

Study on the Impact of Hot Spring Resort Hotel Attributes on Customer Satisfaction

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Abstract: With regard to the key role of customer satisfaction in the success of hospitality enterprises, researchers have long been investigating customers' perception of the quality of hotel attributes and the impact of such attributes on overall customer satisfaction overall (OCS). From the perspectives of impact range-performance analysis and impact asymmetry analysis, based on the three-factor theory, this study explored the asymmetric effect of hot spring resort hotel attributes on OCS. The methods can classify and sort out the attributes like frustrators, dissatisfiers, hybrids, satisfiers, and delighters so as to effectively manage OCS. Thus, these methods can evaluate the impact range of each attribute on OCS. Through these methods, researchers/practitioners can easily determine the fields requiring special attention and enhance corresponding performances. However, in regard to the efforts for any quality improvement, limited resources of companies must be distributed according to the priority of attributes.

Keywords: overall customer satisfaction (OCS), hot spring resort hotel attributes, impact-asymmetry analysis, impact range-performance analysis, three-factor theory

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I. INTRODUCTION

In Taiwan, hot spring is an important natural resource. Practitioners utilize hot spring to run resort hotels. And service quality is essential. For customers, it is a most important consumption demand to obtain high-quality service. Therefore, besides good facilities, satisfying services must also be considered. The concept of customer satisfaction commonly exists in the literature on sightseeing and tourism. It is derived from the significance of customer relationship to the organizational strategies of enterprises.

Based on the long-term studies of customers' perception of the quality of hotel attributes and the impact of such attributes on OCS (e.g. Alexandris, Dimitriadis, & Markata, 2002; Oh, 1999), customer satisfaction plays a vital role in the success of the catering and hotel industries. Though customer satisfaction was considered as positive "attitude of the customers' resulting from comparing a product's or service supplier's perceived performance (or outcome) in relation to their expectations" (Fen & Lian, 2007), service quality was considered as "relativistic and cognitive discrepancy between experience-based norms and performances, concerning product/service benefits" (Roest & Pieters, 1997). In order to investigate the perception of quality by customers, many attribute-level approaches had been recommended and employed by many scholars (Marković & Janković, 2013; Parasuraman, Zeithaml, & Berry, 1988), because they provided global and favorable framework of understanding for, such as OCS. Customers may have high satisfaction. Meanwhile, they may be completely dissatisfied about other aspects.

Previous studies had shown that the increase of customer satisfaction could lead to the increase of willingness of purchase (Back & Lee, 2009; Zeithaml, Berry, & Parasuraman, 1996) and profits (Anderson, Fornell, & Lehmann, 1994). Satisfaction is determined by the performance of each attribute. Thus, attribute management is significant to increase satisfaction. In accordance with Anderson & Mittal (2000), the enhancement of attribute-level performance yet ignorance of the increase of relevant satisfied aspects would lead to the conflict between profitability and customer satisfaction. Such different response might come from the asymmetric and non-linear relationship between attribute performance and satisfaction (Anderson & Mittal, 2000; Berman, 2005; Füller & Matzler, 2008).

The main model to evaluate customer satisfaction was based on the disconfirmation of expectations paradigm (Matzler, Bailom, Hinterhuber, Renzl, & Pichler, 2004; Oliver, 2010). The model demonstrates that when perceived performance is higher than expectation, positive disconfirmation (i.e. satisfaction) will occur. In contrast, when expectation is higher than perceived performance, negative disconfirmation (i.e. dissatisfaction) will occur. Hence, the level of expectation becomes a comparison standard of customer. The degree and

direction of difference after the comparison with perceived performance forms the comment of satisfaction or dissatisfaction.

Asymmetric link suggested that the performances of all attributes did not have equivalent impacts on customer satisfaction. In terms of the type of attributes, customers might feel extremely satisfied, satisfied, or dissatisfied (Back, 2012; Füller, Matzler, & Faullant, 2006; Kano, 1984). The three-factor theory (Kano, 1984) implied the different impact of attribute performances on customer satisfaction. Kano (1984) used the following terms to classify attributes, including, dissatisfiers (basic/must-be attributes), hybrids (performance attributes), and satisfiers (excitement attributes). For instance, the security of destination is not satisfied, because security is a must. However, if security is not guaranteed, an individual will feel extremely dissatisfied. Besides, if people run into memorable events, such as special local activities and scenic spot, they will feel excited and satisfied. The lack of these attributes of excitement will not cause dissatisfaction, because they are not expected but value-added.

The dynamic mechanism of attribute-level performance was learned from literature on market and marketing (Anderson & Mittal, 2000; Berman, 2005; Oliver, 1997). However, only a few hospitality/tourism research centers (Back, 2012; Füller & Matzler, 2008) had probed into the asymmetry between attribute performance and satisfaction from the perspective of the three-factor theory. Back (2012) adopted the three-factor theory to classify the attributes of restaurants and assessed their asymmetric impact on satisfaction. He assumed that, it was necessary to calculate the asymmetry of attribute performance for the successful management of satisfaction. Füller & Matzler (2008) examined the roles of dissatisfiers, hybrids, and satisfiers in different ski markets and stressed the impact of different attributes on customer satisfaction and the importance of satisfaction.

From the perspectives of impact range-performance analysis (IRPA) and impact-asymmetry analysis (IAA), this paper probed into the asymmetric effect of the attribute performances of hot spring resort hotels on OCS. The objectives of this study include: (1) Through the calculation of the scores of IA, it classified and sort out the priority of the attributes of frustrators, dissatisfiers, hybrids, satisfiers, and delighters. (2) It evaluated the impact range of each attribute on OCS. And (3) it studied how to generate connection through effectively strengthening asymmetric aspects.

Literature Review

Importance Performance Analysis (IPA)

In terms of the improvement of the quality of attributes, many researchers suggested that managers should allocate more resources to the attributes considered by customers as having low performance. However, given the limited resources of companies, managers should also prioritize attributes so as to determine the allocation of resources. Fortunately, researchers had provided a variety of analytical techniques to determine the priorities of resources.

One of the analytical techniques is Importance-Performance Analysis (IPA), which is an inexpensive, simple, and visual sensory technology (Bruyere, Rodriguez, & Vaske, 2002), widely used in the studies on hotel and tourism (Chu & Choi, 2000; Qu & Sit, 2007). Its application later in the field of marketing (Martilla & James, 1977) had attracted the attention of researchers, since it is a convenient analytical technique. It has been used in many research areas, such as sports centers (Rial, Rial, Verela, & Real, 2008), health care (Abalo, Varela, & Manzano, 2007; Hawes & Rao, 1985; Miranda, Chamorro, Murillo, & Vega, 2010; Sheng, Simpson, & Siguaw, 2014), banks (Arbore & Busacca, 2011; Matzler, Sauerwein, & Heischmidt, 2003), airports and airlines (Mikulić & Prebežac, 2008, 2011b), supermarket retail (Vázquez, Rodríguez-Del Bosque, Díaz, & Ruiz, 2001), and education (Alberty & Mihalik, 1989). In the literature on tourism, it had been used in destination management (Pritchard & Havitz, 2006; Uysal, Howard, & Jamrozy, 1991), destination image (Joppe, Martin, & Waalen, 2001; O'Leary & Deegan, 2005), restaurant service (Hsu, Byun, & Yang, 1997; Keyt, Yavas, & Riecken, 1994), culinary (Smith & Costello, 2009), entertainment (Hudson & Shephard, 1998; Tarrant & Smith, 2002), environmental resources of destination (Mihalić, 2013), tourist service (Duke & Persia, 1996; Zhang & Chow, 2004), factors influencing the choice of hotels and serve study (Chu & Choi, 2000; Martin, 1995), sustainable tourism (Sorensson & von Friedrichs, 2013), factors influencing the choice of hotels by customers (Chu & Choi, 2000), reef tourism attributes (Coghlan, 2012), hot spring tourist attribute (Chen, 2014), whale shark tourism attributes (Ziegler, Dearden, & Rollins, 2012), resort destination with classified attributes (Caber, Albayrak, & Matzler, 2012), and wild animal parks (Taplin, 2012). In IPA, researchers asked customers to evaluate the importance of different hotel attributes and measure their perception of the existence of performance attributes.

IPA, also known as "action grid analysis", was first proposed by Martilla & James (1977) in their literature on marketing. This analytical technique had been adopted as an expectation performance method by Olshavsky & Miller (1972). IPA was based on quality assumption which referred to the perception of performance by customers, and the importance of product/service attributes (Qu & Sit, 2007). In IPA technology, researcher required customers to not only clarify the importance and their perception of

product/service attributes, but also evaluate the performance of the attributes. Later, the correlation coefficient of OCS of product/service attributes or the coefficient obtained based on regression analysis was regarded as importance values. Then, in accordance with the importance and performance value, each attribute was placed in a matrix. The important values were shown on the vertical axis, while the performance values, on the horizontal axis. Finally, the matrix was divided into four quadrants. The importance and performance were explained through the average (Figure 1).

Martilla, & James (1977) pointed out that the quadrants implied the strategic actions to be taken for the attributes in different quadrants. Thus, "action grid" implied the advantages and disadvantages of relevant product/service attributes (Martin, 1995). It was not necessary for organizations to solve the product/service attributes marked as "Low Priority" (low importance, low performance). "Possible Overkill" (low importance, high performance) showed that such resources had been little concerned by customers. The execution of these attributes were satisfying in terms of "Keep up the Good Work" (high importance, high performance), because customers considered that they were important and good execution ways of organizations. However, the attributes of "Concentrate Here" (high importance, low performance) were important mainly because organizations failed to solve the problems and needed to improve.

Insert Figure 1.

IPA can answer two basic questions: (1) How important a certain product/service attribute is for customers? (2) What is the degree of satisfaction of customers in terms of the performances of a company? According to Hawes & Rao (1985), the key advantage of IPA was the opinions of customers on the importance of the key product/service attributes and the "synergistic effect of their simultaneous examination" generated based on the satisfaction of the performances of such attributes.

Although IPA has been widely accepted and applied, researchers had hot debates with respect to the several theories and practical considerations of the methodology of IPA. The recent comprehensive reviews of Azzopardi & Nash (2013) and the previous comments of Oh (2001) had critically evaluated the IPA methodology and summarized the debates on IPA including the following issues: (1) The positioning of cross curve in IPA grid with scale-centered versus data-centered approaches, (2) the results shown in IPA grid with quadrant versus opposite angles approaches, (3) lack of a clear definition of the concept of attribute-performance, (4) directly and implicitly measured attribute-performance, reflected in the debates on correlation and determinance, (5) asymmetric impact of the importance of attribute on OCS, (6) the relationship between attribute-importance and attribute-performance, and (7) the results of explanation of IPA from relative versus absolute perspectives. Since then, these arguments drove researchers to develop different versions of revised IPA, such as, competitive zone of tolerance service quality based IPA (Chen, 2014); revised IPA methodology integrating the three-factor theory of OCS, some relevant analysis, and conversion of natural logarithm (Deng, 2007); the impact range-performance analysis and impact-asymmetry analysis based IPA (Mikulić & Prebežac, 2008, 2011a, 2011b, 2012); and customer acquisition versus retention IPA (Arbore & Busacca, 2011).

Three-factor theory

However, the self-stated importance values of customers failed to adequately measure the relative importance of attributes, because the importance of attributes might vary depending on their performance perception level (Matzler & Sauerwein, 2002). In other words, there is an asymmetric relationship between attribute performance and OCS. Some researchers believed that there was an asymmetric relationship between product attribute and OCS and classified attributes into three factors, that is, basic, performance, and excitement which is named the three-factor theory of customer satisfaction.

Based on the three-factor theory developed by Kano (1984), previous studies had probed into the asymmetric association between attribute level and customer satisfaction (Anderson & Mittal, 2000; Back, 2012; Berman, 2005; Füller & Matzler, 2008; Matzler, Fuchs, & Schubert, 2004; Matzler & Renzl, 2007; Mikulić & Prebežac, 2008; Lee & Min, 2013). The three-factor theory of Kano was based on the two-factor theory proposed by Herzberg, Mausner, & Snyderman (1959). The two-factor theory first determined what attributes were hygiene or motivator. In contrast, the three-factor theory did not define priority, because the classification of attributes varied by individual expectations and conditions (Matzler, 2000). Additionally, Maddox (1981) commented the two-factor theory and pointed out that attributes affected both satisfaction and dissatisfaction.

Although IPA basically assumed that there was a symmetrical relationship between product/service attributes and OCS, many studies implied that such relationship might be asymmetric (Hui, Zhao, Fan, & Au, 2004; Kano, Seraku, Takahashi, & Tsuji, 1984; Slevitch & Oh, 2010), which means negative performance of attributes may have a bigger influence on OCS than positive performance. Comparatively speaking, the influence of positive performance on OCS may be bigger than that of negative performance. Since Kano, Seraku, Takahashi, & Tsuji (1984), many researchers assumed that there was an asymmetric relationship between attribute and OCS. According to the different influences on OCS, the two groups of attributes had been

classified (Matzler, Fuchs, & Schubert, 2004; Matzler & Sauerwein, 2002; Albayrak & Caber, 2015) into: "basic" (dissatisfiers), "excitement" (satisfiers), and "performance" (hybrid) factors (Figure 2).

Insert Figure 2.

The three-factor theory of customer satisfaction shows that customer satisfaction is not a one-dimensional concept. In other words, the opposite side of dissatisfaction is satisfaction (or joy). According to this theory, the failure to meet basic factors will lead to dissatisfaction. However, the success to meet basic factors does not necessarily lead to joy of customers. In the three-factor theory, attributes can be classified into three factors: dissatisfiers, satisfiers, and hybrids. Dissatisfiers (basic/must-be attributes) refer to a group of basic needs (e.g. delivery on time). If they are not satisfied, customers will feel dissatisfied. These attributes are usually taken for granted, because they are what customers expect. Therefore, the implementation of dissatisfiers will not lead to customer satisfaction. With respect to dissatisfiers, the decline in performance led to a more significant impact on satisfaction than its increase, which also indicated a negative and asymmetric relationship (Anderson & Mittal, 2000). In contrast, the implementation of satisfiers (excitement/value-added attributes) can improve satisfaction. In addition, satisfiers will not cause dissatisfaction, because people usually do not expect them. For instance, when one gets an unexpected opportunity to communicate with a famous scholar, he/she will consider it as a wonderful surprise and feel very happy. In other words, the performance increase of satisfiers will have a greater impact on the equivalent decrease of the same attribute, which indicated a positive and asymmetric relationship (Anderson & Mittal, 2000). Hybrids (performance / proportional attributes) create satisfaction and dissatisfaction. When satisfied, hybrids lead to satisfaction. But if not, hybrids lead to dissatisfaction. In other words, only hybrids display a symmetrical link to satisfaction (Anderson & Mittal, 2000; Matzler, Fuchs, & Schubert, 2004).

Similarly, Oliver (1997) argued that satisfaction could be classified into bivalent satisfiers, monovalent satisfiers, and monovalent dissatisfiers. Bivalent satisfiers led to satisfaction and dissatisfaction, depending on their existence. Monovalent dissatisfiers include the basic attributes of product or service. They triggered outrage/frustration (or extreme dissatisfaction), when they were not met (Schneider & Bowen, 1999). As people took these attributes for granted, they expect a positive response or must-be requirement (Matzler, Hinterhuber, Bailom, & Sauerwein, 1996). Therefore, if people have negative experience of must-be attributes, they are likely to feel hurt or frustrated. When monovalent dissatisfiers were not properly handled, the frustrated person would become a "terrorist" or spread negative word-of-mouth with each opportunity (Heskett, Jones, Loveman, Sasser, & Schlesinger, 1994). Monovalent satisfiers stood for "additional" or "attractive requirements, which were not specifically required by customers (Berman, 2005). If monovalent satisfiers were met, satisfied or positive emotion would occur, followed by happy consumption (Rust & Oliver, 2000). Customers' joy (or extreme satisfaction) would be a high level of joy and positive surprise (Oliver & Westbrook, 1993). When it happened, customers would feel unexpected, memorable, and precious (Bell & Zemke, 2003), which was consistent with previous studies (Back, 2012; Kano, 1984; Mikulić & Prebežac, 2008; Oliver, 1997). Current studies adopted delighters, satisfiers, hybrids, dissatisfiers, and frustrators to classify attributes in terms of the dissatisfaction and satisfaction continuum. See their definitions below:

- Dissatisfiers (basic attribute) refer to the minimum requirements leading to dissatisfaction. If they are not implemented but met, OCS will not occur. It is essential to meet the basic requirements. But they are not enough to lead to satisfaction. Basic attributes are naturally expected (taken for granted) and considered as must-be. Negative comments on basic factors have a bigger influence than positive ones in terms of OCS.
- Frustrators are classified as dissatisfiers, standing for the extreme level of dissatisfiers. Frustrators are considered to be compelling must-be attributes. Thus, when frustrators are not shown, customers are likely to be frustrated (extremely dissatisfied) when they are dissatisfied.
- Hybrids (performance attributes): If they are met, hybrids will lead to satisfaction; otherwise, dissatisfaction. The influence of hybrids on satisfaction dependent on their performances. Thus, performance attributes and OCS have a linear and symmetrical relationship.
- Satisfiers (excitement attributes). If they are applicable, satisfiers will increase OCS. However, even if they are provided, they will not lead to dissatisfaction. Excitement attributes are considered as extra, making customers surprised or touched. Thus, positive comments on satisfiers have a bigger influence on OCS than negative ones.
- Delighters are classified as satisfiers, reflecting a high level of satisfiers. When delighters are provided, customers are highly satisfied or joyful beyond satisfaction. Therefore, delighters are treated as powerful excitement attributes.

Impact range performance analysis (IRPA) and impact asymmetry analysis (IAA)

Asymmetric relationship had been confirmed in many research settings in the past literature, such as business-to-business relationship (Matzler, Bailom, Hinterhuber, Renzl, & Pichler, 2004), health services (Mittal & Baldasare, 1996; Mittal, Ross, & Baldasare, 1998), banking services (Johnston, 1995), and travel destinations (Fuchs & Weiermair, 2004). In the area of hotel service, by attribute-level approach, asymmetric relationship

had been supported and applied by many researchers (Cadotte & Turgeon, 1988; Füller & Matzler, 2008; Hartline, Wooldridge, & Jones, 2003; Ramanathan & Ramanathan, 2011). While confirming the asymmetric influence of attributes on OCS and prioritizing attributes, researchers had provided some analytical technologies. In order to correctly test the asymmetric relationship between attributes and satisfaction, one needed to understand the asymmetric range of the impact of each attribute on satisfaction (Mikulić & Prebežac, 2008). Mikulić & Prebežac (2008) developed a method to evaluate the asymmetric range of the influence of attributes on satisfaction which they called IRPA coupled with IAA. Penalty-reward con Trast analysis (PRCA) was a dummy variable based on multivariate regression analysis and used to generate the values of IRPA and IAA (Brandt, 1987). For PRCA, each attribute generated two groups of dummy variables. One group contains the lowest attribute performance score (APS), that is, 1, and reward dummy, that is, 0. Similarly, the other group covers the highest APS (1) and reward dummy (0). OCS was regressed with binary variables to produce the penalty- and reward-coefficient of each attribute. The changes in increment in OCS are considered as extremely low and high performance results.

The penalty and reward indices of the two groups of dummy variables of OCS regression produced two unstandardized beta coefficients. Penalty index (PI) refers to the attributes with negative correlation with OCS. Reward index (RI) refers to the attributes with positive correlation with OCS. The results of PRCA are used to calculate the range of impact of attribute on OCS (RIOCS) and impact-asymmetry (IA). Specifically, the absolute values of PI and RI of each attribute are used to calculate RIOCS. They play an exponential degree of influence on each property of OCS.

In order to calculate IAA, the impacts of high and low performance levels on OCS characteristics must be calculated at the first stage. Regression analysis with dummy variables was a widely used method for identifying low performance and high performance levels (Matzler & Sauerwein, 2002). For the purpose of analysis, the re-encoded attribute satisfaction level is as follows: The two lowest values of the 5-point Likertian scale are used to form a dummy variable to quantify the effect of low performance (Its value is 1). The highest value is used to form the second dummy variable to quantify the high performance (Its value is 1). The empty cells of dummy variables are specified as 0, because they are defined to indicate indifference (e.g., average satisfaction) and form a reference group. Levels 1 and 2 are defined as low values. 5 stood for high performance value because positive skew of data distribution were also accepted by researchers (e.g. Alegre & Garau, 2011; Mikulić & Prebežac, 2011). On this basis, multivariate regression analysis method is used to the influence of the quantification with OCS and dummy variables as independent variables on the OCS attributes with low and high performances.

$$OCS = \beta_0 + \sum_{i=1}^n (\beta_{lowi} d_{lowi} + \beta_{highi} d_{highi}) + \varepsilon \quad (1)$$

where $\beta_{lowi} d_{lowi}$ represents the incremental change of OCS in case of low performance level of attribute *i*, whereas $\beta_{highi} d_{highi}$ represents the incremental change of OCS in case of high performance level of attribute *i*.

d_{lowi} : Dummy set indicating lowest satisfaction levels; d_{highi} : Dummy set indicating highest satisfaction levels; $n = 13$ (i.e. for thirteen attributes).

The values of performance and impact asymmetry (IA) of each attribute are on the x and y axes as the attribute of positioning matrix. The summary of the absolute values of the low PI and high RI of each attribute leads to range of impact on customer satisfaction (RIOCS). The following equation is used to calculate IA and quantify the impact asymmetry of attributes on OCS.

$$SGPi = Ri/RIOCSi \quad (2)$$

$$DGPi = Pi/RIOCSi \quad (3)$$

$$IAi = SGPi - DGPi \quad (4)$$

where *ri*, reward index for attribute *i*; *pi*, penalty index for attribute *i*; $RIOCSi = |Pi| + Ri =$ range of impact on OCS; and $SGPi + DGPi = 1$.

IA index ranges from -1 to + 1. IA is generated by the arithmetic differences between SGP and DGP. Therefore, IA becomes the criterion for classifying customer attributes as dissatisfiers, hybrids, or satisfiers (Mikulić & Prebežac, 2008). When the SGP of an attribute is greater than its DGP, it means that the attribute produces more satisfaction than dissatisfaction and leads to a satisfier. Conversely, if DGP is higher than SGP, the attribute is classified as a dissatisfier. In addition, when the arithmetic difference between SGP and DGP is marginal, the attribute is treated as a hybrid, because its similar effects include satisfaction and dissatisfaction. According to the IA level distribution of the overall attributes (Mikulić & Prebežac, 2008), this study adopted the following ranges to classify attributes: Frustrators (known as frustrators, $IA \leq -0.8$), dissatisfiers ($-0.8 <$

IA ≤ -0.2), hybrids ($-0.2 < IA < 0.2$), satisfiers ($0.2 \leq IA < 0.8$), and delighters (known as extreme satisfiers, IA ≥ 0.8).

In the above paragraphs, the PI and RI of each attribute were obtained. Net is to execute impact range-performance analysis. Specifically, the sum of the absolute values of PI and RI of each attribute is used as the indicator of range of impact on customer satisfaction (RIOCS) of each attribute. The attributes can be further classified into low-impact attributes (RIOCS < 0.125), medium-impact attributes ($0.125 \leq RIOCS \leq 0.225$), and high-impact attributes (RIOCS > 0.225). RIOCS is about three equivalency.

The overall attributes which the position are situated in the horizontal axis, then rests on RIOCS value to divide into three categories:

- (1) RIOCS > 0.225 ; High-Impact Attributes
- (2) $0.125 \leq RIOCS \leq 0.225$; Medium-Impact Attributes
- (3) RIOCS < 0.125 ; Low-Impact Attributes

Therefore, the main purpose of this study was to compare IAA and IRPA techniques so that managers could prioritize resource allocation to improve OCS.

II. RESEARCH METHOD

The information used in this study was from the customer satisfaction survey of 18 cities and relevant travel agencies, tourist operational organizations, and tourist management practitioners in Taiwan. The author of this paper cooperated closely with the management authorities of tourism in Taiwan. At the beginning, this author reviewed relevant literature (Heung, Qu, & Chu, 2001; Truong & Foster, 2006; Wang, Hsieh, Chou, & Lin, 2007) on the main service attributes of tourism. Then, this author interviewed the senior managers (quality managers and human resources managers) and scholars of the academic circle (2 professors specialized in tourist management) and participated in group discussion to propose suggestions and determine the final questionnaire. 180 tourists accepted the test of source of potential error (Douglas & Craig, 2006). From September 2015 to March 2016, systematic sampling method was adopted to survey and collect the information of customer satisfaction from tourist managers. A total of 1200 copies of questionnaire had been collected. In this study, the 13 items on the quality of accommodation facilities (see Table 2) and the items related to the OCS of hot spring resort hotel were selected from the questionnaire. Although OCS was measured by single-item, many previous studies on satisfaction had used single-item measurement (LaBarbera & Mazursky, 1983; Mittal, Ross, & Baldasare, 1998). In terms of Attribute satisfaction (performance) and OCS, 68 invalid copies of questionnaire were excluded, while 1132 copies were entered for data analysis with Likert 5-point scale (1: strongly dissatisfy, 5: strongly satisfy).

III. RESULTS ANALYSIS

Reliability and validity analysis

Factor analysis verified construct validity and calculated Cronbach's α coefficient to evaluate reliability. Varimax rotation principal component method was employed to analyze factors. 13 variables were classified into three factors and accounted for 56.96% of the total variance (KMO=.894). Bartlett test of Sphericity = 4849.77 ($p = .000$). Factor load value was between .379 and .723. Therefore, construct validity was favorable (Kaiser, 1974). In addition, in order to test the relationship between OCS and the average satisfaction of hot spring resort hotel attributes (the average of the 13 items on the quality of accommodation), Pearson correlation coefficient was calculated. Finally, Cronbach's alpha was .861. Thus, the reliability was high (Hair, Anderson, Babin, & Black, 1998).

Sample profile

Among the 1132 participants, 67.8% were between 20 and 40 years old. Most of the participants were women (67.5%). About 62.9% of them were married (Table 1).

Insert Table 1.

Customer perceptions about hotel attributes and their influence on OCS

Before the comparison between the symmetric and asymmetric influences of hot spring resort hotel attributes on OCS, multivariate regression analysis was conducted to verify if the attributes could significantly predict OCS. The results show that the 13 attributes explain 45.1% of the total variance ($F(13, 1118) = 70.77, p < .001$). This study finds that all attributes can significantly predict OCS (Table 2). "Novel interior decoration" and "prompt service" are the two strongest predicting factors of OCS (.125 and .178, respectively; $p < .001$). In general, customers have positive perception of the following three attributes: "sincere attitude in solving problems", "informing service time", and "polite employee" (Table 2).

For each attribute, two regression coefficients are obtained to measure the effect of low performance as well as high performance (Table 3). The analysis results are shown in Table 3, indicating the importance of the attributes depend on their different performances.

Insert Table 2.

Insert Table 3.

Testing for IRPA

In the dummy-based regression analysis, RI and PI are created to generate RIOCS, which is interpreted as the degree of influence of each attribute on OCS (Table 4). According to the RIOCS value, the following 3 attributes are found to produce bigger influences on OCS in their respective domains: (1) "Prompt service" (RIOCS: 0.858) is direct service. (2) "Polite staff" (RIOCS: 1.589) is indirect service. (3) "Education and training are required for staff" (RIOCS: 0.837) is exclusive service. Figure 3 shows the relative position of the service attributes in each domain based on the average of APS on the y-axis and the RIOCS value on the X-axis. In addition, each of the six grids has the reference averages of APS and RIOCS. For example, through the averages of APS (3.954) and RIOCS (0.379), one can find the relative position of direct service attribute. According to Mikulić & Prebežac (2008), priority attributes should be improved to have bigger RIOCS and lower APS. Thus, the attributes below the average of APS and above the average of RIOCS shall be given priority so as to effectively manage customer satisfaction. In line with such criterion, OCS performance is evaluated as follows: (1) Attribute 6 (prompt service), (2) attribute 9 (being too busy to answer questions)

Insert Table 4.

Insert Figure 3.

Testing for IAA

Table 4 shows the three factor-based categories of each attribute according to the IA values. After the classification of the attributes, the relative positions (Figure 4) of the attributes were marked between the y-axis (IA) and the X-axis (RIOCS). Meanings could be derived from Figure 4. Due to the asymmetric influence of attributes on OCS (three-factor) and the influence of attributes RIOCS, each attribute had been examined and reviewed. In addition, RIOCS had been classified into three levels (low, moderate, and high) based on the averages, resulting in a figure showing the influence of attributes on OCS. Figure 4 presents the research results on IA and RIOCS.

For direct service, each attribute is categorized in different ways: Attributes 1 (Novel interior decoration), 2 (appearance of facilities), and 3 (staff clothes) are satisfier. Attributes 4 (match between facilities and services), 5 (sincere attitude in solving problems), 6 (prompt service) and 7 (providing transaction records) are dissatisfier. Attributes 1, 2, and 4 have a moderate impact on OCS. And attributes 3, 5, 6, and 7 have a high impact. In terms of indirect service, attributes 8 (informing service time) and 9 (being too busy to answer questions) are categorized as hybrid. Attribute 10 (polite staff) is dissatisfier. All these attributes have a high impact on OCS. With respect to special service, attribute 11 (education and training are required for staff) is dissatisfiers. Attribute 13 (actively caring about customers) shows a level of satisfier. Attribute 12 (providing exclusive services) is considered as hybrid. All these attributes have a high impact on OCS.

Insert Figure 4.

IV. DISCUSSION AND CONCLUSIONS

Theoretical and managerial implications

This study adopted IRPA and IAA to evaluate the asymmetric relationship between service attributes and OCS from the perspective of the three-factor theory. The techniques were supposed to make up the shortcomings of importance performance analysis (IPA) (Back, 2012; Mikulić & Prebežac, 2008). In the questionnaire, customers were asked to rate the importance of each attribute, thus absolute importance might exaggerate the score of importance of attributes (Hollenhorst, Olson, & Fortney, 1992). Oh (2001) argued that relative importance of attributes should be employed to correctly conduct IPA. In consideration of the asymmetric relationship between attribute performance and OCS, such opinion on relative importance is effective. Asymmetric influence means that the importance of attributes is considered as a function of attribute performance. The importance of attributes could affect OCS through attribute performance (Sampson and Showalter, 1999). If the relative importance caused by the asymmetric relationship was not included in IPA, IPA-based results would contain wrong meanings (Back, 2012). Thus, it is suggested to combine IRPA and IAA to solve the issues of IPA. In this study, based on IRPA and IAA three-factor theory, as well as the RIOCS of each attribute, we evaluated the asymmetric relationship between hot spring resort hotel attributes and OCS (Figure 4 and Table 5).

Insert Table 5.

Table 5 summarizes the categories of all the attributes and the RIOCS results among the three levels (low, moderate, and high). For direct service, Novel interior decoration, appearance of facilities, and staff clothes are satisfiers. Match between facilities and services, sincere attitude in solving problems, prompt service, and providing transaction records are dissatisfier. The samples in this study were hot spring resort hotels. Prompt service was regarded as must-be attribute.

With respect to indirect services, it seemed that customers had sensed that informing service time, being too busy to answer questions (hybrid), and polite staff (dissatisfier) were key attributes in term their service experience. And these attributes might trigger dissatisfaction. Besides actively caring about customers (hybrid), among special service attributes, education and training are required for staff (dissatisfiers) had a high potential of dissatisfaction. This finding indicates that customers pay close attention to special service attribute and consider them as basic requirements. If the quality of special service attributes is higher than the threshold of tolerance of customers (e.g., if employees are not well educated and trained), many customers are not encouraged to enter. The advantage of the three-factor theory used in this study lies in that the asymmetric relationship between each attribute and OCS is utilized to make up the above shortcoming. This method further facilitates the managers of hot spring resort hotel to grasp the priority attributes in each aspect and handle the service quality in each aspect (e.g. direct, indirect, and special services).

Specifically, current studies provide a guideline to the planners of hot spring resort hotels to effectively manage OCS according to the priority of attributes. In accordance with the three-factor theory, frustrators and dissatisfiers are considered as must-be attributes. The importance of dissatisfiers (e.g., match between facilities and services, sincere attitude in solving problems, prompt service, providing transaction records, polite staff, and education and training are required for staff) cannot be overly emphasized. As customers take these attributes for granted, low-quality attribute reminds customers of dissatisfaction and also lowers the quality of other attributes. When frustrators and dissatisfiers are not well managed to meet the expectations of customers, OCS cannot be guaranteed. Thus, the planners of resorts shall first consider which attributes shall be categorized as frustrators and dissatisfiers so as to manage the quality attributes of OCS. In other words, frustrators and dissatisfiers are vital attributes to manage OCS. Therefore, the management of the quality attributes of OCS shall start from the levels of frustrators and dissatisfiers. However, during the management of must-be attributes, the planners of hot spring resort hotels shall optimize their investment according to the levels of the quality attributes. These characteristics will not excessively surpass customer expectation, because frustrators and dissatisfiers will not improve OCS, though they meet customer expectation.

The next priority is hybrid attribute, rather than those of satisfiers and delighters. The attributes related to hybrids (e.g., informing service time, being too busy to answer questions, and actively caring about customers) leads to satisfaction or dissatisfaction of customer depending on their quality levels. However, these attributes belong to satisfiers (Novel interior decoration, appearance of facilities, staff clothes, and providing exclusive services) and do not trigger customer dissatisfaction. Even, they are considered as useless. Different attributes of hybrids, satisfiers, and delighters are considered as exciting/surprising. Generally, customers do not expect high quality of these attributes. Their expectation of satisfiers is low. Even customers run into low attribute quality, they will not be dissatisfied. In contrast, if the planners of hot spring resort hotels want to maximize OCS, these attributes are effective to provide value-added quality and make customers exciting and satisfied. As low quality of hybrid attributes will lead to dissatisfaction, though they are not must-be attributes, they shall be managed in a higher priority than satisfiers and delighters in terms of OCS.

Three-factor theory suggests the planners of hotels how to determine the priority of attributes of the respective constructs for the purpose of effective OCS management. In terms of the service quality attribute of OCS management, top priority shall be given to frustrators and dissatisfiers, followed by hybrids, satisfiers, and delighters. For instance, during the management of direct services to customers, the sample hotels in this study should provide sufficient facilities and services, because match between facilities and services (dissatisfier) are considered as must-be attributes in this study. In order to further enhance OCS, the attractiveness of Novel interior decoration (satisfier) shall be shown on their websites, because they are considered as value-added attributes. With respect to the special services provided, the customers in this study require the attribute of education and training are required for staff (dissatisfiers).

Another problem of management was obtained through RIOCS and attributes of different categories (Figure 4 and Table 5) and the comparison between APS and RIOCS (Figure 3). Figure 4 and Table 5 show corresponding RIOCS and the categories in the three-factor theory. Meanwhile, the category of each attribute and corresponding RIOCS were examined so that the planners of hot spring resort hotels could determine the important attributes to be solved. Mikulić & Prebežac (2008) suggested that close attention should be paid to dissatisfiers/frustrators with high RIOCS, because when they were not properly handled, OCS might be deteriorated. In this study, the following attributes are dissatisfiers/frustrators (Figure 4 and Table 5) with high RIOCS: (1) sincere attitude in solving problems, (2) prompt service, (3) providing transaction records, (4) polite

staff, and (5) education and training are required for staff. The survey results show that many customers are concerned about them.

In addition, the improvement of attribute priority shall take into account higher RIOCS and lower APS attributes (Figure 3), that is, (1) prompt service and (2) being too busy to answer questions. The performance of the two attributes could improve the customer expectations of the sample hot spring resort hotels in this study. From the perspective of the three-factor theory, this study adopted IRPA and IAA to explore the asymmetric relationship between attributes and OCS. The results of this study aim to propose the following suggestions to tourist agencies so as to strengthen OCS. First, the three-factor theory produced attribute priority or classification which was dependent according to the backgrounds and situations of several studies (Matzler, 2000; Mikulić & Prebežac, 2011). According to the classification of customers, the classification and priority of quality attributes might be different among resort hotels. In addition, quality attributes may suit all the resort hotels. Therefore, this study suggests the operators of resort hotels to conduct an annual survey supported by resort hotel quality dimensions (e.g. direct and special services), based on the three-factor theory, and with IRPA and IAA methods to classify and sort out quality attributes. Once they classify and prioritize quality attributes, they can learn the relative importance of each attribute deeply and the different influence of attributes on OCS. The classification and prioritization of quality attributes make the operators of resort hotels to identify the main sources of customer dissatisfaction and satisfaction. In particular, they shall identify the important role of the classification and prioritization of quality attributes in project implementation and management. Project management includes determining the tasks to be completed and estimating the resources (budget) required to achieve the tasks. The relative priority of each attribute makes the task division of the planners of resort hotels important, which will affect the budget of each task. For example, according to the customer survey, the operators of the resort hotels can evaluate the performance of quality attributes categorized as dissatisfiers, hybrids, satisfiers, or delighter. If they find that the attributes of satisfiers and delighters show low performance and the purpose of travel agencies is to provide extra value to improve OCS, the organizational directors can learn more principles behind budget allocation and pay attention to these attributes in the resort hotels in the next period. The classification and prioritization of attributes are the criteria for them to learn the relative importance and prioritization of attributes. Thus, during management meetings, they can more strategically make decisions on work management so as to enhance the efficiency of project management.

Second, the current study shows that travel agency organizational directors evaluate both (1) APS and RIOCS (Figure 3) and (2) IA and RIOCS (Table 4) at the same time to determine the quality attributes to be addressed. During the re-examination of APS and RIOCS at the same time, attention shall be paid to the attributes with low APS and high RIOCS. When attributes are considered to have a high impact on OCS but show low performance, they may aggravate OCS. During the comparison of IA and RIOCS, the managers of resort hotels shall focus on must-be attributes (i.e., dissatisfiers/frustrators) and high RIOCS. When they fail to accurately manage must-be attributes which have a significant influence on OCS, the attributes may reduce OCS. The re-examination of APS, IA, and RIOCS, in combination with the classification and prioritization of quality attributes will further enhance the quality control of attributes and systematically enhance OCS.

Third, attribute prioritization and assessment shall be conducted annually by hot spring resorts. As the psychographic profiles of customers are changing, the surveys each year may be different in terms of prioritization and assessment. The managers of the hotels shall continuously conduct annual survey to track and consider the operation of a next hotel so as to effectively manage quality attributes and OCS in an ever-changing environment. This study advocates annual monitoring of prioritization and assessment which can facilitate the managers to strategically manage the quality dimensions for OCS.

In short, the classification and prioritization of the attributes of hot spring resort hotels influencing travel agencies above can effectively manage OCS. Meanwhile, compare RIOCS and APS with the attributes of different categories can help practitioners to easily learn the fields to be improved and strategically manage projects. Therefore, the results of this study can help insiders perceive the quality construct of priority attributes and effectively address OCS.

Suggestion for future research direction and limitation

This study used IRPA and IAA techniques which facilitated the consideration of service attributes as well as the assessment of RIOCS for the purpose of improvement of OCS. The findings are conducive for practitioners to determine the priority of attributes and effectively manage satisfaction. Future studies will encourage the determination of the category of each attribute and combine IRPA and IAA to assess the influence of attributes on the satisfaction of hot spring resort hotels and other sectors of tourism. Additionally, the sample hotels in this study are from all the associations of resort hotels, thus it covers limited generalizability.

This study also shows gender imbalance of participants in the survey and collected data via two different methods, i.e., filling-in questionnaire and interview-based questionnaire. The potential problems may distort the results. Though the analysis test does not have much deviation from the results of this study. It is

suggested that future researches can adopt balanced gender ratio and a single material collection method so as to reduce the deviation in data collection.

This study employed nonprojective sampling to select subjects. According to the limits of nonprobability purposive sampling (Healey, 1999; Levine et al., 2011; Patton, 1990), some subjects in the motif were not selected, which may cause exclusion bias. Besides, if the highest and lowest values (1 and 5) were used to generate SGP and DGP (Mikulić & Prebežac, 2008), the non-linear attribute influence on OCS may not be able to be obtained. The distribution of each attribute should be re-examined again carefully so as to learn the chances of nonlinearity (Back, 2012).

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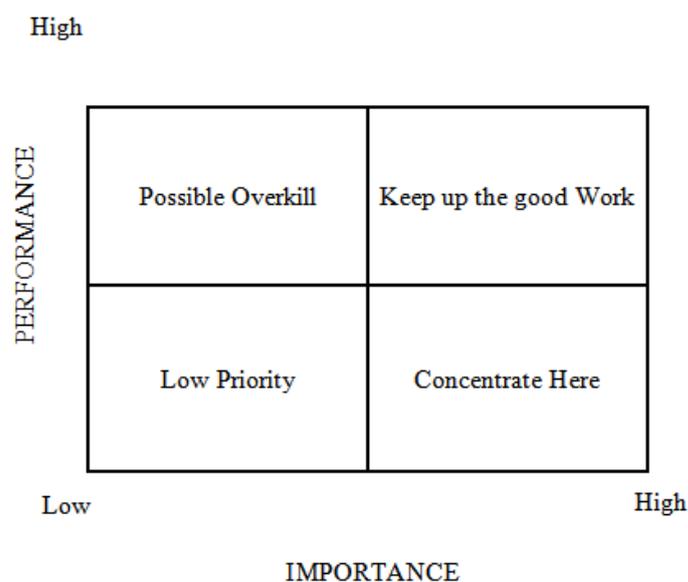


Figure 1. The IPA grids

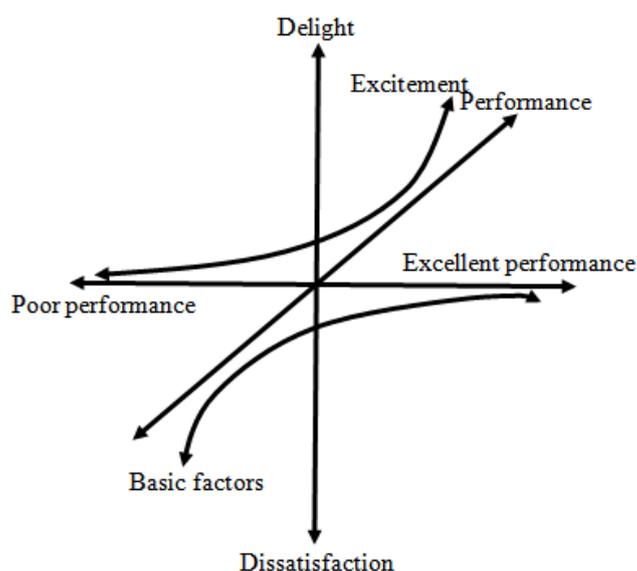


Figure 2. The Three-Factor Theory of Customer Satisfaction

Table 1. Sample profile (N =1132).

		Frequency (%)
Gender	Male	32.5
	Female	67.5
Age group	20 and below	12.0
	Between 20 and 40	67.8
	Between 41 and 60	18.7
	61 and above	1.4
Annual income	<10000 USD	47.7
	10000~20000 USD	30.4
	20001~30000 USD	16.6
	>30000 USD	5.3
Marital status	Married	62.9
	Unmarried	37.1

Table 2. The results of multivariate regression analysis of OCS

Attributes	Means(SD) (performance)	B	SE(B)	β (importance)
Constant		1.139	.104	
1. Novel interior decoration	3.65(.802)	.125	.017	.189
2. Appearance of facilities	4.00(.813)	.022	.019	.034
3. Staff clothes	4.07(.804)	.026	.019	.040
4. Match between facilities and services	3.92(.787)	.027	.019	.041
5. Sincere attitude in solving problems	4.12(.755)	.004	.021	.006
6. Prompt service	3.94(.747)	.178	.022	.252
7. Providing transaction records	3.97(.853)	.064	.016	.104
8. Informing service time	4.16(.787)	.019	.017	.029
9. Being too busy to answer questions	3.85(.767)	.008	.017	.012
10. Polite staff	4.11(.734)	.044	.021	.061
11. Education and training are required for staff	3.89(.806)	.050	.020	.076
12. Providing exclusive services	3.76(.833)	.056	.018	.088
13. Actively caring about customers	3.89(.781)	.062	.021	.091

$R^2 = .451$ ($p < .001$). All regression coefficients are significant at .001 level.

Table 3. The asymmetric relationship between attribute performance and OCS

Attributes	Dummy variable regression coefficients	
	High performance (β_{H+}) ^a	Low performance (β_{L-}) ^a
Direct service $R^2=0.670$ $F=162.283$		
1. Novel interior decoration	.116 ^b	-.043 ^c
2. Appearance of facilities	.179 ^b	-.036 ^e
3. Staff clothes	.175 ^b	-.096 ^e
4. Match between facilities and services	.023 ^e	-.128 ^d
5. Sincere attitude in solving problems	.223 ^b	-.418 ^b
6. Prompt service	.214 ^b	-.644 ^b
7. Providing transaction records	.191 ^b	-.291 ^b
Indirect service $R^2=0.470$ $F=162.566$		
8. Informing service time	.300 ^b	.241 ^d
9. Being too busy to answer questions	.212 ^b	-.185 ^d
10. Polite staff	.381 ^b	-1.208 ^b
Special service $R^2=0.494$ $F=182.771$		
11. Education and training are required for staff	.317 ^b	-.520 ^b
12. Providing exclusive services	.245 ^b	-.097 ^d
13. Actively caring about customers	.326 ^b	-.327 ^b

a. Penalty and reward scores are unstandardized regression coefficients; significance-levels.

b. 0.001.

c. 0.01.

d. 0.1.

e. Not significant

Table 4. The impact of satisfaction indicators

Attributes	RIOCS	SGP	DGP	IA	Perf.
Direct service					
1. Novel interior decoration	0.159	0.730	-0.270	0.460	3.954
2. Appearance of facilities	0.215	0.833	-0.167	0.666	3.654
3. Staff clothes	0.271	0.646	-0.354	0.292	4.004
4. Match between facilities and services	0.151	0.152	-0.848	-0.696	4.071
5. Sincere attitude in solving problems	0.641	0.348	-0.652	-0.304	3.919
6. Prompt service	0.858	0.249	-0.751	-0.502	4.117
7. Providing transaction records	0.482	0.396	-0.604	-0.208	3.940
Indirect service					
8. Informing service time	0.541	0.555	0.445	0.110	3.972
9. Being too busy to answer questions	0.397	0.534	-0.466	0.068	4.126
10. Polite staff	1.589	0.240	-0.760	-0.520	4.160
Special service					
11. Education and training are required for staff	0.837	0.379	-0.621	-0.242	4.106
12. Providing exclusive services	0.342	0.716	-0.284	0.432	4.113
13. Actively caring about customers	0.653	0.499	-0.501	-0.002	3.854
					3.890
					3.756
					3.887

Note: RIOCS, range of impact on overall customer satisfaction; SGP, satisfaction-generating potential; DGP, dissatisfaction-generating potential; IA, impact asymmetry; APS, attribute performance score; Perf., performance (mean value).

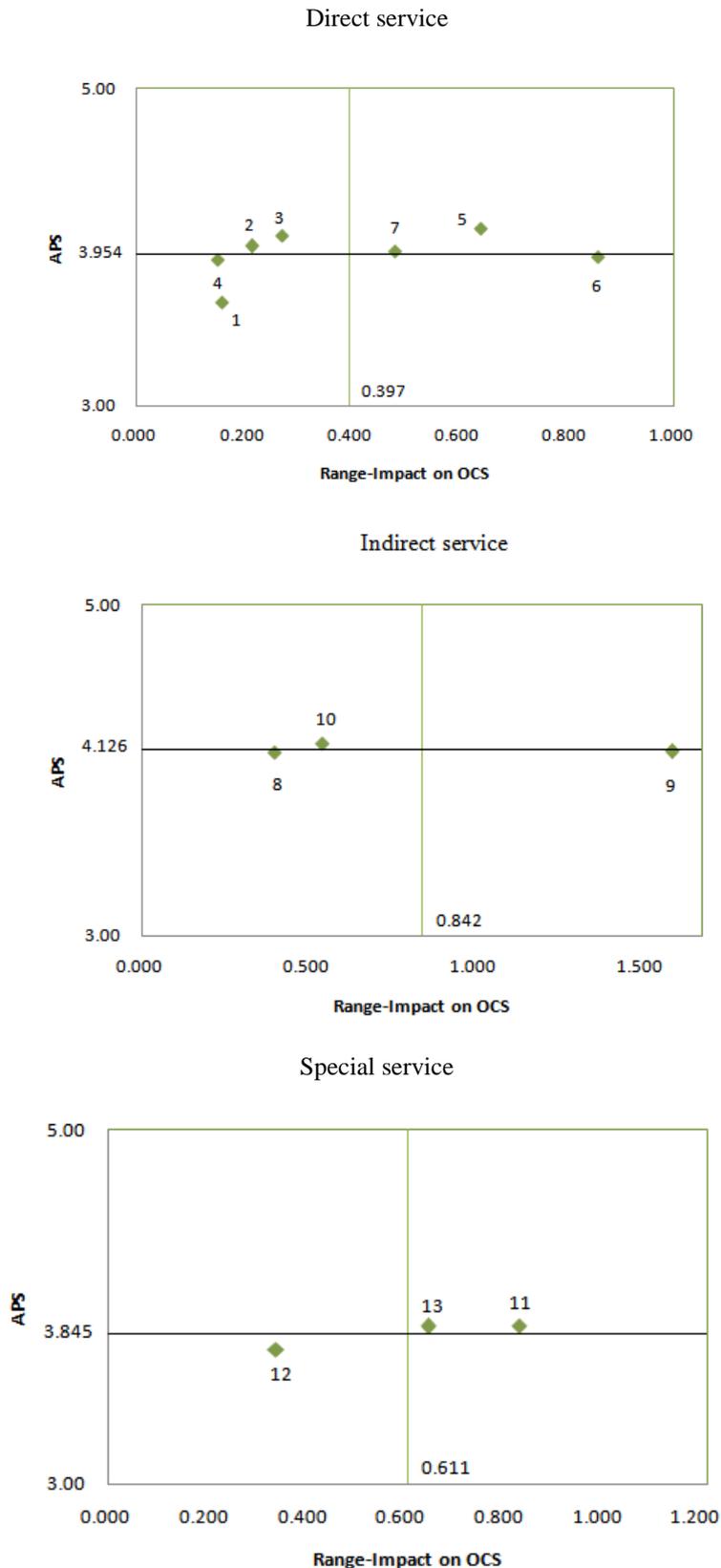
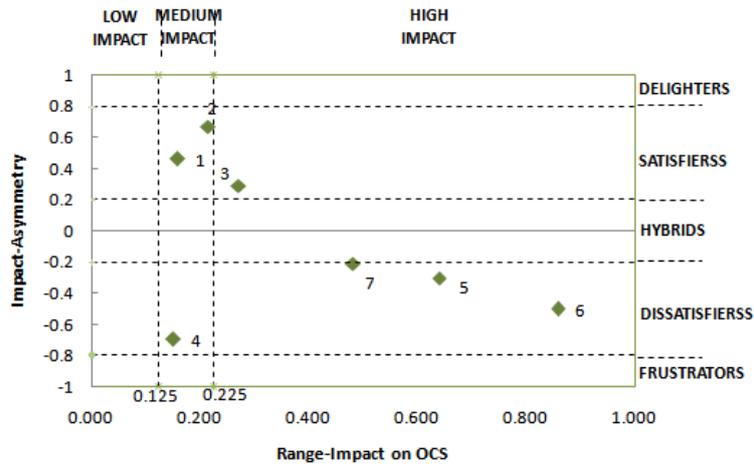
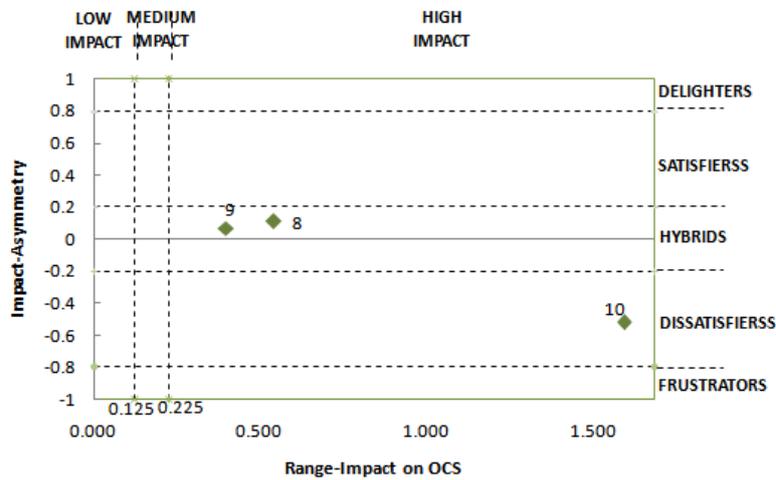


Figure 3. IRPA grid. 1. Novel interior decoration, 2. appearance of facilities, 3. staff clothes, 4. match between facilities and services, 5. sincere attitude in solving problems, 6. prompt service, 7. providing transaction records, 8. informing service time, 9. being too busy to answer questions, 10. polite staff, 11. education and training are required for staff, 12. providing exclusive services, 13. actively caring about customers

Direct service



Indirect service



Special service

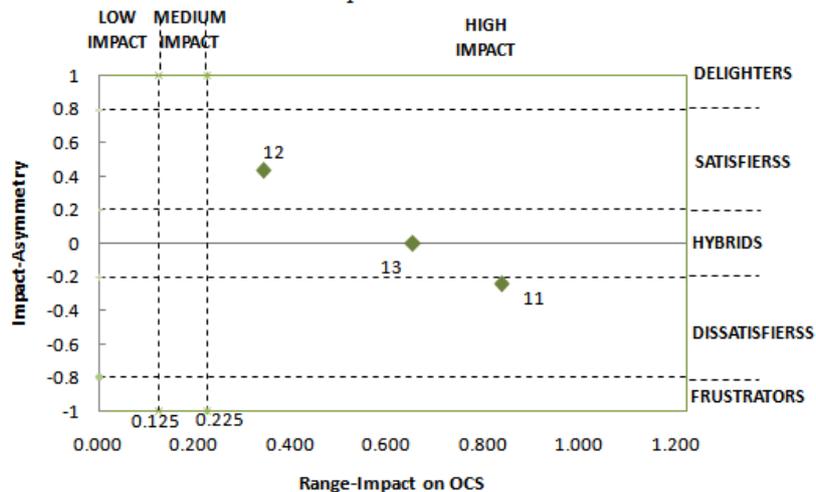


Figure 4. IAA grid. 1. Novel interior decoration, 2. appearance of facilities, 3. staff clothes, 4. match between facilities and services, 5. sincere attitude in solving problems, 6. prompt service, 7. providing transaction records, 8. informing service time, 9. being too busy to answer questions, 10. polite staff, 11. education and training are required for staff, 12. providing exclusive services, 13. actively caring about customers.

Table 5. Summary of findings.

	Low RIOCS	Moderate RIOCS	High RIOCS
Direct service			
Delighters			
Satisfiers		Novel interior decoration Appearance of facilities	Staff clothes
Hybrids			
Dissatisfiers		Match between facilities and services	Sincere attitude in solving problems^ Prompt service*^ Providing transaction records^
Frustrators			
Indirect service			
Delighters			
Satisfiers			
Hybrids			Informing service time Being too busy to answer questions* Polite staff^
Dissatisfiers			
Frustrators			
Special service			
Delighters			
Satisfiers			Providing exclusive services
Hybrids			Actively caring about customers
Dissatisfiers			Education and training are required for staff^
Frustrators			

Note: For the effective management of OCS, improvement priority is given to attributes * located between below APS mean and above RIOCS. Attention should be paid to attributes ^ which are dissatisfiers/frustrators with high RIOCS

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