4.3.2 Group prediction of using or not using the Rajabhat University in Bangkok Metropolitan area other hotel services

Discriminant can be used to predict with using and not using groups of the Rajabhat University in Bangkok Metropolitan area other hotels services: Found that could be classified with using other services groups were correctly 50.3 percent, not using other services groups were correctly 56.4 percent and in both groups were correctly 52.6 percent. See table 8.

**Table 8: The results of using or not using discriminant of the Rajabhat University in Bangkok Metropolitan area other hotels services.**

Real group	N	Expected group	
		Using other services group	No using other services group
1. Using other services	905	455 (50.3%)	450 (49.7%)
2. No using other services group	562	245 (43.6%)	317 (56.4%)
<b>The determinant percentage prediction was correct. (52.6%)</b>			

## 4. Suggestion

### 4.1 Research Suggestion

Marketing mix factors discriminant using the hotel services groups. Administrators can plan marketing strategies which are consistent with the behavior of using the hotel services customers and response customers' need.

### 4.2. Suggestion for the next Research

4.2.1 This research study discriminant Analysis marketing mixed factors of using the Rajabhat University in Bangkok Metropolitan area hotels services behavior. If there is the next research, it should be made a comparative studying the Rajabhat University in Bangkok Metropolitan area hotels.

4.2.2 The data will be collected for the entire year so as to get different data of customers to develop the business further.

## 5. Discussion

Discriminant Analysis of marketing mixed factors influences using the Rajabhat University in Bangkok Metropolitan Area hotels services behavior were:

1. Discriminant analysis of marketing mix factors influence using the hotel services with accompany and without accompany groups at the Rajabhat University in Bangkok Metropolitan Area hotels showed that: the factors could discriminant using the hotel services with accompany and without accompany groups at the Rajabhat University in Bangkok Metropolitan Area hotels were price and people / employees. Karaket Kaewmorakot (2010) relationship between choosing behavior and marketing mix factors showed that in Krabi Province duration of stay, those influencing decision making, method of making hotel reservation, type of room, room rate were all related to marketing mix factors significantly at 0.05 level. Chaladda

Suanphrom (2009) showed that hotel reservation affected 3 factors such as hotel star, hotel atmosphere and facilities in room cleanliness in guest room including bathroom, enough and many style of restaurant and functions room for clients including hotel security (Product), active and good relation with customer, the carefulness, quick response and good communication (People), good decoration and have their own style (Physical Evidence). An important factor of with accompany discriminant of using hotel services are price and people / employees. Because of such factors as the major reasons for the customers to consider the hotel service cost. The qualification of people / employees of the hotel services are expected.

2. Discriminant Analysis in the period of using the Rajabhat University in Bangkok Metropolitan area hotel services group were promotion, product and place. Wiwat Jankingtong (2002) showed that the most important things of the guests were marketing mix factors at a high level. Thai customers' factors were the vehicle, frequency of using hotel services, length of stay and variety of room rate. Different focus on marketing mix factors. Anchalee Sukanonsawad (2005) showed that attitude to services mix factors in place and promotion correlated with length of stay per visit. Karaket Kaewmorakot (2010) relationship between choosing behavior and marketing mix factors showed that in Krabi Province duration of stay, those influencing decision making, method of making hotel reservation, type of room, room rate were all related to marketing mix factors significantly at 0.05 level. The important factors discriminant in period using hotel services was promotion, product and place, because of the vast majority of hotel guests, often regardless of place, product or services including convenience promotion. The good atmosphere is according to their need. Therefore, these factors are important in the decision to use hotel services.

3. Discriminant analysis of marketing mix factors influence the Rajabhat University in Bangkok Metropolitan area other hotel services, showed that the factor can discriminant using or not using the Rajabhat University in Bangkok Metropolitan area other hotel services were promotion and people/employees. Sippasini Barhey (2012) the research suggest that Chinese travelers' willingness to use spa in Thailand will increase popularity. A number of personal factors in the marketing mix affect the spa choice of Chinese travelers. The environment of the spa is a primary factor. The spa ambience is preferred to be relaxing and peaceful. Spa services from a recognized brand of famous name are chosen over others. Travelers preferred to have clearly displayed pricing with the possibility to pay by range during the low season. Staffs in the spa are expected to be polite displaying good manners and providing the client with confidence in their physical security. Wiwat Jankingtong (2002) showed that additional needs for staying, the most guests of Thailand preferred people / employees' smiling and friendly. The next were increasing of parking lots, the security of both inside, outside of the hotel and parking. Room rate discount for regular customers and provide travel information



respectively. Warataya Pinpetch (2009) Tourists' attitude towards the service check in and check-out service, the food and beverage, room size, facilities and other services were decision factors. Tourists' attitude towards the service marketing mix could forecast international repurchase at 0.05 and 0.01 statistically significant levels. The important discriminant factors in using other hotel services were promotion and people / employees. Both of them were important to make a decision to use hotel services, because they gave hotel news and information to customers.

## **6. Conclusion**

1. The results of using the hotel services individual characteristics analysis found those customers from Rajabhat University in Bangkok metropolitan area hotels: the majorities were females, the 20 age and over, Thai nationalities, bachelor degrees, government officers / state enterprise employees and income per month-baht 10,000-25,000.

2. The results of the Rajabhat University in Bangkok Metropolitan area hotel services behavior found that those customers of Rajabhat University in Bangkok Metropolitan Area hotels: the accompanying majorities, one day using hotel services and using other services.

3. Comments on the important Marketing mix factors influence using the Rajabhat University in Bangkok Metropolitan area hotels services found that the views of service users were at a high level. The first was the people / employees, followed by process, physical evidence and presentation, price, product and promotion respectively.

4. Discriminant analysis of marketing mix factors influence using the Rajabhat University in Bangkok Metropolitan area hotel services

4.1 Analysis of marketing mix factors influence accompany of using the Rajabhat University in Bangkok Metropolitan area hotel services found that discriminant factor analysis with and without the accompany of marketing mix factors influence using the Rajabhat University in Bangkok Metropolitan area hotel services found that there were two factors price ( $X_2$ ) and people / employees ( $X_5$ ).

The classification in raw scores and standard scores respectively

Equation in raw scores	Equation in standard score
$Y = -3.465 + 1.820X_2 - 0.817X_5$	$Z = 1.250X_2 - 0.622X_5$

4.2 Discriminant analysis factors in the period of marketing mix factors influence using the Rajabhat University in Bangkok Metropolitan area hotel services were promotion ( $X_4$ ), products ( $X_1$ ) and the place ( $X_3$ ).

The classification in raw scores and standard scores respectively

Function	Equation in raw scores	Equation in standard score
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$$Y = 1.014 + 1.086X_4 - 1.129X_5$$

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