Combining Kano model and Service Blueprint for Adult Day Care Service- A Case Study in Taiwan

Dong-Shang Chang¹, Shiang-Li Yang²*

¹ Department of Business Administration, National Central University, No.300, Jhongda Rd., Jhongli City, Taoyuan County 32001, Taiwan (R.O.C.)
(changds@mgt.ncu.edu.tw)

² Department of Business Administration, National Central University, No.300, Jhongda Rd., Jhongli City, Taoyuan County 32001, Taiwan (R.O.C.)
(shiangli2006@gmail.com)

ABSTRACT

Population aging is an inevitable trend of the world. Therefore, the elderly care industry will be more and more attention. In Taiwan, the government regards the long-term care is an emerging service industries, such as the adult day care. In this research, Kano model was applied to explore elderly service requirement. And service blueprint was combined to prevent the service failure points (SFP). Charitable foundation in the middle of Taiwan serves as an example. There are six dimensions and twenty-one questions to be used. The results have been successfully explored. These methods can not only help the managers to monitor their service quality, but also can achieve the goal of Taiwan government to promote the adult day care industry better.

Keywords: Adult day care, Kano model, service blueprint, SFP

1. INTRODUCTION

Declining Birthrate and Population ageing is widespread across the world. According to the Population Reference Bureau (PRB) released the World Population Data Sheet by 2007 and 2008, the percentage of the population over age 65 of the world such as Japan from 21% to 22%, France from 16% to 17%, Canada from 13% to 14%, U.S. from 12% to 13%. This implies that the proportion of the population aging growing year by year. Taiwan step into the aged society since 1993, the percentage of the ageing population from 7.1% in 1993 to 10% in 2008. (Ministry of the Interior, 2008). Population aging leads to the extent of problems such as aging of the economy and increased demand for long-term care. A lot of advanced countries have been order the related social policy or provide healthcare and social service such as Adult day care. Many of the Adult day care centers are non-profit organizations in the community where is a safety place and to provide support services for the elderly and disabled to avoid left alone at home.

Most of the center will offer meals and snacks, remind to take medicine, and provide some physical therapy. Elderly also have a chance to socialize with other seniors. Through the day care services, elderly will continue to live in a familiar community to accept health management, psychological and social dimensions of the service. Similarly, their primary caregivers can relieve excessive pressure and do their own things (Berry et al., 1991; Schmall & Webb, 1994; Skog et al., 2000). Reviews of the early day care research, the adult day care center can not only provide support services to elderly people, but can also assist the primary caregivers to reduce the psychological pressure (Kosloski & Montgomery, 1995; Chang & Wu, 1998; Lu, 1997). However, the managers how to evaluate and improve their center’s service quality, and monitor their service operation process have been rarely to discussion. Kano model is widely used in service areas have a long history. Kano (1894) provided a classification of quality elements into one-dimensional requirements, ‘must-be’ requirements, attractive requirements, no interest-indifferent quality element and reverse quality element.

The operations side of service management often use service blueprint to manage services and the operation process simultaneously. A service blueprint is a map or flowchart of all transactions constituting the service delivery process (Shostack, 1984; Fitzsimmons and Fitzsimmons 2001). It is a flow chart that isolates potential fail points in a service process (Shostack, 1984). In this research, Kano model and service blueprint were applied. Kano model was used to survey the service requirement. The service blueprint was build to view the service operation processes and the potential service failures. Framework of this research were sequentially as follow, the study of literature reviews in Chapter 2, the research methods introduction in Chapter 3, the research findings in Chapter 4, and the findings, conclusions, and recommendations of this research were discuss in Chapter 5.

2. LITERATURE REVIEWS

2.1 Kano model

The concept of two-dimensional quality, as early as from Frederick Herzberg (1959) proposed. The MH theory of motivation (Motivator-hygiene theory) earlier is to use in employee incentives, known as the Motivator - Hygiene Theory or two-factor theory of job attitudes. Kano et al. (1984) extends Herzberg’s theory
to develop of product quality in the manufacturing sector. Kano et al. considered that quality goes by time, so the quality factor status is dynamic. They will be classified as the five elements of quality are as follows:

(1) One-Dimensional Quality Element (O):
If this element sufficient, the higher customer satisfaction. On the contrary, if this element were not sufficient, the customers will not satisfy. Customer satisfaction and this kind of quality element show as a linear relationship.

(2) Must-be Quality Element (M):
This quality factor should be provided to customers; if quality elements fulfillment, customers will not increase their satisfied. Satisfaction will also not be a substantial increase; if the quality elements do not fulfill, then customers will be extremely dissatisfied. They will not be interested in the product at all. Therefore, Kano also called this quality element referred as the "Expected quality", the consumer awareness of such element is necessary to be design in the product or service function. There, element of such a quality must be in place, otherwise it would cause customer dissatisfaction affect the sale of products or services.

(3) Attractive Quality Element (A):
Such quality element can be as competitive strategies to increase sales. If this quality element to be design into a service or product function fulfillment, customers will feel excited, surprised and their satisfaction will be enhanced; On the contrary, when this quality element were not sufficient, it will not cause customer dissatisfaction.

(4) Indifferent Quality Element (I):
The quality of the elements, whether fulfillment or not, the customer have no special feeling or reaction. That is, the customer will not satisfy when the customers have this quality element or not. Whether with or not, the impact will not be too much. Based on cost considerations, this kind of the quality element should be able to be excluded.

(5) Reverse Quality Element (R):
This kind of the quality element will result in customer dissatisfaction. Most customers do not like this quality factor. Kano et al. called this quality factor as "reverse quality" or "one dollar quality". Is absolutely can not provide to customers, it is not only the customers want but also failed to benefit. In making Kano model analysis, there are many documents not included in the consideration. There are five quality elements of customer satisfaction by Kano model are shown in Figure 1.

2.2 Service blueprint
Service blueprint is proposed by Shostack in 1984, it was a workflow description can provide service system bird's eye view showing the steps in the process, interaction, as well as between the customer and system interaction. Also, service blueprint be used to view the service output process. For example is shown in Figure 2.

![Figure 1 Kano's model of customer satisfaction (Berger et al., 1993)](image)

Using Blueprint could ensure customers satisfaction in all services process between service providers and the interaction clients (Liu et al., 2008). And view customers and service programs, service delivery or the drawing again after connecting node system, to complete a full service operating system (Shostack, 1984).

Service blueprint is important to watch out for parts of the service that the customer does not see, like purchasing of suppliers; it is a flow chart that isolates potential fail points in a service process (Shostack, 1984). Blueprint can be used to design more complex service process. It is not only can view failure points (F) systematically but can also provide manager to prevent and improve the failure points (Shostack, 1984; Cengiz et al., 2003; Huang, 2005).

Blueprint can be distinguished three lines. the first line is interaction line, which means between the customer and the service contacts. The second line is the visibility line, which ranged from front line service providers and logistics personnel services between preparations. The third line is the internal interaction line. This line is the logistic support personnel activities and the interaction between the backgrounds. Blueprint developed by the service can be clearly depicts service process, which define the way of people, things, workflow (Lin, 2006).
Preparing
lining
lash line
Eye
painting
Charge
Giving
receipt

Select
materials and
suppliers

clean
clean
clean
Material

In this research, the adult day care in the middle of Taiwan serves as an example. The Kano questionnaire designs were based on the service items of day care.

There are 6 dimensions and 21 service quality elements in this survey questionnaire. Service quality dimensions include:
(1) On easy care service dimension: service quality elements such as blood pressure measurement and elderly health examination;
(2) On class design service dimension: service quality elements such as health talk, group performances, Outdoor activities and Family contact notebook;
(3) On group activities service dimension: service quality elements such as Mother's day and birthday activities;
(4) On lunch and snack service dimension: design meals and environment;
(5) On lunch break service dimension: bed arrangements and clean environment;
(6) On others service dimension: service quality requirements such as morning pick up, afternoon drop off and medication reminder.

According to Kano model, each service feature has a pair of questions items (Kano et al., 1984). Older people can answer the one of five ways in each item. There are three survey people and one professional staff help elder people to finish this questionnaire. By combining the two answers in the Kano service quality elements table, the service requirements can be classified as follow:

### Table 1. Kano service quality elements

<table>
<thead>
<tr>
<th>Service requirement</th>
<th>dysfunctional form of the question (insufficient)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Like</td>
</tr>
<tr>
<td>functional form of the question (sufficient)</td>
<td>Q</td>
</tr>
<tr>
<td>Like</td>
<td>R</td>
</tr>
<tr>
<td>Must -be</td>
<td>R</td>
</tr>
<tr>
<td>Neutral</td>
<td>R</td>
</tr>
<tr>
<td>Bear</td>
<td>R</td>
</tr>
<tr>
<td>Dislike</td>
<td>R</td>
</tr>
</tbody>
</table>

4. RESULTS

The results of our survey analyzed 30 valid questionnaires (population), which contains 16.7% of men and 83.3% of female. Ages are mainly distributed in 80-89 years (56.7%), followed by 70-74 years of age accounted for 16.7%.

More than 90% of elderly persons choose day care full-time services. Among of elderly people have been over two years. Among of 56.7% elderly people have been accepting day care services over two years. Over 60% elderly use morning and afternoon transfer service. Cronbach's alpha coefficient commonly is used for calculation of reliability (Nunnaly, 1978). Nunnaly
indicated that Cronbach’s alpha 0.7 to be an acceptable reliability coefficient. This questionnaire showed strong internal consistency Cronbach’s Alpha is equal to 0.87. In this case survey results, p value is significant (p < 0.0001). The result of the service requirement and Kano quality category are shown in Table 2, Table 3, Table 4 and Table 5.

The result of kano’s model, there are seventeen of Attractive Quality Elements (A), two of Indifferent Quality Elements (I), and two of One-Dimensional Quality Elements (O). For most elderly people, morning pick up and afternoon drop off services are one-dimensional quality Elements. If this element sufficient, elderly will increase satisfaction. On the contrary, if this service element were not sufficient, elderly will not satisfy.

According to the overall satisfaction survey, transfer services for the elderly feel common accounting for 18.5% and 44.4% feel satisfied. The satisfaction result of staff account for 66.7%. The bus drivers’ service attitude, elderly feel common accounting for 18.5% and 48.1% feel satisfied. Comparing service elements in this case result, day care transfer service is an important service element than other services. By service blueprint, day care transfer service could be design as figure 3.

### Table 2. The results of the easy care service dimension

<table>
<thead>
<tr>
<th>Service Quality Requirement</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood pressure measurement</td>
<td>A</td>
</tr>
<tr>
<td>Elderly health examination</td>
<td>A</td>
</tr>
<tr>
<td>Influenza vaccination</td>
<td>A</td>
</tr>
</tbody>
</table>

### Table 3. The results of the class design service dimension

<table>
<thead>
<tr>
<th>Service Quality Requirement</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elective Classes</td>
<td>A</td>
</tr>
<tr>
<td>Health Talk</td>
<td>A</td>
</tr>
<tr>
<td>Outdoor activities</td>
<td>A</td>
</tr>
<tr>
<td>Group performances</td>
<td>A</td>
</tr>
<tr>
<td>Family contact notebook</td>
<td>I</td>
</tr>
</tbody>
</table>

### Table 4. The results of the others service dimension

<table>
<thead>
<tr>
<th>Service Quality Requirement</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morning pick up</td>
<td>O</td>
</tr>
<tr>
<td>Afternoon drop off</td>
<td>O</td>
</tr>
<tr>
<td>Medication reminder</td>
<td>I</td>
</tr>
</tbody>
</table>

### Table 5. The results of the group activities service dimension

<table>
<thead>
<tr>
<th>Service Quality Requirement</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trip in Spring and Fall</td>
<td>A</td>
</tr>
<tr>
<td>Activities in Spring and Fall</td>
<td>A</td>
</tr>
<tr>
<td>Mother’s day activities</td>
<td>A</td>
</tr>
<tr>
<td>Chung Yeung Festival activities</td>
<td>A</td>
</tr>
<tr>
<td>Birthday activities</td>
<td>A</td>
</tr>
</tbody>
</table>

---

**Figure 3. Service blueprint of day care**
5. CONCLUSION

In the Kano model, there are 17 service elements as "Attractive Quality", 2 service quality elements as "One-Dimensional Quality", and 2 service quality elements as "Indifferent Quality." In this research result, transfer service is an one-dimensional quality element. It includes morning pick up and afternoon drop off service requirements. If manager not provide these service requirements, elderly will feel discontent. Form the overall satisfaction survey also show that transfer services for the elderly feel common accounting for 18.5% and 44.4% feel satisfied. The bus drivers’ service attitude, elderly feel common accounting for 18.5% and 48.1% feel satisfied. In this research suggest that the top priority for managers, they should keeping provide transfer services, improving and checking the transfer process of day care center to prevent the service failure points. Contribution of this research could provide reference for managers to improve service quality and researcher who interested in day care issues.

REFERENCES


