How Are Shopping Experiences Evaluated? A Methodological Proposal to Understand Consumers as Shoppers

Naoki Nagashima
Toyo University

Biswajit Nag
Indian Institute of Foreign Trade

Yoshie Nagashima
Daito Bunka University

Based on a PC-shopper survey, this study examines how consumers evaluate their shopping experiences. Findings are 1) according to an regression analysis, where overall evaluation is explained by the process and result, the result is asymmetric in that the negative effect is greater in magnitude than the positive effect. 2) If the process is divided into three stages; the beginning, middle, and final, the evaluation focus of which is responsiveness, assurance, and empathy respectively, the beginning stage shows asymmetry in explaining the process evaluation. 3) A poor evaluation in the beginning stage strengthens the negative effect of latter stages.

INTRODUCTION

Now that the economic policies of India are led by the new BJP government, more open-up policies than ever before are expected for foreign direct investment. Among them are those of foreign modern retailers, such as super markets, hyper markets, shopping malls and convenience stores. Whileforeign retail giants have focused primarily on regulations, tax system, merchandising customs, infrastructure, and so on, it is also necessary to deeply understand the characteristics of consumers they are going to target. For instance, Sinha (2003) notes that about 40% of Indian shoppers enjoy shopping, seeking emotional value, rather than simply try to shop with least effort, and that modern retailers tend to attract the former type of shoppers. However, according to Nagashima (2013), Indian people of the middle income class living in the urban area tend to attach much importance to speed and responsiveness in their shopping process. It is possible that shoppers' focus of interest is different among each stage of the process. Nagashima (2009) found out the qualitative characteristics of Japanese shoppers; the evaluation focus transits from "Responsiveness" to "Assurance" and finally to "Empathy," as the shopping process proceeds from the beginning, middle and to the final stage. Following this qualitative trait of Japanese shoppers, this study addresses the quantitative impact of each stage's evaluation on overall evaluation of the shopping experience. This approach should be useful to understand consumers' characteristics as shoppers, including those in emerging markets.

PRECEDING STUDIES

Studies on service evaluation model are tremendous in number. Here, related to this study, we will review studies on the expression of service processes, evaluation of experiences, and asymmetry and nonlinearity with respect to evaluation. From the viewpoint of expressing service processes, there are a series of studies on service blueprinting (Shostack 1984, 1992; Kingman-Brundage 1989; Bitner, Ostrom, & Morgan 2008 etc.) The purpose of these studies is mainly to make the structure of services visible, and to contribute to effective management. In order to evaluating services with emphasis on processes, the idea used by blueprinting that a customer process can be divided into several steps is applicable.

Studies on the evaluation of experiences have been conducted mainly in the field of cognitive psychology. For instance, Kahneman (1999) developed so-called “Peak-end rule” from a series of experiments of medical treatment. This rule states that goodness/badness of experience is determined not by the length of the period or the average of goodness, but by the best/worst moment and the end of the period. Kahneman (1999) regards the process of experience as continuous time flow. In the case of service experience, however, it will be more appropriate for the process to be divided into some stages along customer processes, since each stage has its own different feature or purpose.

Among scarce studies that focus service processes in evaluating services, Stauss & Weinlich (1997) analyzes a part of service process of a package tour by dividing the process into several steps. Then this study applies CIT (Critical Incident Technique) to each step, and concluded that steps that are usually considered negligible can have a significant impact on overall evaluation. Nagashima (2010) also conducted empirical analyses about four services, and confirmed significant impact on overall evaluation by each stage. However, since both Stauss et al. (1997) and Nagashima (2010) do not examine asymmetry and nonlinearity, it should be said that at least one of the important features of stages remains unexplored.

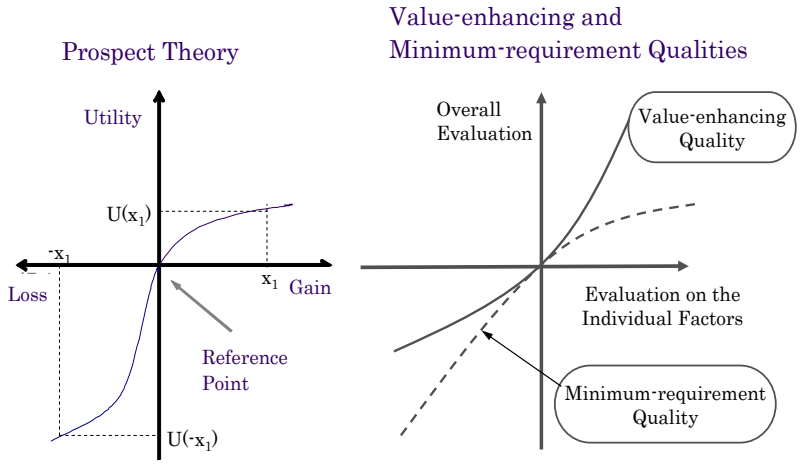
An epoch-making study, Kahneman & Tversky (1979), proposed "Prospect theory" and motivated economists to reconsider utility function typically used in economics. The principle ideas of this theory can be characterized in the "Value function," that has "Reference point" which is neither loss nor profit, and expresses asymmetry and nonlinearity. It is asymmetric in the sense that negative effect overweighs the positive effect. For example, the regret of $100 loss is more than the pleasure of $100 gain in magnitude. This observation is called "Loss-aversion." In addition, "Value function" expresses nonlinearity in the sense that utility shows diminishing sensitivity both for gain and loss as they become larger. For example, the regret (pleasure) of $200 loss (gain) is less than twice the regret (pleasure) of $100 loss (gain) in magnitude. This trait renders utility risk-averse in the gain-domain and risk-loving in the loss-domain.

Cognitive asymmetry and nonlinearity and the existence of "Reference point" in evaluation, studied primarily in the field of cognitive psychology and behavioral economics, influenced scholars of consumer behavior and marketing since 1980s, and motivated such studies as reference price.

Mittal, Ross, & Baldasare (1998) is a representative example that studies asymmetry and nonlinearity in service evaluation. Based on empirical analyses of primary medical care visitors and automobiles purchasers, they confirmed asymmetric response of overall evaluation to each attribute -level evaluation; i.e. negative effects overweigh the positive effects. In addition, as for nonlinearity, overall evaluation shows diminishing sensitivity for attribute-level evaluations only in the positive domain. In the negative domain, overall evaluation does not show diminishing sensitivity, instead, the relationship is linear.

Above mentioned Stauss et al. (1997) indicates different type of asymmetry and nonlinearity. Based on the fact that reasons for goodness and those for badness are quite different in CIT analyses, they suggest the existence of Minimum-requirement qualities and Value-enhancing qualities. The former qualities cause reasons for badness if they fall short of expectation, and the latter cause reasons for goodness if they exceed expectation. While "Prospect theory" prepositioned only decreasing impact of gain/loss on utility, Stauss et al. (1997) points out both decreasing and increasing impacts, although it does not consider “Reference point.” Figure 1 shows the concepts of “Value function in Prospect theory” and “Minimum-requirement and Value-enhancing qualities.”

FIGURE 1
THEORIES ON COGNITIVE ASYMMETRY AND NONLINEARITY



(1997)

Note. Described based on Kahneman et al. (1979) and Stauss et al. (1997). Suppose an ordinary utility function, U(x)(x: asset level or gain/loss), U'(x)>0 and U"(x)<0 holds for any x. In "Prospect theory"(left figure), U'(x)>0 holds for any x. But let x=0 be the reference point, asymmetric feature that $U(x_1)<|U(-x_1)|$ for $x_1>0$ is observed. Also it is nonlinear in that U"(x)>0 for x<0 and U"(x)<0 for x>0. In value-enhancing and minimum-requirement qualities (right figure), they do not include the concept of reference point. Both qualities are common in that U'(x)>0 for any x, but for value-enhancing qualities U"(x)>0 holds, while for minimum-requirement qualities, U"(x)<0 holds for any x.

SETTING MODELS

Purposes of This Study

In this study, according to Grönroos (1984), a service is evaluated by the result and the process of the service. In addition, the service process consists of several steps, and then integrated into three major stages, i.e. the beginning, middle, and final stages (Figure 2). Using this framework, this study is aiming at examining 1) Whether the result and the process of the service have asymmetric and/or nonlinear impact on the overall evaluation, 2) Whether the beginning, middle, and the final stages have asymmetric and/or nonlinear impact on the evaluation of the service process.

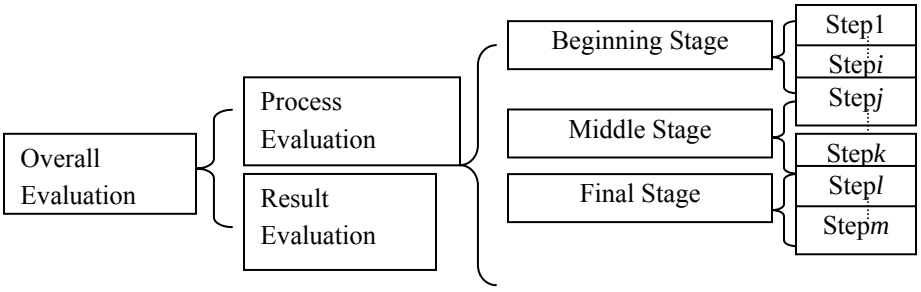
There are five paths of impact, i.e. impact from the result and the process on the overall evaluation, and impact from the beginning, middle, and final stages on the process evaluation. Is each path of impact asymmetric and/or nonlinear? Are they functions expressed by the "Prospect theory"? Or do some of them have increasing impact similar to the value-enhancing qualities? They will be empirically tested. In addition to analyzing the difference among three stages, it will be tested whether the evaluation of a stage will affect the impact of the subsequent stages. This effect will be called the "Hysteresis effect" hereafter.

While asymmetry is a simple concept, nonlinearity is not always so. With respect to the "Prospect theory" nonlinearity is the relationship between gain/loss and utility, that is one-to-one ($R^1 \rightarrow R^1$) relationship and it is simple and clear. Yet, the relationship between the elements and the total is plural-to-one ($R^n \rightarrow R^1$). This is the similar case to production function or multi-attribute utility function.

When multi-factors decide the overall evaluation, it is often taken for granted that a factor has a decreasing impact on the overall evaluation[1]. Mittal et al. (1998), for instance, regards the impact nonlinear if it is decreasing, i.e. the elasticity of the overall evaluation with respect to a certain factor is

less than one. However, since this is a $R^n \rightarrow R^1$ function, it should be judged by the criterion, assuming a homogeneous function, whether its parameters as a whole show the homogeneity degree of less than one (below HGD1, hereafter). Three models to test asymmetry and nonlinearity are set as follows.

FIGURE 2
CONCEPT OF THE MODEL



Note. Described by the author based on Grönroos (1984). The typical service process is considered to be divisible into several steps, and then integrated into three major stages. The figure above indicates that the beginning stage consists of Step1～*i*, the middle of Step *j*～*k*, and the final of Step *l*～*m*.

Model 1: "Prospect Theory" as a Whole

First, the overall evaluation is the perceived benefit. This benefit, the dependent variable, is explained by the result and the process evaluations, the independent variables. These independent variables are divided into positive and negative ones, so that asymmetry and nonlinearity can be tested.

Positive portion in the Model 1 is the aggregation of the parts above the reference point. Negative portion is the aggregation of the parts below the reference point, and the number itself is positive. Therefore, the signs of parameters are theoretically $\beta_1>0$, $\beta_2<0$, $\beta_3>0$, and $\beta_4<0$. Asymmetry hypothesis can be expressed as $\beta_1<|\beta_2|$ and $\beta_3<|\beta_4|$. Nonlinearity hypothesis is that of below HGD1, and can

＜Model 1＞

$$\ln(\text{Perceived benefit}) = \beta_0 + \beta_1 \ln(\text{Process evaluation: Positive portion}) + \beta_2 \ln(\text{Process evaluation: Negative portion}) + \beta_3 \ln(\text{Result evaluation: Positive portion}) + \beta_4 \ln(\text{Result evaluation: Negative portion}) + \varepsilon_1 \quad (1)$$

Note. ln（ ）means the natural logarithm of the variable in the parenthesis. The same applies for the expressions hereafter.

be expressed as $\beta_1+\beta_3<1$ (positive side), $|\beta_2|+|\beta_4|<1$ (negative side). If these conditions are satisfied, $|\beta_j|<1$, $j=1,\cdots,4$, which Mittal et al. (1998) analyzed, will also be satisfied, so long as the parameter signs are consistent with those theoretically assumed. This means the former is a satisfactory condition to the latter.

Model 2: Different Characteristics among Three Stages

While Model 1 analyzes asymmetry and nonlinearity as a whole, Model 2 focuses on analyzing the differences among three stages, the beginning, the middle, and the final stages. Three stages may indicate different characteristics in asymmetry and nonlinearity, since the focuses to be evaluated are different among three stages. For example, Nagashima (2009) states that the beginning stage is evaluated mainly by responsiveness, the middle by assurance, and the final by empathy shown by service providers and perceived by customers. Model 2 is defined as follows. The overall evaluation here is the process evaluation of the service concerned.

Positive portion in Model 2 is the aggregation of the parts above the reference point of the stage

concerned, since each stage consists of two steps, as mentioned afterwards. Similarly, negative portion means the aggregation of the parts below the reference point of the stage concerned, and the number itself is positive. Therefore, parameters are theoretically, $\beta_1>0$, $\beta_2<0$, $\beta_3>0$, $\beta_4<0$, $\beta_5>0$, and $\beta_6<0$.

Asymmetry hypothesis, if applied to all stages, can be expressed as $\beta_1<|\beta_2|$, $\beta_3<|\beta_4|$, and $\beta_5<|\beta_6|$. On the other hand, nonlinearity hypothesis of the positive part is $\beta_1+\beta_3+\beta_5<1$, and that of the negative part is $|\beta_2|+|\beta_4|+|\beta_6|<1$. Similar to nonlinearity hypothesis in Model 1, this

＜Model 2＞

ln（Process evaluation）$=\beta_0+\beta_1$ ln（the beginning stage: Positive portion）
$+\beta_2$ ln（the beginning stage: Negative portion）
$+\beta_3$ ln（the middle stage: Positive portion）
$+\beta_4$ ln（the middle stage: Negative portion）
$+\beta_5$ ln（the final stage: Positive portion）
$+\beta_6$ ln（the final stage: Negative portion）$+\varepsilon_2$ (2)

means the function is below HGD1. Theses nonlinear conditions satisfies $|\beta_j|<1$, $j=1,\cdots,6$, if the parameter signs are consistent with those theoretically assumed. In addition, if factor k has an increasing impact, as in the value-enhancing quality, $|\beta_k|>1$ will be observed.

Model 3: Hysteresis Effects

Evaluation of a service involves an evaluation of an experience. Regarding evaluating experiences, Kahneman (1999) for example, suggests “Peak-End Rule.” In the context of providing services, service providers often say, “If we fail to satisfy customers in the first customer contact, that awkwardness lingers and it is so hard to gain a high overall evaluation.” This can be interpreted as cut-off effect in the sense that a low score in the beginning stage cannot be recovered by high scores of the subsequent stages. In other words, non-recoverability means a model of non-compensation.

This cut-off effect or non-recoverability is a part of the “Hysteresis effect” that this study analyzes. The “Hysteresis effect” examined in this study is that an evaluation of a stage affects the parameters of subsequent stages both in positive and negative ways. More specifically, does an evaluation of the beginning stage affect the parameters of the middle and/or the final stage? How about an evaluation of the middle stage? Does that affect the parameters of the final stage?

Not only cut-off effects that a badness of former stages cannot be compensated by goodness of latter stages but also cumulative effects that a badness of former stages may strengthen the badness of latter stages on the overall evaluation, will be tested. Namely, the “Hysteresis effect” is an interaction effect with time order, and Model 3 is defined by using dummy variables as below.

＜Model 3＞

ln（Process evaluation）$=\beta_0+\beta_1$ ln（the beginning stage: Positive portion）
$+\beta_2$ ln（the beginning stage: Negative portion）
$+\beta_3$ ln（the middle stage: Positive portion）
$+\beta_4$ ln（the middle stage: Negative portion）
$+\beta_5$ ln（the final stage: Positive portion）
$+\beta_6$ ln（the final stage: Negative portion）
$+\delta_1$ dum_beg＊ln（the middle stage: Positive portion）
$+\delta_2$ dum_ beg＊ln（the middle stage: Negative portion）
$+\delta_3$ dum_mid＊ln（the final stage: Positive portion）
$+\delta_4$ dum_ mid＊ln（the final stage: Negative portion）
$+\delta_5$ dum_ beg＊ln（the final stage: Positive portion）
$+\delta_6$ dum_ beg＊ln（the final stage: Negative portion）$+\varepsilon_3$ (3)

Note. dum_beg: Dummy of the beginning stage (0: below the reference point, 1:same or above)
dum_mid: Dummy of the middle stage (0: below the reference point, 1:same or above)
The reference point here is the point evaluated neither positively nor negatively.

The “Hysteresis effect” will be detected if the null hypothesis that the dummy variables, δ_j

(j＝1,・・・・,6), are simultaneously equal to zero is rejected. For instance, if $\delta_1>0$ is detected by a statistical test, the hysteresis from the beginning to the middle stage is interpreted as follows. When the evaluation of the beginning stage is bad, that is below the reference point, the impact of goodness of the middle stage on the overall evaluation is β_3. Yet, when the evaluation of the beginning stage is good, that is the same as or above the reference point, the impact of goodness of the middle stage on the overall evaluation will be improved to be $\beta_3 + \delta_1$. If explained the same thing from another side, when the evaluation of the beginning stage is bad, the impact of goodness of the middle stage on the overall evaluation will be deteriorated by δ_1. This is an example of a cut-off effect, i.e. when the middle stage is positively evaluated.

When the middle stage is negatively evaluated, an example of a cumulative effect, will be explained as follows. This is the case if the dummy variable $\delta_2>0$ is detected. When the evaluation of the beginning stage is bad, that is below the reference point, the impact of badness of the middle stage on the overall evaluation is $\beta_4(<0)$. Yet, when the evaluation of the beginning stage is good, that is the same as or above the reference point, the impact of badness of the middle stage on the overall evaluation will be mitigated to be $\beta_4+\delta_2$. If explained the same thing from another side, when the evaluation of the beginning stage is bad, the impact of badness of the middle stage on the overall evaluation will be strengthened by δ_2.

Above explanations are about the hysteresis from the beginning to the middle stage. The same way of explanation can be applied to the hysteresis from the beginning to the final, and from the middle to the final stages.

METHOD OF RESEARCH

Analyzed Services and Setting Steps

In order to analyze Model 1-3 in the previous section, a questionnaire survey was conducted on personal computer purchasers, one group purchased from online shops, the other group from real electric retail stores (retail stores, hereafter). The reasons for choosing these services are that the period of the service process is rather short, and that the typical process can be easily expressed in such way as service blueprinting. The purpose of using these services is common, obtaining a needed personal computer, but they are different in that one is a non-face-to-face and the other is a face-to-face service. Recently, self-services are prevailing and comparing non-face-to-face and face-to-face services may provide useful information to business practice[2].

TABLE 1
STEPS IN SERVICE PROCESS FOR ONLINE SHOPS

Beginning Stage
- Step1 Searching for the top menu from which consumers begin searching and grasp general ideas about product line-ups and prices
- Step2 After grasping the general idea, then narrowing the product target

Middle Stage
- Step3 Checking the details, such as delivery service fee, guarantee, word of mouth, decide the product and the shop.
- Step4 Inputting necessary information from the screen as a purchasing procedure

Final Stage
- Step5 Order confirmation mail, delivery status mail, and so on.
- Step6 Delivery and follow-ups if necessary

STEPS IN SERVICE PROCESS FOR RETAIL STORES

Beginning Stage
- Step1 Before arriving at the sales counter (about 30 minutes before arriving)
- Step2 Migration around the sales counter

Middle Stage
- Step3 Explanation by and Q&A with a sales staff
- Step4 narrowing the target, and deciding the product to buy

Final Stage
- Step5 payment at the cashier, applying for the delivery service
- Step6 leaving the shop, and follow-ups if necessary

Note. Described by the authors based on interviews and checked by the survey.

A questionnaire survey is conducted on each service. Survey samples are extracted from about a half million monitors, named "iMi Net Monitors." The survey target is adults over 20 years old and experienced the service concerned in three months. A pre-survey is conducted to extract those who meet above conditions and are willing to reply to further questions in detail. The final survey succeeded in securing more than 1,000 samples on each service.

The purpose and therefore the result of both services are obtaining a personal computer, which is set as Step 7, the last step. The service processes of these services are set as Step 1-6 as in Table 1. According to the feature of evaluation focus, these steps are integrated into three stages. Step 1-2 is defined as the beginning stage the evaluation focus of which is speed and responsiveness. Step 3-4 is the middle stage the evaluation focus of which is mainly assurance, knowledge, or expertise. Step 5-6 is the final stage the evaluation focus of which is mainly empathy provided by service staffs and perceived by customers[3].

Data

The questionnaire survey asks respondents about the perceived benefit of the service they experienced, the evaluation on the result, that on the process as a whole, and that on each step of the process. The perceived benefit is the overall evaluation of Model 1, that includes the satisfaction with the personal computer she obtains and evaluation on how she obtains that PC. This becomes the dependent

variable of Model 1 after necessary transformation.

The evaluation on the whole process is the overall evaluation of Model 2 and Model 3, and becomes the dependent variable of each model after necessary transformation. Two services have different processes, so the wording of each question also differs. For online shops, the question is "Please evaluate the service process, such as the proceedings of the screen, acknowledgement mail, delivery service, and so on." For retail stores, the question is "Please evaluate the service process, such as comfort in the shopping area, explanation by and Q&A with the sales staff, smoothness of casher, and so on." Evaluation on each step is questioned after each step is presented.

The perceived benefit, the evaluation on the result, that on the process, and that on each step are all requested to answer on a scale of a hundred points. However, the neutral point that is neither good nor bad may differ depending on respondents' way of thinking. Some will consider the neutral point to be 50, the other will say that is 70. Therefore, a guideline is shown to respondents and asks them to rate 100 if the target is outstanding and moving, 0 if it is terrible and out of the question, and 60 if it is neither good nor bad. This level, 60, is to be regarded as the reference point. The evaluation of each stage is the average of corresponding steps. Positive portion is the aggregate above 60, and the negative portion is the aggregate below 60. Both are positive numbers[4].

In Model 3, dummy variables are used to test the "Hysteresis effects." The dummy on the beginning stage is 1 if the sample's evaluation on the beginning stage is the same or above 60, and 0 if it is below 60. The dummy on the middle stage is defined in the same manner.

RESULTS

Model 1 estimates the effects of the process and the result evaluations on the overall evaluation, i.e. the perceived benefit. In Table 2, parameter estimators indicate that the perceived benefit is affected most when the result is negative, i.e. the personal computer she has purchased is unsatisfactory. The second most influential factor is the negative process evaluation. The least influential factor is the positive result evaluation, and the estimator is statistically insignificant.

With regard to asymmetry, the statistical test has detected the asymmetric impact of the result evaluation on the overall evaluation. This means that while dissatisfaction with the PC purchased is directly associated with the overall dissatisfaction, so long as the PC is good enough to reach the reference point, higher evaluation than that does not contribute to improving the overall evaluation. On the other hand, statistical tests did not detect asymmetry of the path from the process evaluation to the overall evaluation. This means that the evaluation of the process, which is good or bad, improves or deteriorates the overall evaluation to a similar degree. As for nonlinearity, it is detected both on the positive and negative sides. These observations are common for both services.

Model 2 is estimating the effects of the evaluations of three stages on the process evaluation as a whole. First, looking into the case of online shops in Table 3, the effect of positive portion (positive effect, hereafter) is statistically significant at the 5 percent level[5] only in the final stage. Namely, positive evaluations on email of order confirmation, delivery notice, and smoothness of delivery matter. The higher they are, the higher the process evaluation is. On the other hand, the effect of negative portion (negative effect, hereafter) is statistically significant in every stage. Particularly, the parameter estimator of the beginning stage is large. This means that a negative evaluation on screening PCs after browsing the top menu is directly associated with the low evaluation on the whole process.

As for the case of retail stores, being similar to the case of online shops, the positive effect is statistically significant only in the final stage, including payment at the casher and delivery service, etc. Also, the negative effect is significant in every stage. Being different from online shops, among parameter estimators that indicate negative effects, that of the middle stage is largest. This implies that a low evaluation on the interaction with sales staffs etc. most deteriorates the process evaluation.

TABLE 2
RESULT OF MODEL 1: ASYMMETRIC FEATURES AS A WHOLE

＜Online shops＞

Number of Samples : 1,052
Dependent Variable : Perceived Benefit

Parameters : Independent Variables	Parameter Estimator	p-value
β_0 : Intercept	4.098	0.000
β_1 : Process: Positive Portion	0.084	0.000
β_2 : Process: Negative Portion	-0.082	0.000
β_3 : Result: Positive Portion	0.018	0.200
β_4 : Result: Negative Portion	-0.219	0.000
Coefficient of Determination	0.314	
Same (degree of freedom adjusted)	0.311	

Tests for Asymmetry

	Degree of Freedom	p-value
Process	(1, 1047)	0.946
Result	(1, 1047)	0.000

Tests for Nonlinearity

	Degree of Freedom	p-value
Positive Side	(1, 1047)	0.000
Negative Side	(1, 1047)	0.000

＜Retail stores＞

Number of Samples : 1,052
Dependent Variable : Perceived Benefit

Parameters : Independent Variables	Parameter Estimator	p-value
β_0 : Intercept	4.146	0.000
β_1 : Process: Positive Portion	0.054	0.002
β_2 : Process: Negative Portion	-0.069	0.000
β_3 : Result: Positive Portion	0.028	0.053
β_4 : Result: Negative Portion	-0.089	0.000
Coefficient of Determination	0.216	
Same (degree of freedom adjusted)	0.213	

Tests for Asymmetry

	Degree of Freedom	p-value
Process	(1, 1047)	0.649
Result	(1, 1047)	0.026

Tests for Nonlinearity

	Degree of Freedom	p-value
Positive Side	(1, 1047)	0.000
Negative Side	(1, 1047)	0.000

Note. Estimation method is ordinary least squares. Same for Table 3 and 4.
All variables except for intercepts take natural logarithm. Same for Table 3 and 4.
Dependent variables are added to one to prevent from invalidating logarithm. Same for Table 3 & 4.
F tests are used for testing asymmetry and nonlinearity. Same for Table 3.

With regard to asymmetry, inferred from the parameter estimators, the conspicuous asymmetry is shown in the beginning stage. It applies to the beginning stages of both services that a low evaluation decisively causes to deteriorate the overall evaluation in contrast to the ineffectiveness of the evaluation that is higher than the reference point. This so called "Loss aversion" is one of the typical features of "Prospect theory." This asymmetry does not exist in the middle stage of online shops and the final stages of both services. Regarding the final stage of retail stores, the positive effect outweighs the negative effect in magnitude, although the impact is decreasing and so it is not a value-enhancing quality.

The results of statistical tests shown in Table 3 also indicate the existence of asymmetry for the beginning stages of both services and the middle stage of retail stores. It also coincides with what are observed in parameter estimators that there is no asymmetry for the middle stage of online shops and the final stages of both services. The tests, in addition, proved the existence of nonlinearity for both negative and positive sides of both services.

Model 3 examines the "Hysteresis effect" that the evaluation of the former stage affects the parameters of latter stages. The results are shown in Table 4. For the case of online shops, the hysteresis from the beginning stage to the negative effect of the final stage is statistically significant. That is, if the beginning stage, such as starting a search from the top menu, is poorly evaluated, the negative effect of the final stage is strengthened.

For the case of retail stores, the hysteresis from the beginning stage to the negative effect of the middle stage is statistically significant. That is, if the beginning stage, such as approaching the sales counter, is poorly evaluated due to crowdedness or so, the negative effect of the middle stage is strengthened. In both services, therefore, cumulative effects are observed.

However, the hysteresis effect is observed only in one path out of six possibilities of each service. This means that the compensatory model like Model 2 works to a considerable extent. It can also be said that the cut-off effect that a failure in the former stages cannot be compensated by goodness of latter stages, a phenomenon that is frequently mentioned by business practitioners, is not detected by statistical tests. Hence, it is inferred that the phenomenon practitioners often refer to is caused not by a cut-off effect but by the inerasable magnitude of negative effect of the beginning stage. In fact, the beginning stage, the

evaluation focus of which is speed and responsiveness, has a large negative effect if the evaluation is below the reference point as shown in "Prospect theory."

TABLE 3
RESULT OF MODEL 2: DIFFERENCES AMONG THREE STAGES

＜Online shops＞

Number of Samples : 1,052
Dependent Variable : Process Evaluation

Parameters : Independent Variables	Parameter Estimator	p-value
β_0 : Intercept	4.007	0.000
β_1 : Beginning Stage・Positive Portion	0.009	0.721
β_2 : Beginning Stage・Negative Portion	-0.177	0.000
β_3 : Middle Stage・Positive Portion	0.054	0.078
β_4 : Middle Stage・Negative Portion	-0.090	0.031
β_5 : Final Stage・Positive Portion	0.067	0.009
β_6 : Final Stage・Negative Portion	-0.103	0.002
Coefficient of Determination	0.247	
Same (degree of freedom adjusted)	0.225	

Tests for Asymmetry

	Degree of Freedom	p-value
Beginning Stage	(1, 1045)	0.000
Middle Stage	(1, 1045)	0.597
Final Stage	(1, 1045)	0.413

Tests for Nonlinearity

	Degree of Freedom	p-value
Positive Side	(1, 1045)	0.000
Negative Side	(1, 1045)	0.000

＜Retail stores＞

Number of Samples : 1,052
Dependent Variable : Process Evaluation

Parameters : Independent Variables	Parameter Estimator	p-value
β_0 : Intercept	4.121	0.000
β_1 : Beginning Stage・Positive Portion	0.003	0.838
β_2 : Beginning Stage・Negative Portion	-0.214	0.000
β_3 : Middle Stage・Positive Portion	0.021	0.184
β_4 : Middle Stage・Negative Portion	-0.264	0.000
β_5 : Final Stage・Positive Portion	0.062	0.024
β_6 : Final Stage・Negative Portion	-0.058	0.031
Coefficient of Determination	0.356	
Same (degree of freedom adjusted)	0.327	

Tests for Asymmetry

	Degree of Freedom	p-value
Beginning Stage	(1, 1045)	0.000
Middle Stage	(1, 1045)	0.000
Final Stage	(1, 1045)	0.943

Tests for Nonlinearity

	Degree of Freedom	p-value
Positive Side	(1, 1045)	0.000
Negative Side	(1, 1045)	0.000

TABLE 4
RESULT OF MODEL 3: HYSTERESIS EFFET

Number of Samples : 1,052
Dependent Variable : Process Evaluation

Parameters : Independent Variables	Parameter Estimator	p-value
β_0 : Intercept	4.028	0.000
β_1 : Beginning Stage・Positive Portion	0.008	0.808
β_2 : Beginning Stage・Negative Portion	-0.175	0.000
β_3 : Middle Stage・Positive Portion	0.046	0.522
β_4 : Middle Stage・Negative Portion	-0.079	0.127
β_5 : Final Stage・Positive Portion	0.066	0.048
β_6 : Final Stage・Negative Portion	-0.118	0.036
δ_1 : Dum_beg × Middle Stage・Positive Portion	0.028	0.495
δ_2 : Dum_beg × Middle Stage・Negative Portion	0.052	0.591
δ_3 : Dum_mid × Final Stage・Positive Portion	0.037	0.540
δ_4 : Dum_mid × Final Stage・Negative Portion	-0.021	0.574
δ_5 : Dum_beg × Final Stage・Positive Portion	-0.004	0.944
δ_6 : Dum_beg × Final Stage・Negative Portion	0.110	0.039
Coefficient of Determination	0.362	
Same (degree of freedom adjusted)	0.321	

Number of Samples : 1,052
Dependent Variable : Process Evaluation

Parameters : Independent Variables	Parameter Estimator	p-value
β_0 : Intercept	4.136	0.000
β_1 : Beginning Stage・Positive Portion	0.011	0.273
β_2 : Beginning Stage・Negative Portion	-0.158	0.016
β_3 : Middle Stage・Positive Portion	0.016	0.192
β_4 : Middle Stage・Negative Portion	-0.328	0.000
β_5 : Final Stage・Positive Portion	0.148	0.022
β_6 : Final Stage・Negative Portion	-0.107	0.044
δ_1 : Dum_beg × Middle Stage・Positive Portion	0.063	0.333
δ_2 : Dum_beg × Middle Stage・Negative Portion	0.169	0.014
δ_3 : Dum_mid × Final Stage・Positive Portion	-0.061	0.509
δ_4 : Dum_mid × Final Stage・Negative Portion	0.022	0.757
δ_5 : Dum_beg × Final Stage・Positive Portion	0.048	0.633
δ_6 : Dum_beg × Final Stage・Negative Portion	0.053	0.594
Coefficient of Determination	0.465	
Same (degree of freedom adjusted)	0.420	

CONCLUSION

Findings of This Study

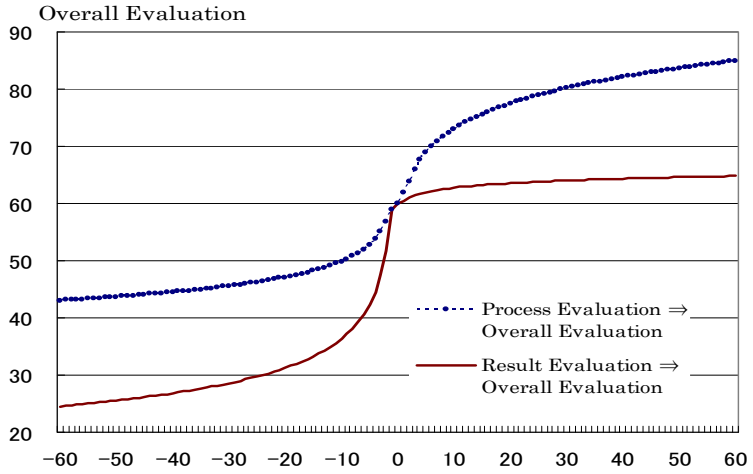
The results of this study are summarized as follows. As a whole, cognitive asymmetry and nonlinearity are observed in service evaluation. Asymmetry means that a negative evaluation of a regressor influences more in magnitude than a positive evaluation of the same regressor on the regressand, the overall evaluation.

Figure 3 shows the impact of the process and the result evaluations on the overall evaluation, the perceived benefit for the case of online shops. This indicates remarkable asymmetry between negative and positive effects with respect to the result evaluation. This feature also applies for the case of retail

stores.

Nonlinearity means that the independent variables that explain the overall evaluation indicate below HGD1. Nonlinearity, in this sense, was detected for both negative and positive effects of both services. For instance, the evaluations of all three stages increase by 10%, the overall evaluation improves less than 10%. In this sense, such factors as value-enhancing qualities are not found out.

FIGURE 3
SENSITIVITY OF OVERALL EVALUATION TO PROCESS AND RESULT
--- CASE OF ONLINE SHOPS ---

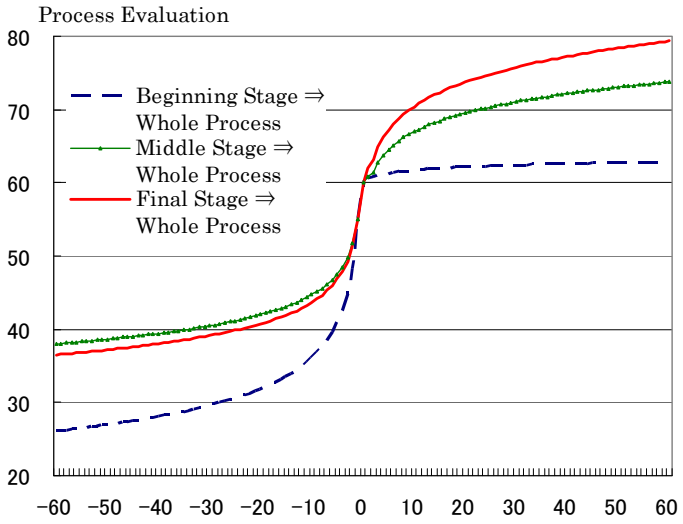


Note. Vertical axis: Overall evaluation (Perceived benefit, 100 points scale)
Horizontal axis: Process and result evaluations difference from the reference point (60 points) (same for Figure 4 and 5). The curve indicating the impact of the process on overall is drawn by fixing the result evaluation to the reference point. The curve of the result on overall is drawn in the same manner, fixing the process evaluation to the reference point.

Although the service process does not indicate asymmetric feature as a whole as shown in Figure 3, the beginning stage, the evaluation focus of which is speed and responsiveness, shows remarkable asymmetry as shown in Figure 4, a typical shape of function proposed by "Prospect theory." On the other hand, the final stage, the evaluation focus of which is empathy, does not show any asymmetric feature. It is highly possible that these characteristics are applied not only to the beginning and the final stages but also to the factors of speed and empathy respectively. While Mittal et al. (1998) found out asymmetric features about many factors randomly, this study has classified the stages and factors which show asymmetry and which do not.

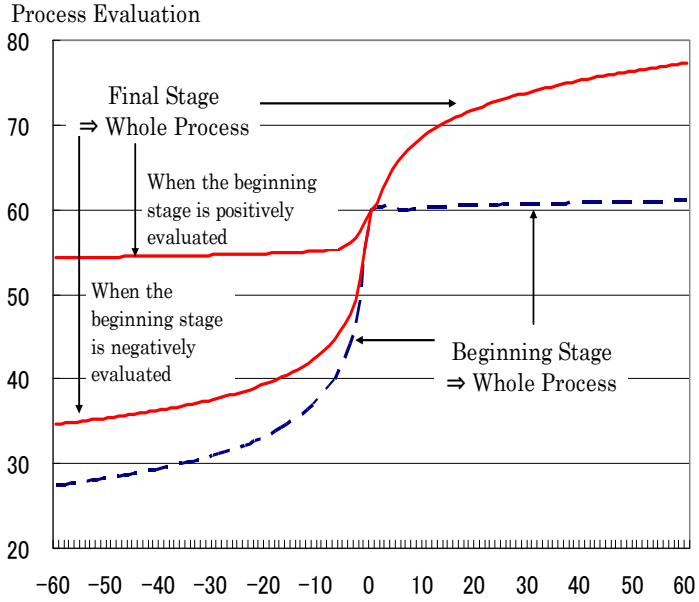
It should be noted, however, that each step of the process does not influence the overall evaluation separately and independently. As shown in Figure 5 which is about the case of online shops, the "Hysteresis effect" has been found out. When the final stage is well-evaluated, i.e. above the reference point, the beginning stage does not affect at all. This means that so-called cut-off effect does not exist. This corresponds to the sole one curve for the positive domain of the final stage. However, when the final stage is poorly evaluated, i.e. below the reference point, the negative effect is strengthened by a poor evaluation of the beginning stage, a cumulative effect. This corresponds to the two branched curves of the negative domain of the final stage, depending on the goodness of the evaluation of the beginning stage. When the beginning stage is well evaluated, the impact of the final stage on the overall evaluation shows the reverse asymmetry, indicating a larger impact of the positive effect than the negative effect. In this sense, the final stage, or the factor of empathy, has some features of the value-enhancing qualities, although the effect is not increasing.

FIGURE 4
SENSITIVITY OF PROCESS EVALUATION TO EACH STAGE
--- CASE OF ONLINE SHOPS ---



Note. Each curve is drawn by fixing the other two evaluations to the reference point. (same for Figure 5)

FIGURE 5
HYSTERESIS EFFECT--- CASE OF ONLINE SHOPS ---



Note. This figure is about the case of online shops. For retail stores, there is a branch in the negative domain of the middle stage evaluation instead of the final stage.

Contribution and Further Discussion

Contributions of this study can be summarized as follows. From an academic point of view, this study examined the relationship between the service process and the overall evaluation, and consequently, extracted the features common in face-to-face and non-face-to-face services. Although the importance of

service processes has been repeatedly emphasized, empirical studies with specific reference to service evaluations are rare. The expression of service processes has developed especially in the form of service blueprinting, the central path of which is customer processes. Yet, service blueprinting is more for internal management than for service evaluation. In this sense, this study mediates between management and consumer behavior through service evaluation.

From the viewpoints of business practice, the evaluation focus of three stages with their asymmetric and nonlinear natures on the overall evaluation will be useful, such as for quality control. For instance, the first priority can be set to improve the beginning stage up to the reference point, and then the priority can be switched to improve the final stage. Of course, the formation and separation of the stages or traits of each stage might vary, depending on the nature of services. Yet, this study can be a benchmark, providing a methodological suggestion.

Starting up retail businesses in a market, including an emerging market, necessitates understanding characteristics of shoppers, particularly how they evaluate shopping experiences. They may vary, depending on each country, social class, and other profiles. This study is providing a potential method to understand characteristics of the target shoppers.

ENDNOTES

1. For example, production function used in economics is usually homogeneous of degree one, and that requires a decreasing impact on production with respect to individual factors.
2. Froehle & Roth (2004), Meuter, Ostrom, Roundtree, & Bitner (2000) mentioned in detail regarding categories and methods of evaluation of non-face-to-face services, or technology-based service encounters.
3. The transition of evaluation focus is studied by Nagashima (2009, 2010)
4. This method follows Mittal et al. (1998).
5. Statistical significance will be discussed at the 5 percent significance lever hereafter.

REFERENCES

Bitner, M. J., Ostrom, A. L., & Morgan, F. N. (2008). Service Blueprinting: A Practical Technique for Service Innovation. *California Management Review*, 50 (3), Spring, 66-94.

Froehle, C. M. & Roth, A. V. (2004). New measurement scales for evaluating perceptions of the technology -mediated customer service experience. *Journal of Operations Management*, 22, 1-21.

Grönroos, C. (1982). *Strategic Management and Marketing in the Service Sector*. Hersingfors: Swedish School of Economics and Business Administration.

Grönroos, C. (1984). A Service Quality Model and its Marketing Implications. *European Journal of Marketing*, 18 (4), 36-44.

Grönroos, C. (1990). *Service Management and Marketing: Managing the Moment of Truth in Service Competition*. Lexington Books.

Kahneman, D. (1999). Objective Happiness in *Well-Being*, Kahneman, D., Diener, E., & Schwarz N. eds. Russell Sage Foundation, New York, 3-25.

Kahneman, D. & Tversky, A. (1979). Prospect Theory: An Analysis of Decision under Risk. *Econometrica*, 47 (2), 263-291.

Kanouse, D. E. & Hanson, Jr. L. R. (1971). Negativity in Evaluations in *Attribution: Perceiving the Causes of Behavior*. Jones, E. E., Kanouse, D. E., Kelley, H. H., Nisbett, R. E., Valins S., & Weiner B. eds. General Learning Press, 47-62.

Kingman-Brundage, J. (1989). The ABC's of Service System Blueprinting in "*Designing a Winning Service Strategy: 7th Annual Service Marketing Conference Proceedings*. Bitner, M. J. & Crosby L. A. eds. American Marketing Association.

Meuter, M. L., Ostrom, A. L. Roundtree, R. I. & Bitner, M. J. (2000). Self-Service Technologies: Understanding Customer Satisfaction with Technology-Based Service Encounters. *Journal of Marketing*, 64 (July), 50-64.

Christopher, M. & Schwager, A. (2007). Understanding Customer Experience. *Harvard Business Review*. February, 2007.

Mittal, V., Ross, Jr. W. T., & Baldasare, P. M. (1998). The Asymmetric Impact of Negative and Positive Attribute -Level Performance on Overall Satisfaction and Repurchase Intentions. *Journal of Marketing*, 62, 33-47.

Nagashima, N. (2013). The Characteristics of Indian Consumers and Business Opportunities for Japanese Corporations. *Fujitsu Research Institute Research Paper*. 406 (April).

Nagashima, N. (2010). Japanese Customer Satisfaction Index as a Service Evaluation Model. *Fujitsu Research Institute Research Paper*. 354 (May).

Nagashima, N. (2009). Transition of Evaluation Focus in Service Processes: Focusing on Non-face-to-face Services. *Journal of Consumer Behavior*, 16 (1), 37-58.

Oliva, T. A., Oliver, R. L., & MacMillan, I. C. (1992). A Catastrophe Model for Developing Service Satisfaction Strategies. *Journal of Marketing*, 56, 83-95.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality. *Journal of Retailing*, 64 (1), 12-40.

Peeters, G. & Czapinski, J. (1990). Positive-Negative Asymmetry in Evaluations: The Distinction between Affective and Informational Negativity Effects. *European Review of Social Psychology*, 1, 33-60.

Rust, R. T. & Oliver, R. L. (1994). Service Quality: Insights and Managerial Implications from the Frontier in *Service Quality: New Directions in Theory and Practice*. Rust, R. T. & Oliver, R. L. eds. Thousand Oaks, CA: Sage Publications, 1-19.

Schmitt, B. H. (1999). *Experiential Marketing*. The Free Press.

Schmitt, B. H. (2003). *Customer Experience Management*. John Wiley & Sons.

Sinha, P. K. (2003). Shopping Orientation in the Evolving Indian Market. Vikalpa, 28 (2) April-June, 13-22.

Shostack, G. L. (1984). Designing Services That Deliver. *Harvard Business Review*, 62 (January-February), 133-139.

Shostack, G. L. (1992). Understanding Services through Blueprinting. *Advances in Services Marketing and Management*, 1, 75-90.

Stauss, B. & Weinlich, B. (1997). Process-Oriented Measurement of Service Quality: Applying the Sequential Incident Technique. *European Journal of Marketing*, 31 (1), 33-55.