

Kano Model Analysis of Customer Needs and Satisfaction at the Shanghai Disneyland

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Abstract: The understanding of customer needs and satisfaction is very important in the design of products and services. We focus on Disneyland as a typical object that has both well-designed products and services. Currently, there are five Disney theme parks around the world. Two of them are located in the United States and the other three are overseas. The sixth Disney theme park will be located in Shanghai; it is currently under construction and will be opened to the public in 2015. In order for successful operations, the understanding of customer needs and satisfaction is very important in the design of the facilities and services of a theme park. In this study, we use the Kano model to analyze customer needs and satisfaction so that the future success of the Shanghai Disneyland can be ensured by identifying ways to improve customer satisfaction. The results indicate that young people in Shanghai, who could be the main potential visitors of the Shanghai Disneyland, tend to prioritize aspects of facilities and services. The aspect of localization does not appear to be very important to people in Shanghai.

Key words: *Shanghai Disneyland, Kano model, Customer satisfaction*

1. Introduction

Disneyland, one of the most famous theme parks in the world, is trying to expand its empire to China. There are currently five Disney theme parks around the world (Table 1). The sixth theme park, Shanghai Disneyland, is currently under construction and will be open to the public in 2015. With the failure and/or success of three previous overseas Disney theme parks [4], it is obvious that incorporating the understanding of customer needs into operations is a key success factor. Even for the most successful theme parks, which reflect the ideas and dreams of Mr. Walt Disney, misunderstandings in relation to expected customer needs might lead to operational difficulties. In this study, we use the Kano model to analyze local customer needs and identify ways to improve customer satisfaction and ensure the future success of the Shanghai Disneyland.

Table 1. Walt Disney Theme Parks around the World

Disneyland	Country	City	Completion	Land Area (hectares)
Disneyland Resort	U.S.A.	Los Angeles	1955	207
Walt Disney World Resort	U.S.A.	Orlando	1971	12,228
Tokyo Disney Resort	Japan	Tokyo	1983	201
Disneyland Paris	France	Paris	1992	1,951
Hong Kong Disneyland Resort	China	Hong Kong	2005	126

It is important to note that this research was executed independently from The Walt Disney Company and its sole purposes are educational and academic. Hence, the authors take all responsibility for the contents of this paper, which does not intend to introduce the future strategies of The Walt Disney Company to prospective readers.

2. Kano Model Methodology

2.1. Fundamental Kano Model Concepts

The Kano model was developed in 1984 by Noriaki Kano [5]. It aims to connect the requirements fulfilled by products or services with customer satisfaction and identifies three types of requirements that influence ultimate customer satisfaction. Figure 1 presents the fundamental concepts of the Kano model. The horizontal axis of the diagram indicates the extent to which a product aspect fulfills customer requirements and the vertical axis indicates the extent to which customers are satisfied with the product or service. The three major types of requirements are must-be, one-dimensional, and attractive.

2.1.1 Must-be Requirement

Must-be requirements are also referred to as basic requirements, which represent the minimal criteria that must be met by a product or service. If they are not fulfilled, customers will not be satisfied with and have no interest in the product or service. Furthermore, even if these requirements are fully fulfilled, they will not generate any additional customer satisfaction beyond a neutral level.

2.1.2 One-dimensional Requirement

The one-dimensional line goes through the origin at 45 degrees. It represents the needs that are directly related to customer satisfaction. That is, the more functional the product or service is with regard to this type of need, the more customers are satisfied. If these types of requirement are fulfilled, they can become a strong source of customer satisfaction and should therefore be given high priority in service design or product development.

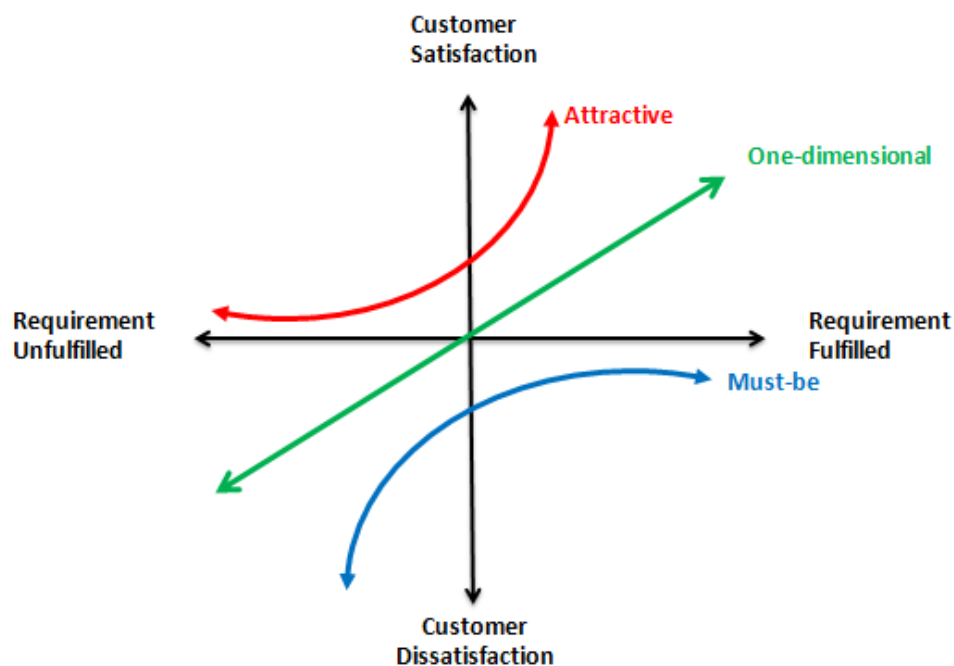


Figure 1. Kano Model Diagram

2.1.3 Attractive Requirement

The attractive curve indicates an area in which the customer is more satisfied when the product, service or process is more functional but is not dissatisfied when the product, service, or process is less functional. These types of requirement are neither explicitly expressed nor expected by the customer. Therefore, even if they are not met, they will not cause any dissatisfaction. They merely represent unexpected surprises that will be pleasing to customers if present.

2.2 Advantages of Kano Model

Considering its characteristics, users of the Kano model might benefit from the following advantages.

2.2.1 Setting of Development Priorities

The must-be requirement has the highest priority in product or service development. In other words, the must-be requirement can be regarded as encompassing the functions that each product or service must have. The suppliers of products or services do not have any choices in this respect and must provide products or services that satisfy must-be requirements. However, if the must-be requirements are already fulfilled at a satisfactory level, it is not useful to invest in improving them further. Improvements in one-dimensional or attractive requirements will have a much stronger influence on customer satisfaction.

2.2.2 Better Understanding of Requirements

Once the Kano model is applied to the analysis of customer needs and satisfaction, it is easy to quantitatively identify and understand which types of products or services have a greater influence on customer satisfaction based on the customer satisfaction coefficient, which will be explained in more detail later in this paper.

2.2.3 Distinguishing among Market Segment Characteristics

The Kano model can also be applied in different market segments to distinguish among products and services according to their characteristics. If the questionnaire conducted for the Kano model includes sufficient customer-oriented variables, the results can be used as the ideal basis for market segmentation and thus the differentiation of products and services according to the utility expectations of different customer segments [1].

2.2.4 Aiding in the Design Trade-off Process

If two features of a product or service cannot be met simultaneously due to technical or financial reasons, the Kano model can be used to quantitatively identify which one has the greater influence on customer satisfaction based on the customer satisfaction coefficient.

3. Application of the Kano Model

3.1 Questionnaire

Shanghai Disneyland is a place that aims to provide both entertainment products and services to visitors. In order to determine which types of products and services have a greater influence on customer satisfaction, the Kano model was applied following the steps presented below.

3.1.1 Step 1

Step 1 involves surveying target visitors (through questionnaires) about each theme park function through a pair of questions (functional and dysfunctional). Functional questions are asked in a positive way and dysfunctional questions are asked in a negative way. The participants are asked to choose from among five choices for each question. In the case of Shanghai Disneyland, a total of 17 questions regarding four dimensions of the theme park were asked to 63 local residents. An example of a Kano model question used in the questionnaire is presented below.

Functional question: “How would you feel if Shanghai Disneyland provided Chinese food?”

Alternatives: I like it / It must be that way / I’m neutral / I can live with it / I dislike it

Dysfunctional question: “How would you feel if Shanghai Disneyland didn’t provide Chinese food?”

Alternatives: I like it / It must be that way / I’m neutral / I can live with it / I dislike it

3.1.2 Step 2

Step 2 is to use the evaluation table (Figure 2) to count and summarize the results. The abbreviations used in the evaluation table represent one-dimensional requirements (O), attractive requirements (A), must-be requirements (M), indifferent requirements (I), questionable requirements (Q) and reverse requirements (R). For instance, if one respondent chose “I like it” for a functional question and answered “I can live with it” for a dysfunctional question, the tested product or service feature would be classified as an attractive requirement (A). For indifferent requirements (I), the customer is neither satisfied nor dissatisfied if the product, service or process is dysfunctional or fully functional with regard to that particular aspect. Questionable requirements (Q) represent results that exhibit contradictory answers. Reverse requirements (R) signify that the product or service feature is not wanted by customers and that they strongly expect the reverse (Elmar Sauerwein, 1996). One-dimensional, must-be and attractive requirements, together with indifferent requirements, are primarily what we are investigating in the Kano model analysis.

Table 2. Kano Evaluation Table

Customer Requirements		Dysfunctional				
		1. like	2. must-be	3. neutral	4. live with	5. Dislike
Functional	1. like	Q	A	A	A	O
	2. must-be	R	I	I	I	M
	3. neutral	R	I	I	I	M
	4. live with	R	I	I	I	M
	5. dislike	R	R	R	R	Q

Customer Requirements:

A: attractive, O: one-dimensional, M: must-be, Q: questionable result, R: reverse, and I: indifferent.

3.1.3 Step 3

Step 3 involves determining the category of the evaluated product or service feature according to the answer frequency. Generally, the results are evaluated and interpreted according to the answer frequency. However, if the questions are in-depth or detailed, the results may be distributed. Hence, it is suggested that if $(O+A+M) > (I+R+Q)$, the maximum value of (O, A, M) should be adopted. Otherwise, the maximum value of (I, R, Q) should be used [2]. In addition, when the results have the same two frequency requirements, the classification that would have the greatest impact on the product or service should be chosen. The priority order should follow $M > O > A > I$.

3.2. Analysis of Questionnaire Results

3.2.1 Profile of Respondents

The questionnaire was conducted among young people living in Shanghai or nearby cities because they are expected to be the main visitors to Shanghai Disneyland when it opens. In total, 63 effective responses were collected. The statistics showed that most of the respondents (89%) were between the ages of 21 and 30; approximately half were female (57%) and the remainder were male (43%). 87% of the respondents lived in Shanghai and 8% lived in nearby provinces such as Jiangsu and Zhejiang. 45% had experience with the other existing Disney theme parks: 30 % had been to Tokyo Disneyland and 17 % had been to Hong Kong Disneyland.

3.2.2 Customer Need Dimensions

Elmar Sauerwein et al. pointed out that when making product development decisions, the general rule of must-be > one-dimensional > attractive > indifferent, should be applied to set priorities [3]. Must-be requirements have to be fulfilled first. Otherwise, there would be major dissatisfaction. The cost of meeting this type of requirement can be regarded as an entry cost. The fulfilling of one-dimensional and attractive requirements can largely increase customer satisfaction and help the providers to differentiate their products and services from those of others to be competitive.

The questionnaires for Shanghai Disneyland are summarized in Table 3 according to the method introduced in 3.1.3.

1) Transportation Dimension

All the assessed transportation-related characteristics were classified as attractive requirements. Theme parks located in Shanghai are generally not accessible by very convenient modes of transportation. Therefore, people regard “Provides shuttle bus between downtown area and Disneyland” and “Access to Shanghai Disneyland by subway” as attractive requirements.

2) Facilities Dimension

In the facilities dimension, “Park size larger than Hong Kong Disneyland” was classified as an attractive requirement. “Provides resting area in each attraction” and “Has enough toilets for visitors to use without waiting” were must-be requirements. “Provides golf course” was regarded as an indifferent requirement. The results show that local people are more focused on basic facilities. Relative to customers at the Paris Disneyland, people in Shanghai are less interested in golf.

3) Service Dimension

In service dimension, “Sells Disney character souvenirs”, “Provides on-line ticket booking service” and “Provides ticket discounts for children and senior citizens” were regarded as must-be requirements, showing that people in Shanghai prefer on-line ticket booking services and require Disney character souvenirs. “Staff greets visitors and always smiling”, “Use of fast pass to save time in waiting”, “Holds special events on Chinese holidays” and “Provides American food” were considered attractive factors. “Play in the park in late evening” was classified as a one-dimensional requirement, showing that respondents hope to stay at Disneyland for as long as possible. “Prohibit bringing any food or drink” was considered to be a reverse requirement, showing that most people hope that Disneyland will not prevent them from bringing food into the park.

4) Localization Dimension

Both “Provides Chinese food” and “Presents some characters in the Chinese style” were classified as indifferent needs, showing that people do not want Shanghai Disneyland to be too localized but rather want it to retain its more original American flavor. However, “Holds special events on Chinese holidays” was favored by local people.

Table 3. Summary of Shanghai Disneyland Kano Model Questionnaire Results

Dimension	Assessed Characteristics	A	O	M	I	R	Q	Total	Category
Transportation	Provides shuttle bus between downtown area and Disneyland	22	13	19	9	0	0	63	A
	Access to Shanghai Disneyland by subway	24	18	13	7	0	1	63	A
Facilities	Larger than Hong Kong Disneyland	15	8	14	24	1	1	63	A
	Provides resting area in each attraction	7	16	28	11	1	0	63	M
	Provides golf course	4	0	0	50	9	0	63	I
	Has enough toilets for visitors to use without waiting	3	26	29	3	1	1	63	M
Service	Staff greets visitors and always smiling	20	16	17	9	0	1	63	A
	Use of fast pass to save time in waiting	23	15	16	8	0	1	63	A
	Sells Disney character souvenirs	13	15	15	20	0	0	63	M
	Provides on-line ticket booking service	14	20	22	7	0	0	63	M
	Prohibits the bringing of any food or drink	1	0	3	9	50	0	63	R
	Play in the park in late evening	19	19	14	11	0	0	63	O
	Provides ticket discount for children and seniors	9	20	20	13	1	0	63	M
	Holds special event on Chinese holidays	29	6	3	22	0	3	63	A
Provides American food	25	4	5	29	0	0	63	A	
Localization	Provides Chinese food	19	9	3	31	1	0	63	I
	Presents some characters in the Chinese style	23	4	4	25	7	0	63	I
	Holds special events on Chinese holidays	29	6	3	22	0	3	63	A

3.2.4 Customer Satisfaction Coefficient

The customer satisfaction coefficient indicates the extent to which satisfaction increases if a product requirement is met or the extent to which satisfaction decreases if a product requirement is not met. It is useful to know the average impact of a product or service requirement on the satisfaction of all customers. The calculation of this coefficient is as follows.

$$\text{Enhanced Satisfaction Coefficients} = \frac{A+O}{A+O+M+I}$$

$$\text{Reduced Dissatisfaction Coefficients} = \frac{O+M}{A+O+M+I}$$

A positive customer satisfaction coefficient ranges in value from zero to one; the closer to one the value is, the higher the influence on customer satisfaction. The negative customer satisfaction operates in the same way. A value of zero signifies that this feature does not cause dissatisfaction if it is not met. In this way, all the evaluated characteristics can be represented visually in a diagram. It is helpful to know their influence on customer satisfaction and set priorities when designing products or services. The customer satisfaction coefficients for Shanghai Disneyland are shown in Table 4.

Table 4. Customer Satisfaction Coefficients for Shanghai Disneyland

Dimension	Assessed Characteristics	Cate-gory	(A+O)/ (A+O+M+I)	(O+M)/ (A+O+M+I)
Transportation	Provides shuttle bus between downtown area and Disneyland	A	0.56	-0.51
	Access to Shanghai Disneyland by subway	A	0.68	-0.50
Facilities	Larger than Hong Kong Disneyland	A	0.38	-0.36
	Provides resting area in each attraction	M	0.37	-0.71
	Provides golf course	I	0.07	0.00
	Has enough toilets for visitors to use without waiting	M	0.48	-0.90
Service	Staff greets visitors and always smiling	A	0.58	-0.53
	Use of fast pass to save time in waiting	A	0.61	-0.50
	Sells Disney character souvenirs	M	0.44	-0.48
	Provides on line ticket booking service	M	0.54	-0.67
	Prohibits the bringing of any food or drink	R	0.08	-0.23
	Play in the park in late evening	O	0.60	-0.52
	Provides ticket discount for children and seniors	M	0.47	-0.65
	Provides American food	A	0.46	-0.14
Localization	Provides Chinese food	I	0.45	-0.19
	Presents some characters in the Chinese style	I	0.48	-0.14
	Holds special events on Chinese holidays	A	0.58	-0.15

The customer satisfaction coefficients are plotted in Figure 3. The diagram can be approximately divided into four quadrants according to the four types of requirements. It is clear from the diagram that most of the

transportation features and some of the service features are located in the area between one-dimensional and attractive requirements. Shanghai Disneyland should therefore pay more attention to these types of needs. It is not necessary for features located in the indifferent requirement quadrant to be focused on over the other three types of requirements. Localization requirements are found in the middle between the indifferent and attractive quadrants. Two of them, “provides Chinese food” and “presents some characters in the Chinese style,” do not appear to be very important to local people in Shanghai. However, the requirement of “holds special events on Chinese holidays” has a greater influence on satisfaction if fulfilled. In addition, it is clear that “Provides golf course” apparently has a limited influence on customer satisfaction based on the diagram.

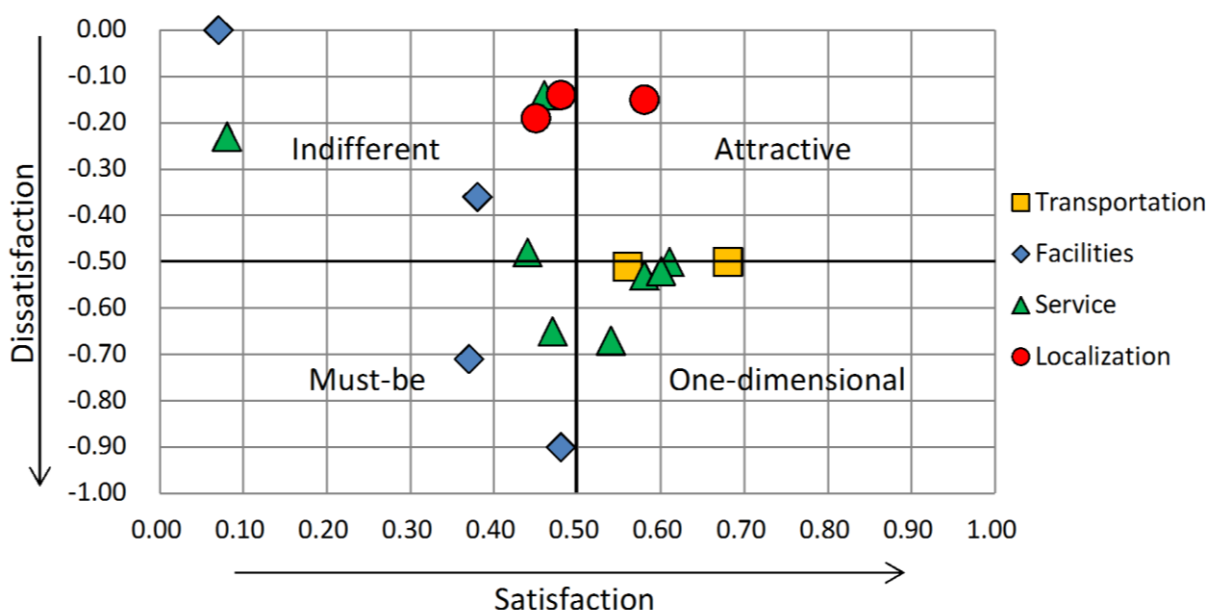


Figure 3. Customer Satisfaction Coefficient Diagram

4. Conclusion

The Kano model is a theoretical model that connects the requirements fulfilled by products or services with customer satisfaction and identifies three types of requirements that might influence ultimate customer satisfaction: must-be, one-dimensional and attractive. The application of the Kano model to customer service is expected to provide useful information on the types of requirements that must be fulfilled to enhance customer satisfaction. In this study, the Kano model was applied to the Shanghai Disneyland, which is currently under construction.

According to our preliminary analysis using the data obtained from the questionnaire survey, it seems that most people in Shanghai are strongly interested and looking forward to the opening of Shanghai Disneyland. Chinese people have come to be familiar with Disney stories and films and Disney’s brand name is famous in China. With the development of the Chinese economy and increasing average incomes, there is a large potential market for theme parks in Shanghai. However, based on empirical studies of previous overseas Disney theme parks, we have learned that merely having large potential markets is not enough. Customers in different countries have varying

consumption habits because of their diverse cultural backgrounds. Therefore, if Shanghai Disneyland is to be successful, it is important to understand the needs and preferences of local customers in relation the park.

Based on the Kano model analysis, Shanghai Disneyland should first prioritize meeting the basic requirements of local people, such as providing a rest area in each attraction, toilet facilities, character souvenirs and on-line ticket booking services. If they are not fulfilled, customers would be very dissatisfied with the park.

Next, attractive requirements such as holding special events on Chinese holidays, providing shuttle buses between the downtown area and Disneyland and training staff to greet visitors and always smile should be considered. The fulfillment of these types of needs can help Disneyland differentiate itself from other local Shanghai theme parks. Some of these requirements seem to be very basic elements. However, if we consider the local theme park industry in Shanghai, we find that most of these services, such as staff smiling and providing greetings, direct shuttle busses and special events, are not provided by any of local theme parks. Therefore, these types of service were considered attractive by local customers. If Shanghai Disneyland provides these services, it will have a good chance of differentiating itself from other local theme parks.

Finally, it is important to be careful not to localize the park too much because most local people regard this feature as an indifferent requirement. According to the questionnaire results, the provision of Chinese food and the presentation of some Disney characters in the Chinese style are classified as indifferent requirements. This means that local people do not care very much about such localization services. Therefore, they will not be very helpful in improving customer satisfaction regardless of the amount invested in them by Disneyland. Moreover, the questionnaire results show that local people do not want Disneyland to prohibit them from bringing food into the park. This problem can be solved by providing a wide range of food in the parks. If people can buy cheap and delicious food in the park, they will not feel so strongly about bringing food from home.

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