

Modeling Service Experience Optimism

Research-in-Progress

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ABSTRACT

This research proposes a novel notion called “service experience optimism (SEO)” by combining the perception of positive and negative dimensions. There are two goals for this research; first one is to propose a novel model named “service experience optimism” to quantify the value of service experience. The second goal is to help firms adjust service operations based on customer perception. There are three positive factors and two negative factors to assess the value of a service experience, we use multi attribute utility theory (MAUT) to calculate the utility which customer feel at the service experience. The contribution of this research is SEO provide a concrete value of the perception of service experience to customer, and let customer to evaluate if the service is worth to go again.

Keywords

Service experience, perception, utility, multi attribute utility theory.

INTRODUCTION

Pine and Gillmore (1998) proposed the concept that “21st century has entered the era of the experience economy”. Schmitt (1999) also pointed that experiential marketing will replace the traditional performance and effective marketing. Compared to traditional marketing, experiential marketing emphasizes on customer experience, customers want the product or marketing activities which can stun their senses, touch their heart, with the case of that stimulate their minds. Experiential marketing is omnipresent in our modern life. There are several examples regardless of physical products or intangible services such as Starbucks creates a space which is relaxed, comfortable and filled of the coffee’s culture. Singapore Airlines furnishes a new experience takes flight experience that gives passengers a high-level service to enjoy the journey. Other examples such as Disney Land, Las Vegas, Tiffany’s “blue box”, or theme restaurants are existed around the world.

In the era of experience economy, the importance of services increases dramatically for the past decade. Particularly, services contributed to GDP more than 70% in 2010, according to the World Bank (Figure1.2). Moreover, the trend of servitization of manufacturing reveals that customers not only need the high quality products, but also the high-level services. Conversely, the changing of manufacturing to service is irresistible according to high contribution of service to GDP. The role of service experience is more and more critical and essential.

Service experience is focuses on the evaluation of experience based on interaction with the service providers during the service delivery process. Hence, this study uses the definition of service experience from Wong (2012), which is “a unique concept that integrates various functional and emotional attributes into a comprehensive conceptualization and measure by which customers perceive and assess a service provider”. Today, customers not only focus on how the service is presented but also pay attention to perceptions toward the service in the era of experience economy (Chang and Chang, 2012). It is important to take into account the service experience in service economy; hence, measuring the value of service experience based on customer perspective has become an increasingly issue, it also can help service providers discover the problems of services in order to adjust and improve accordingly.

The characteristics of services make the value is difficult to quantify and measure from the transmission process. Besides, different customers have different senses. Hence, the research regarding value measure for service experience still lacks. A few research attempted to investigate some service domains (e.g., travel, public transport, hospitality); nevertheless, a general model or criteria to access the value of service experience still needs further investigation. Thus, this study proposes a novel notion called “service experience optimism (SEO)” by combining the perception of positive and negative dimensions. The definition of service experience optimism is “the value which customer perceives from positive and negative dimensions in service experience. In other words, this study proposes a concept of service experience optimism to construct a holistic model of service experience by enfolding factors close to the reality. There are two goals for this research; first one is that we

propose a novel model named “service experience optimism” to quantify the value of service experience. The second goal is to help firms adjust service operations based on customer perception. In addition, companies can improve the design of service environment, service quality, pricing strategy, staff training and so on.

RESEARCH METHODS

This research proposes a novel concept of service experience named “Service experience optimism”, which is a model based on consumer viewpoint to measure the value of a service experience. This study utilizes the concepts of utility theory to elaborate the notion of service experience optimism. We assume service perception can be transformed into the same unit (i.e., utility). This study uses the concept evidence of service by Zeithaml, Bitner, and Gremler (2009) based on customer perspective as the theoretical basis to be the positive factors and could measure the value of service experience. At the part of negative factors, crowding is a factor that affects shoppers’ selections of retail stores (Herrington and Capella, 1994) and several studies discovered negative effect of crowding on perceived control (Dion, 2004; Hui and Bateson, 1991; Van Rompay et al., 2008). On the other hand, waiting for service in a retail store is an experience that can lead to consumer dissatisfaction (Katz, Larson, & Larson, 1991), which might result in negative effects on store patronage behavior (Hui, Dube, and Chebat, 1997). Figure 1 is the Conceptual Model of Service Experience Optimism.

For each positive factor, there are several different sub-dimensions. At the part of service atmosphere, this study uses the concept of five senses to be sub-dimensions of service atmosphere. At the part of process, based on customer’s viewpoint, the elements that customer can see at service blueprinting are physical evidence, customer actions, onstage/visible contact employee actions. Consequently, sub-dimensions at process contain technology, visibility, complexity, customization, and interaction. Finally, the sub-dimensions of people include tangibles, reliability, responsiveness, assurance, and empathy that came from the SERVQUAL by Parasuraman et al. (1988) to measure the quality of personnel services. The sub-dimensions of these three positive factors are listed in Table1. Hence, after sum up the total utility of positive dimensions (U), the value of (U) will take into the crowdedness function (C) and waiting time function (W). Because of the degree of crowdedness may affect the waiting time (if the degree of crowdedness is high, it means the number of people is more, and may lead to the waiting time problem), we take into account the waiting time after crowdedness.

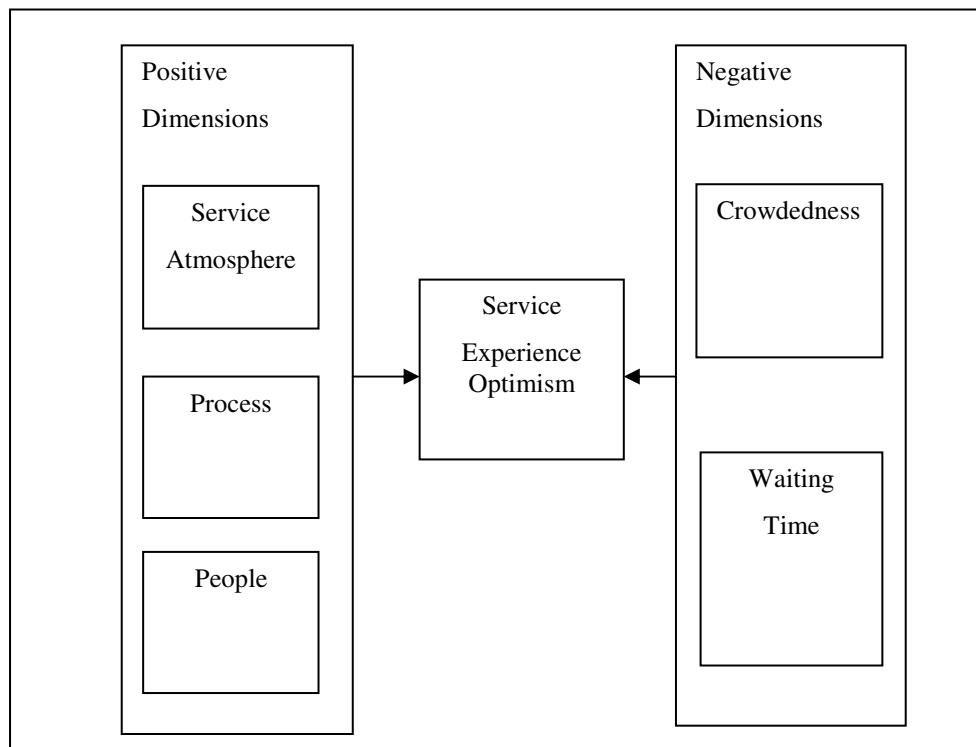


Figure 1 Conceptual Model of Service Experience Optimism

Service Atmosphere	Process	People
<ul style="list-style-type: none"> ● Vision ● Hearing ● Olfaction ● Tactile ● Taste 	<ul style="list-style-type: none"> ● Complexity ● Customization ● Visibility ● Technology ● Interaction 	<ul style="list-style-type: none"> ● Tangibles ● Reliability ● Responsiveness ● Assurance ● Empathy

Table1 The sub-dimensions of three positive factors

According to the conceptual model, we use five senses to measure service atmosphere, use the construct of service blueprint to assess the service process, and use SERVQUAL from PZB model as the basis for staffs. The conceptual definitions of variables and measurement of each sub-dimension are summarized in Table 2.

Positive Dimension	Sub-dimension	Conceptual definition
Service Atmosphere	Vision	Hue & decoration of servicescape
	Hearing	Music of servicescape
	Olfaction	Aroma of servicescape
	Tactile	Equipment and facility materials of servicescape
	Taste	Taste of food at servicescape
Process	Complexity	Complexity of service step at service environment
	Customization	The degree that employee attend to customer needs
	Visibility	The degree that customer is able to observe the procedure of service
	Technology	The degree of use of science and technology
	Interaction	The degree of communication between employee and customer
People	Tangibles	Apparel of service staffs
	Reliability	Service staffs can make the commitment service timely and accurately
	Responsiveness	The willingness of service staffs to help customers immediately
	Assurance	Service staffs 's Professional knowledge, manners, and the ability to be trust by customers
	Empathy	Personalized care and attention for customers

Table 2 The Conceptual definition and assess approach of each sub-dimensions

MULTI ATTRIBUTE UTILITY THEORY (MAUT)

This study uses multi attribute utility theory (MAUT) to estimate the utility of service experience from customer perceptions. This method was proposed from "Decisions with Multiple Objectives" by Keeney and Raiffa in 1993. The multi-attribute utility theory takes into consideration the decision maker's preferences in the form of the utility function that is defined over a set of attributes (Pohedar and Ramachandran, 2004). It also developed to help decision makers assign utility values to outcomes by evaluating these in terms of multiple attributes and combining individual assignments to obtain overall utility

values. The main advantage of MAUT is that it can take uncertainty into account and represent it directly into its decision support model. Hence, this research adopts MAUT based on three reasons. Firstly, MAUT considers the individual view to assess service experience optimism from the viewpoint of customers' preferences and utility. Secondly, the view of multi-attribute is in accordance with the characteristic of service experience, which can be affected via multiple reasons. Finally, the concept of value tradeoff can simplify complex issues of multi-attributes to a single utility theory with a series of single attribute.

MODELING SERVICE EXPERIENCE OPTIMISM

MAUT is the method based on the viewpoint of multiple attributes to represent the preferences and utility function of decision-makers. Solving the problems by MAUT is complex because of different unit and different measure. In order to simplify the problem, MAUT uses the concept of single dimension to a series of single attribute utility function and combines all individual functions to a total utility function. This study takes the unified unit to calculate the positive and negative perceptions of utility from service experience. Thus, each factor represents one of an attribute in the service experience based on same unit and can calculated to form the total utility. We use the decomposition functions f in Eq. (1) to show the notion of utility function of service experience.

x is the attribute which affects service experience. The perception of each customer all can be presented by a group of attributes (x_1, \dots, x_n) and the utility which generated by each attribute can be represented by “ u ”. Hence, $u_i(x_i)$ is the utility of single attribute and $u(x_1, x_2, x_3, \dots, x_n)$ is the utility impacted by multiple attributes. Owing to the independence of each customer, the weight of each attribute is also different. In addition, we use λ to represent the relative importance of the weight and the sum of total weight is 1 ($\lambda_1 + \dots + \lambda_n = 1$). Thus, we can transform Eq.(1) to Eq.(2).

$$u(x_1, \dots, x_n) = \lambda_1 u_1(x_1) + \dots + \lambda_n u_n(x_n) \quad (2)$$

According to the basic definitions of MAUT, this study uses additively utility function to show the total utility score of positive dimension (U) at different weight including service atmosphere, service process, and service staffs. Firstly, we give each concept by different variables: service atmosphere (X_1), service process (X_2), and service staffs (X_3). Due to each customer has different preference, it satisfies preferential independence by using $\alpha_1, \alpha_2, \alpha_3$ to display the different weight of each positive dimension. Next, since each dimension has sub-dimensions (X_{11}, \dots, X_{15} , X_{21}, \dots, X_{25} , X_{31}, \dots, X_{35}), we also use β_{ij} to represent the sub-weight for each sub-dimension. Moreover, each sub-dimension can be calculated by summing the score of all single items (e.g. $X_{11}=p_{11}+\dots+p_{1m}$, $X_{21}=q_{11}+\dots+q_{1m}$, $X_{31}=r_{11}+\dots+r_{1m}$). Table 3 shows the summary of variables.

Positive Dimensions	Parameters (X_i)	Positive Dimensions Weight (α_i)	Sub-dimensions (x_{ij})	Weight of Sub-dimensions (β_{ij})	Composed items $\sum_{0 \leq j \leq n} V(i, j)$
Service Atmosphere	X_1	α_1	Vision (X_{11}) Hearing (X_{12}) Olfaction (X_{13}) Tactile (X_{14}) Taste (X_{15})	β_{11} β_{12} β_{13} β_{14} β_{15}	$X_{11}=p_{11}+...+p_{1m}$ $X_{12}=p_{21}+...+p_{2m}$ $X_{13}=p_{31}+...+p_{3m}$ $X_{14}=p_{41}+...+p_{4m}$ $X_{15}=p_{51}+...+p_{5m}$
Process	X_2	α_2	Complexity (X_{21}) Customization (X_{22}) Visibility (X_{23}) Technology (X_{24}) Interaction (X_{25})	β_{21} β_{22} β_{23} β_{24}	$X_{21}=q_{11}+...+q_{1m}$ $X_{22}=q_{21}+...+q_{2m}$ $X_{23}=q_{31}+...+q_{3m}$ $X_{24}=q_{41}+...+q_{4m}$

				β_{25}	$X_{25}=q_{51}+\dots+q_{5m}$
People	X_3	α_3	Tangibles(X_{31}) Reliability(X_{32}) Responsiveness(X_{33}) Assurance(X_{34}) Empathy(X_{35})	β_{31} β_{32} β_{33} β_{34} β_{35}	$X_{31}=r_{11}+\dots+r_{1m}$ $X_{32}=r_{21}+\dots+r_{2m}$ $X_{33}=r_{31}+\dots+r_{3m}$ $X_{34}=r_{41}+\dots+r_{4m}$ $X_{35}=r_{51}+\dots+r_{5m}$

Table 3 Variables of the model of service experience optimism

Consequently, **Eq.(3)** to **Eq.(5)** shows the sum of score for each dimension (X_1 , X_2 , X_3) and each sub-dimension (e.g., X_{1j}) is the sum of score by combining different score of items as shown in **Eq.(6)** ($X_{1j} = \sum_{j=1}^m p_j$, $X_{2j} = \sum_{j=1}^m q_j$, $X_{3j} = \sum_{j=1}^m r_j$). That is, the total score of utility can be summed by three major dimensions in **Eq. (7)**. After calculating the utility, this study puts the score of utility into crowding function (C) and waiting time function (T).

As for the crowdedness function (C), this study defines crowdedness is the ratio (d) of the number of visitors (n) and the total number which can be accommodated in the space (N) (i.e., $d = \frac{n}{N}$). The total number which can be accommodated in the space (N) is greater than the number of visitors (n). That is, the result of crowdedness is a fraction which indicates d is the range of values between 0 and 1 ($0 \leq d < 1$). In Figure 2, the horizontal axis represents the crowdedness of customer and the vertical axis represents the utility value. It shows that as the crowdedness rate increases, the utility of customer decreases. Thus, the crowdedness function (C) satisfies the law of diminishing marginal utility. We use $U^{(1-d)}$ to present that as d becomes greater, the numeric of $C(U)$ will become smaller to satisfy the law of diminishing marginal utility. In Figure 2, we assume crowding increases progressively and the utility neither decreases violently nor decreases gently but increases progressively at the normal circumstances.

In addition, there are two circumstances of $C(U)$. In the condition of not fully booked; that is, the function of crowding is $U^{(1-d)}$ when $0 \leq d < 1$. In the condition of fully booked ($d=1$), it means whether the recourse which provided by service provider or the tolerance of customer is reaches a critical value. In order to clearly distinguish the result with the situation of not fully booked; we set $\frac{1}{U}$ to express the utility of crowdedness function. Consequently, after the calculation of utility of crowdedness function, we can obtain a new value of $C(U)$ as shown in Eq. (8).

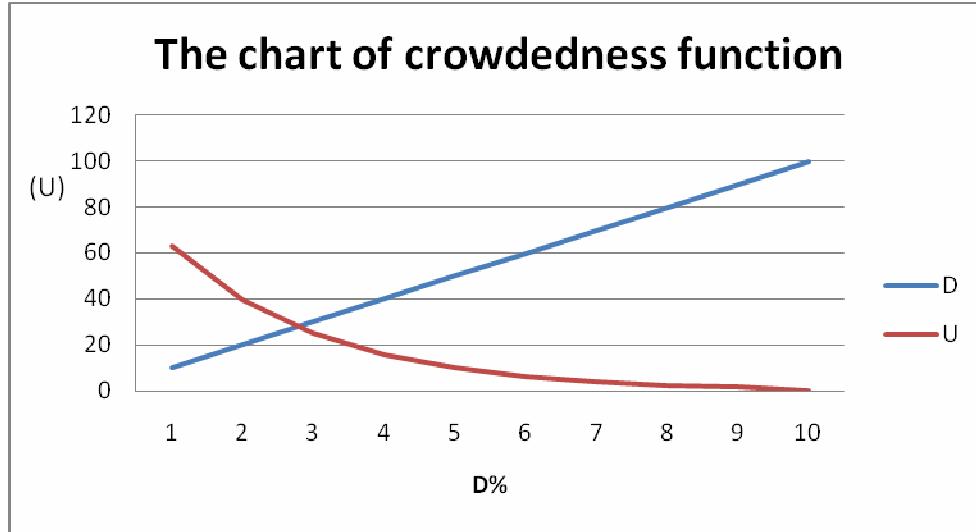


Figure 2 The chart of crowdedness function

Next, we put the new utility value ($C(U)$) into waiting time function (T). In this section, we set the maximum tolerable waiting time of customer (m) is 2hr ($0 \leq m < 2$). Parameter t expresses the waiting time and the unit is hour (hr). In Figure 3, the horizontal axis represents the waiting time of customer and the vertical axis represents the utility value under the condition of waiting time. It shows that when the waiting time increases, the utility of customer decreases. In other words, waiting time function (T) satisfies the law of diminishing marginal utility. Thus, we use $C(U)^{(1-t/m)}$ to demonstrate when t becomes greater, the value of $T(C(U))$ will become smaller to satisfy the law of diminishing marginal utility. Similarly, we assume the waiting time increases progressively and the utility neither decreases violently nor decreases gently, but increases progressively at the normal circumstances. Consequently, after the calculation of utility of waiting time function, we can obtain SEO ($T(C(U))$) as shown in Eq.(9). The summary of the variables of these two formulas are listed in Table 4.

In short, SEO according to the concept evidence of service by Zeithaml, Bitner, and Gremler (2009) based on customer perspective as the theoretical basis to be the positive factors, then add two negative factor, which are crowdedness and waiting time to assess the utility of customer from a service experience. Through the model and formula of this research, we can obtain the real data of the service experience.

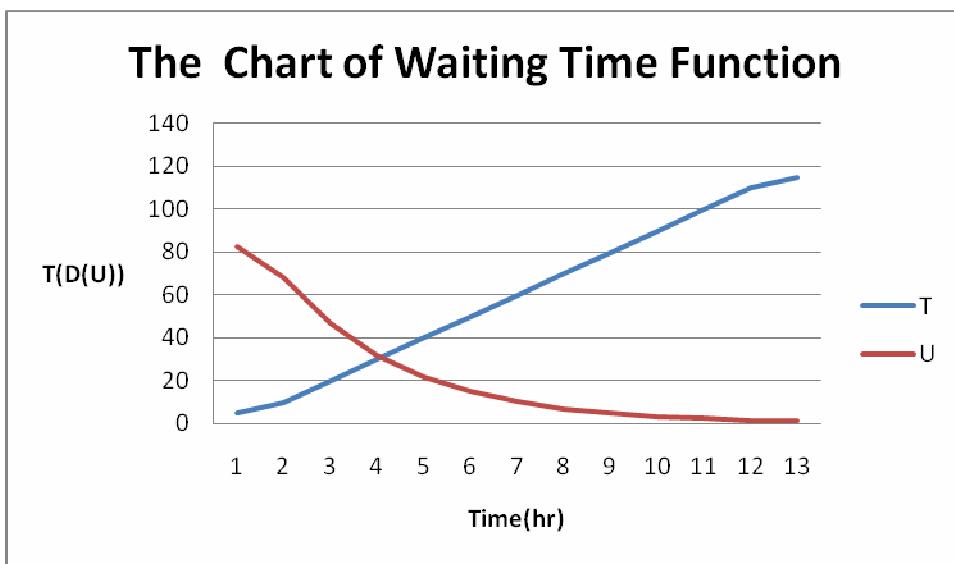


Figure 3 The chart of waiting time function

The function of crowdedness (C)	$U^{(1-d)}, 0 \leq d < 1$ $1/U, d=1$	Note
The function of waiting time (T)	$C(U)^{(1-t/m)}, 0 \leq t < m$	$U =$ Total utility of positive dimensions $d=n/N$ (n= Number of people, N= Total number of seat) $m =$ Max tolerable waiting time (min) $t =$ waiting time (min)

Table 4 Variables describe of the function of (C)&(T)

DATA COLLECTION AND DEMOGRAPHIC ANALYSIS

This study selected TASTY steakhouses in Taiwan as the example. The questionnaire design contains four parts. The first part is the perceived weight of service atmosphere, service process, and service personal from the customers. The second part is the items about TASTY in terms of 7-point Likert scale, which are 1 (strongly disagree) to 7 (strongly agree). Each sample has to answer the perceived weight of sub-dimensions. The third part of questionnaire is negative dimensions, which are crowding and waiting time. This part asks open questions because of the experience and perception are different. The final part is personal information. The samples were collected from online survey. The number of all samples is 390 and the valid samples are 345. 52% is male and 48% is female. The age of 63% customers is between 18 to 24 years old, 31% of 25 to 34 years old, and the 6% of others. In addition, 66% is students and 34% is workers. In detailed, 21% workers are from industrial, commercial and service field, and 13% is from the career about military, government, teach, and self-employed. The value of Cronbach's Alpha for all dimensions is 0.96. Consequently, the questionnaire has high internal consistency and high reliability.

STATISTICAL ANALYSIS AND RESULTS

The first part of statistic is the weight of major dimensions. the percentages of weight for each major dimension from most customers are people (0.4), service process (0.3), and service atmosphere (0.3). According to the collected data, we can infer that personal service is the most important dimension. At the part of sub-dimension of service atmosphere, the sequence of weight for sub-dimensions of service atmosphere is Taste > Vision > Olfaction > Hearing > Tactile; the sequence of weight for service process is Interaction>Customization>Visibility >Complexity> Technology; the sequence of weight for people is Reliability>Empathy>Assurance>Responsiveness>Tangibles.

On the other hand, 94% of customers feel that the crowding of the restaurant is over 60% at the time when they are having the meal. According to the proposed model, $C(U)= U^{(1-d)}$, if d is bigger, $C(U)$ will be smaller. Waiting time is divided into two situations, having reservation and without reservation. At the situation of without reservation, 75% of customers should wait from 0 to 30 minutes and 73% of customer's maximum tolerance time without reservation is also 0 to 30 minutes. At the situation of having reservation, 22% of customers have zero waiting time, but still 77% of customers have to wait from 3 to 30 minutes, and 81% of customer's maximum tolerance time for having reservation is from 1 to 15 minutes, and 18% of customers is from 16 to 30 minutes.

Finally, we will compare the value of *SEO* for two situations (with/out reservation). the results show *SEO* at the situation without reservation, there are 5% of customer's *SEO* is greater than 2, 57% of customers is between 1.01 to 1.99, 21% of customers is equal to 1, and 17% of customers is between 0.01 to 0.99. At the situation with reservation, there are 9% of customer's *SEO* is greater than 2, 63% of customers is between 1.01 to 1.99, 19% of customers is equal to 1, and 8% of customers is between 0.01 to 0.99. When the value of *SEO* is between 0.01 to 0.99, it indicates waiting time is bigger than the customer's maximum tolerance time. when the value of *SEO* equals to 1, it means waiting time equals to customer's maximum tolerance time; when the value of *SEO* is greater than 1, it stands for the waiting time is tolerable for customer. Thus, *SEO*=1 is the boundary for customer to accept or not.

Female has no reservation, the rates among total value of *SEO* while *SEO*=0.01 to 0.99 and *SEO*=1 are 19% and 28% which are greater than male (15% and 15% respectively). In addition, the rates among total value of *SEO* while *SEO*=1.01 to 1.99 and *SEO* above 2 are 50% and 3%, which are less than male (64% and 6% respectively). According to the data, we can infer

female has lower value of SEO to service experience in TASTY steakhouse and have the reservation could improve the situation of dissatisfied.

At the part of students have no reservation, the rates among total value of SEO while SEO=0.01 to 0.99, and SEO=1 are 15% and 21%, which are less than non-student (19% and 22% respectively). Moreover, the rates among total value of SEO while SEO=1.01 to 1.99 and SEO above 2 are 58% and 6%, which are greater than non-student (56% and 3%). According to the data, we can infer students have superior value of SEO to service experience in TASTY steakhouse, and having a reservation could improve the situation of dissatisfied.

As for the customers who have higher education such as master without reservation, the rates among total value of SEO while SEO=0.01 to 0.99 and SEO=1 are 21% and 22%, which are greater than other customers (15% and 21%). Moreover, the rates among total value of SEO while SEO=1.01 to 1.99 and SEO above 2 are 51% and 5%, which are less than non-master customer (60% and 5%). According to the data, we can infer customers have higher education like master have the lower value of SEO to service experience in TASTY steakhouse; likewise, having a reservation could improve the situation of dissatisfied.

DISCUSSION

According to the analysis, for TASTY steakhouse, we can provide several conclusions.. The SEO value of male is greater than female; the SEO value of student is greater than non-student; the SEO value of non-master customer is greater than other customers. On the other hand, reservation and crowdedness are two important factors may impact the value of SEO. In addition, TASTY steakhouse could furnish appropriate strategy to reinforce the service quality and competitive advantage of company.

This research develops a model called “service experience optimism” from the viewpoint of customers. The proposed model also provides a direction to measure the quality of service experience in different service domain. Since the dimensions are designed for restaurant service, the measurement for the other service domain should adjust based on different needs.

By quantifying utility value (SEO), service providers can obtain the perceptions from customers. By the statistics of dimensions and sub-dimensions, we discover which service items or factors customers pay more attention. According to the survey, service providers could revise the business model or operating strategies. From the result of positive dimensions, service providers can understand which factors should enhance; from the result of negative dimensions can observe the customer's average tolerance value of each negative dimension to adjust.

One of the contributions of this research is offering a method that service firms can compare with the benchmark companies. On the other hand, it also can use to compare with the competitors to find the problems or the sticking point of the breakthrough.

Finally, this research provides a more flexible tip calculation formula which is based on customer view point. The new model for tip calculation is as follows.

$$\text{Adjusted tips} = \text{Percent of tips} \times \frac{\text{SEO}}{\text{SEO (Max)}}$$

For example, a customer will go to a restaurant to have lunch. If the number he spends is \$15 and the value of his service experience is SEO=1.75 (while the best evaluation of this restaurant is SEO=2); hence, the tip for this customer is \$1.69.

$$15 \times 15\% \times \frac{1.75}{2} = 1.69$$

Sometimes we give the tips, but the service quality is not good or the service quality is over the perceived value. In order to make the service level becomes more competitive and different, SEO could be the basis to adjust the tips calculation.

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