Journal of Marketing Analytics
https://doi.org/10.1057/s41270-025-00453-z

ORIGINAL ARTICLE

Rethinking expectations in non-routine service use: evidence from three Asian countries

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Received: 19 August 2025 / Accepted: 28 November 2025

Abstract
Research on customer satisfaction within the expectancy–disconfirmation paradigm is extensive, yet two key gaps remain: (1) the transient nature of expectations, and (2) the applicability of disconfirmation theory—whether at the overall model level, at the construct level, or across markets. These issues are particularly relevant for first-time use of non-routine services, where expectations can be unstable and situational. This study examines event-like dining-out experiences in three Asian countries (Japan, India, and Vietnam) through a mixed-method design. A qualitative study using the Critical Incident Technique shows that expectations peak at the decision stage, when they are shaped by overall impressions, but shift to specific service elements as the encounter approaches. This confirms the transient nature of expectations across markets while raising doubts about the suitability of expectation levels as a construct. To test the applicability of the disconfirmation paradigm, we conducted a multi-group factor analysis. Findings indicate (1) configural invariance, (2) metric non-invariance, and (3) country-specific differences in the disconfirmation–satisfaction link. This study contributes to theory by clarifying the boundaries of the expectancy–disconfirmation paradigm: transient expectations are universal, yet their impact on satisfaction is context-dependent. Managerial implications include engaging customers before service encounters and implementing purpose-based CRM.

Keywords Non-routine service · Expectation · Expectancy-disconfirmation · Customer satisfaction · Perceived value · Critical incident technique

Introduction

Non-routine service experiences—such as dining at a restaurant for the first time—offer a unique lens for examining how expectations form, evolve, and shape customer satisfaction. Although the expectancy–disconfirmation paradigm (e.g., Churchill and Surprenant 1982; Oliver 1980; Oliver and DeSarbo 1988) has been widely applied, two important questions remain largely unanswered:

(1) How transient are expectations during the service experience?
(2) How robust is disconfirmation theory—at the overall model level, at the construct level, and across different markets?

These questions are critical in first-time, event-like services, where expectations often fluctuate and are grounded in genuine pre-experience beliefs rather than adjusted perceptions of quality. In contrast, in routine services, expectations are often not consciously recognized, and even in non-routine services, repeated use tends to converge expectations toward an overall service quality assessment (e.g., Boulding et al. 1993; Cronin and Taylor 1992; Tse and Wilton 1988; Wirtz and Mattila 2001). Traditionally, both overall expectations and element-specific expectations have been treated as static variables or constructs (e.g., Churchill and Surprenant 1982; Fornell 1992; Fornell et al. 1996; Morgeson et al. 2015; Schiebler et al. 2025). However, if the target or level of expectations shifts during the course of the customer experience process, then treating expectations as fixed may be inappropriate.

This study addresses questions (1) and (2) through two phases. The first objective is to identify whether expectations are transient and, if so, to determine the nature of such transience. To this end, the qualitative phase applies the

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Published online: 19 January 2026

Critical Incident Technique (CIT) (e.g., Bitner et al. 1990; Flanagan 1954; Gremler 2004), which has been widely used in service research to analyze consumer experiences. During data collection and preliminary analysis, we introduced the Four E's Framework—Exploration, Expectation, Experience, and Evaluation. This framework distinguishes phases before and after the decision to use a service, with the decision itself serving as a potential watershed moment. This framework enables us to trace how expectations and disconfirmation emerge and evolve in non-routine service contexts. Findings show that expectations are transient, while disconfirmation, when it occurs, is stable, element-specific, and enduring in memory.

The quantitative phase tests the applicability of the disconfirmation framework without relying on unstable expectation measures. A parsimonious model—linking satisfaction to performance, costs, and disconfirmation—was evaluated through multi-group confirmatory factor analysis. This approach allowed us to assess model fit, construct equivalence, invariance of factor loadings, and the stability of the disconfirmation–satisfaction relationship across markets.

Although "customer satisfaction has been and remains one of the most widely adopted and analyzed business metrics" (Hult et al. 2022, p. 1695), scholarly attention has declined since the late 1990s, as epitomized by Oliver's (1999) characterization of it as "mere customer satisfaction." Under loyalty-centered perspectives, satisfaction is often viewed as just one of several drivers, mediators, or moderators of loyalty, leaving the expectations–satisfaction pathway underexplored (e.g., Damberg et al. 2022; Matosas-López 2025). This tendency holds especially in cross-country contexts where the satisfaction structure is compared without explicitly examining this link (e.g., Aksoy et al. 2013; Brady et al. 2005; Morgeson et al. 2011).

Focusing on dinner dining-out experiences, the study targets middle- and higher-income consumers in Japan, India, and Vietnam. India and Vietnam represent rapidly expanding urban middle-class markets in emerging economies (e.g., Kharas 2010), while Japan serves as a developed-market benchmark. While cross-cultural differences between East and West are well-documented (e.g., Donthu and Yoo 1998; Hofstede 2001; Hofsted et al. 2010; Mattila 1999; Spreng and Chiou 2002), few studies have systematically compared divergence and commonality within Asia under an identical research framework. Such comparison is particularly valuable given the contrasting market profiles: Japan as a mature, slow-growing or stagnant, and largely homogeneous market; India as a fast-growing and highly diverse market; and Vietnam as a fast-growing yet relatively homogeneous market.

Results reveal consistent cross-country patterns in how expectations and disconfirmation evolve, yet notable divergence in how satisfaction is formed. The simple model structure fits all three markets, and constructs can be drawn from similar observed variables, but factor loadings differ (metric invariance does not hold). Most notably, even between the two emerging economies, the effect of disconfirmation on satisfaction diverges, challenging the common assumption of a uniformly positive link.

In sum, while the evolution of expectations and disconfirmation follows a broadly shared process, their influence on satisfaction is far from uniform. These findings yield important implications for both marketing theory and practice, particularly in the management of non-routine services.

The sections that follow present the qualitative and quantitative analyses in sequence, each beginning with an explanation of methodology, drawing on relevant literature as needed, followed by analytical results.

Qualitative study

Purpose

This qualitative study examines how consumer perceptions evolve across different phases of the customer experience process. The study has two objectives:

A. To identify the individual elements—covering both performance and perceived costs—that influence overall satisfaction (hereafter referred to as "influential elements").
B. To understand the nature of evolving expectations and expectancy–disconfirmation regarding these influential elements (and as a whole) across the four phases of the customer experience process.

Since achieving objective B requires prior identification of influential elements, the study first addresses objective A.

Conceptual foundations

Targets of expectations

Expectations can be directed toward either specific elements or the overall experience (e.g., Churchill and Surprenant 1982). Following Day's (1977) distinction between performance- and cost-related expectations, this study examines both types separately.

Levels of expectations

Miller (1977) identified four levels of expectations: minimum tolerable, predictive, normative, and ideal. Research comparing predictive ("will") and normative ("should") expectations has found that they influence satisfaction differently, often in opposite directions (Boulding et al. 1993; Spreng and Olshavsky 1993). In the service context, Zeithaml et al. (1993) proposed three levels—adequate, predicted, and desired—and examined factors influencing each. To avoid confusion between "desired" and "ideal," this study uses the term "hopeful expectations" instead of "desired expectations," and "minimum tolerable expectations" instead of "adequate expectations."

The four E's framework

While Verhoef et al. (2009)'s tripartite structure—pre-purchase, purchase, and post-purchase—is useful, it does not fully capture the psychological transitions that occur around key decision points. In this study, we introduce the Four E's Framework, which divides the experience process into four phases, defined by three watershed moments: A) the decision to use a specific service, B) the beginning of service use, and C) the ending of service use.

1. Exploration—pre-decision phase (before A)
2. Expectation—post-decision-pre-experience phase (between A and B)
3. Experience—during-experience phase (between B and C)
4. Evaluation—post-experience phase (after C)

In related work, Vichiengior et al. (2023) examined expectations—termed "anticipations"—in the liminal phase between post-decision and pre-consumption, including behavioral components such as information search. In contrast, this study limits expectations to psychological processes (cognition and emotion), excludes behaviors. It also assumes that expectations may arise in both the Exploration and Expectation phases: the former often involves considering multiple options, whereas the latter refers to expectations toward the specific option already decided upon.

Compared with Service Blueprinting (Bitner et al. 2008), which objectively maps the sequence of encounters by linking customer actions with corresponding organizational responses, our framework focuses on consumers' internal psychological experience. Unlike Stauss and Weinlich (1997)'s Sequential Incident Technique, where the number and type of phases may vary depending on the context (e.g., package tours), the Four E's Framework offers a unified and concise four-phase representation that captures the essential progression of non-routine service experiences.

Methodology

To address both objectives, this study applies CIT (e.g., Bitner et al. 1990; Flanagan 1954; Meuter et al. 2000; Stauss and Weinlich 1997). The research context is a memorable dining-out occasion at a first-visited restaurant, chosen and paid for by the respondent. While CIT is less suited for capturing moderate or vaguely recalled experiences, it is well suited for identifying the key elements that strongly influence evaluations in both positive and negative directions. An overview of the procedure is provided in Table 1. The process is summarized as follows:

Step 1—Respondents documented "critical incidents," including their overall evaluation and the reasons for it, with reference to the provisional list of influential elements (Table 2a).

Step 2—One-on-one interviews explored these reasons in depth. Laddering down was used to break down general responses into specific, classifiable elements, while laddering up was used to generalize overly specific responses. This step also identified expectations and disconfirmation for both the overall experience and each influential element. Additional free comments were collected, including reasons for restaurant choice, sharing behaviors, and loyalty-related feelings.

Step 3—The results were organized: the provisional list of influential elements (Table 2a) was revised into the final list (Table 2b), and the characteristics of expectations and disconfirmation in each phase were summarized (Fig. 1).

The provisional influential elements in Table 2a are based on the 7Ps service marketing mix (Booms and Bitner 1981), with perceived costs treated as a separate construct. This follows prior models in which performance and costs independently influence satisfaction (e.g., Churchill and Surprenant 1982; Cronin et al. 2000). Perceived costs are assumed to comprise price, time, and psychological costs, with psychological costs including unease, tension, and discomfort (Siqueira et al. 2025; Zeithaml 1988). Accordingly, Table 2a contains nine categories: six for performance and three for perceived costs.

Positioning of this study's CIT

Following Gremler's (2004) typology, this study's CIT is categorized as "CIT conducted with other methods" because the results are subsequently applied in quantitative analysis. The sample is a convenience sample (e.g., Bitner et al. 1990), with respondents recruited through research agents' monitors. While provisional categories were initially presented, they were substantially modified after data review, making the approach an inductive categorization (e.g., Keaveney 1995; Meuter et al. 2000).

Table 1 Overview of the Critical Incident Technique (CIT) procedure

Purpose	A) To identify individual elements of performance and perceived costs during the experience that impact overall satisfaction ("influential elements") B) To determine the nature of expectations and expectancy–disconfirmation in alignment with the customer experience process
Sample	Drawn from individuals who had a dining-out experience for dinner at a restaurant of their own choosing and at their own expense within the past three months. The sample included men and women aged 20–69, with 20 participants per country
Period	Japan: April 2023 India: June 2023 Vietnam: August 2023

Procedure: Steps 1–3

Step 1:

Participants described their memorable restaurant experiences (excluding walk-up fast food formats). These instances served as "critical incidents." Using the provisional list of influential elements in Table 2a, they then listed up to five reasons for their satisfaction or dissatisfaction. Participants were given 30 min to complete this step

Step 2:

Each participant was interviewed based on their written account to categorize the reasons provided. Laddering down was used to identify specific elements, while laddering up was employed, when necessary, to generalize reasons into more broadly recognizable elements (see Note 1). Participants were then asked about their expectations and expectancy–disconfirmation regarding both the overall experience and the influential elements of performance and costs

Step 3:

The results were organized, revising the provisional list of influential elements (Table 2a) into the finalized list (Table 2b). Finally, the phase-specific characteristics were summarized (Fig. 1), with a focus on expectations and expectancy–disconfirmation regarding performance and perceived costs

Note

1. Laddering down example: For the comment "After finishing the meal, we were treated nicely," a follow-up question—"In what specific way?"—led to responses such as "The staff promptly brought additional water when we were about to ask" (categorized as customer service by staff) and "The staff expressed gratitude with a smile and said goodbye at bill payment" (categorized as courtesy at bill payment)

Laddering up example: For the comment "The cashier was crowded, but a staff member opened an extra counter so I could pay quickly," we asked whether this was more about good customer service or efficient bill payment. Based on the respondent's view, the reason was then categorized accordingly

2. Step 1 and Step 2 were conducted with the support of local research agents—two local staff members in Japan and three in each of India and Vietnam

Results (A): Identified influential elements

The final influential elements are presented in Table 2b and will serve as the observed variables for the quantitative analysis in the next chapter. For Performance, 13 elements were identified. While the dining experience itself forms the core, elements occurring before and after the meal also

Table 2 Provisional and finalized influential elements

2a: Provisional elements			
A. Performance			
Product	1. Quality and quantity (volume) of food/drink		
Place	2. Distribution channel of the service (reservation system and location)		
Promotion	3. Communication through social media, etc		
Process	4. Customers' experiential process		
People	5. Responsiveness, assurance, and empathy shown by service staff		
Physical evidence	6. Staff attire, functionality, and ambience of the restaurant		
B. Perceived Costs			
Perceived sacrifices	7. Perceived price		
	8. Perceived time cost		
	9. Perceived psychological cost		
2b: Finalized elements			
A. Performance			
	1. Location		
	2. Waiting time until seated		
	3. Customer service at the table		
	4. Waiting time until served		
	5. Taste of food/drink		
	6. Variety of food/drink menu		
	7. Cleanliness of the shop		
	8. Ambience, such as decoration and BGM		
	9. Comfort of seats and tables		
	10. Other guests' attire and attitude		
	11. Non-smoking arrangement		
	12. Smoothness of bill payment		
	13. Courtesy at bill payment		
B. Price (perceived value)			
	14. Experience-based perceived price		
	15. Purpose-based perceived price		
	16. Income-based perceived price		
2c: Differences among countries			
	Japan	India	Vietnam
Location	×	○	○
Other guest's attire and attitude	○	×	○
Non-smoking arrangement	○	×	×

Note:

1. 2b: Elements 1 and 2 correspond to those before the core (dining) experience, and Elements 12 and 13 correspond to those after the core experience

2. 2c: ○ represents "Extracted," × "Not extracted"

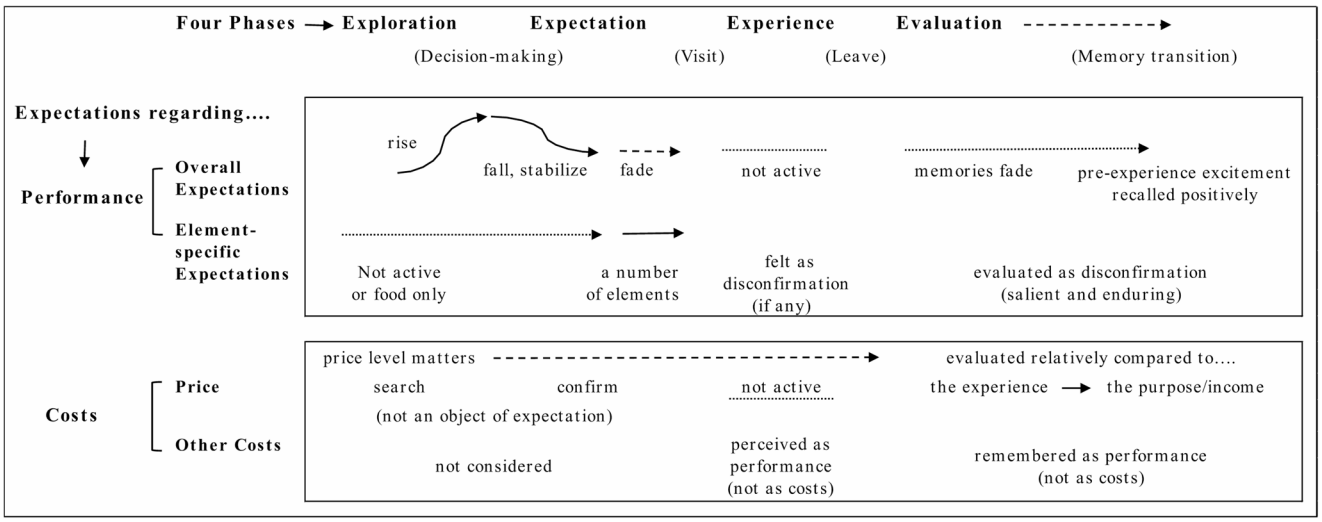

Fig. 1 Expectations regarding performance and costs aligning with phases

leave a strong impression. Whether positive or negative, all are perceived as affecting final satisfaction. This finding is consistent with prior service research showing that peripheral elements can substantially influence satisfaction. For example, Yau and Tang (2018) demonstrated that in airport self-service technologies, satisfaction is strongly affected by process-related factors beyond the core service itself.

The provisional list in Table 2a was revised for two main reasons. First, Process and People vary across stages. The same respondent often evaluates "being guided to a seat," "dining at the table," and "paying the bill" differently. Likewise, evaluations of staff differ by role, consistent with prior observations of service heterogeneity (e.g., Bitner 1990). Therefore, these categories were divided according to their temporal sequence.

Second, for perceived costs, time and psychological costs were reclassified as part of performance. For example, long waiting times reduced ratings for "waiting time" rather than for "costs," and difficulties in requesting service lowered ratings for "staff service." To avoid conceptual overlap, perceived costs were limited to price only. The three elements of perceived price are explained in the next section (*Evaluation Phase*).

Most elements were common across the three countries. Additionally, many operational errors (e.g., order mistakes) can be remedied by sincere staff responses, thereby preventing negative evaluations. This observation is common and aligns with the concept of service recovery (e.g., Smith et al. 1999). However, several country-specific differences were observed. In Japan, 'Non-smoking arrangement' and 'Other guests' attire and attitude' were extracted, whereas 'Shop location' was not. In India, 'Shop location' was extracted, while 'Non-smoking arrangement' and 'Other guests' attire and attitude' were not. In Vietnam, both 'Shop location' and 'Other guests' attire and attitude' were extracted, whereas 'Non-smoking arrangement' was not. These differences are summarized in Table 2c. All of these elements were included in the quantitative survey (explained later), although "Non-smoking arrangement" was excluded from the subsequent analysis after the data purification process. Specific comments and their frequencies are provided in Web Appendix A.

Results (B): Consumer perceptions in each phase

Figure 1 summarizes the phase-specific characteristics of expectations and disconfirmation, classified into performance and costs. The phases follow the Four E's Framework, while the performance/costs distinction reflects Day (1977). Most findings were consistent across the three countries. The summarized characteristics of expectations (and disconfirmation) for both performance and costs are as follows.

Exploration phase

This phase is before deciding on a restaurant. Consumers compare options or assess the feasibility of a single option.

Performance: Expectations focus on the overall experience and food, usually as neutral predictions. Expectations tend to rise as the decision nears, though respondents generally regard their expectations as neutral at all times.

Costs: Price is an object of search rather than expectation, often compared among candidates. Time and psychological costs are rarely considered. Store locations are linked to these costs; however, they are typically pre-filtered at the beginning of this phase.

Expectation phase

This phase occurs after the decision but before the visit.

Performance: Overall expectations tend to become more cautious, sometimes lowered by negative word-of-mouth. Users continue to regard their expectations as neutral predictions, yet some recognize in retrospect that their prior expectations had been somewhat elevated and describe this phase as a return to neutral levels. At the same time, as the visit approaches, expectations and concerns about individual elements—such as ambience or seating—become more salient, while the overall expectations often fade into the background.

Costs: Price tends to be reconfirmed rather than anticipated and sometimes becomes an object of concern. Time and psychological costs are not considered.

Experience phase

This phase begins on the way to the venue and ends upon leaving the restaurant.

Performance: Upon arrival, expectations come to center on specific elements (e.g., waiting time, ambience, seat comfort). Respondents' in-situ expectations include both predictive and hopeful components. When disconfirmation occurs, it becomes salient, with the immediately preceding expectation serving as the comparison point. When multiple elements are disconfirmed in the same direction, overall satisfaction tends to follow that direction.

Costs: Price is usually not consciously considered during the experience (unless disconfirmation occurs). Respondents tend to interpret time and psychological costs as negative aspects of performance.

Evaluation phase

This phase corresponds to the timing of the survey (within three months).

Performance: Within one month, respondents tend to recall events chronologically and in detail. After about two months, their recollections become more holistic, with specific elements recalled only when prompted. However, regardless of the elapsed time, both positive and negative disconfirmation remains vividly remembered.

Costs: Within one month, price tends to be evaluated relative to the perceived quality of the experience, representing perceived value. As time passes, price evaluations often shift from experience-based judgments to purpose-based evaluations (e.g., celebrating a family member's birthday) or income-based evaluations (e.g., considering one's disposable income level). These alternative frames of reference often lead respondents either to revise an initially high price assessment as acceptable, or conversely to reinterpret an initially acceptable price as too high. This evaluative process reflects the reference point effect (e.g., Kahneman and Tversky 1979) and the tendency for reference points to shift over time.

Memory of prior phases: Within a month after the experience, respondents primarily remember their dining experiences. Beyond two months, however, they tend to recall pre-decision excitement—elevated expectations—as part of the positive experience, consistent with retrospective framing effects and memory transitions (e.g., Mitchell et al. 1997; Levine and Safer 2002; Ross 1989).

Based on these findings, Table 2b includes three aspects of price—experience-based, purpose-based, and income-based evaluations—forming the construct "Price," which represents perceived value. Even infrequent awareness of equity and its associated emotions, such as regret (Huang 2017), can—if not fully, at least approximately—be encompassed by considering these multifaceted evaluations of price.

Quantitative analysis

This chapter presents the quantitative analysis, which identifies the impact of expectancy–disconfirmation on customer satisfaction and evaluates the applicability of the disconfirmation paradigm through cross-country comparisons among Japan, India, and Vietnam.

Conceptual foundations

Expectations

The inclusion of expectations in satisfaction models is well established (Churchill and Surprenant 1982; Oliver 1981; Oliver and DeSarbo 1988; Zeithaml 1988). Closely related is "perceived service quality," which was at the center of a well-known 1990s debate. Parasuraman et al. (1985, 1988) proposed SERVQUAL, subtracting prior expectations from outcomes across 22 items. Cronin and Taylor (1992, 1994) argued for SERVPERF, excluding expectations on theoretical and empirical grounds, citing Bolton and Drew (1991a), Churchill and Surprenant (1982), Mazis et al. (1975), and their own findings. Drawing on Oliver (1980), they positioned service quality as an attitude—distinct from one-time satisfaction and conceptually independent of prior expectations—whereas satisfaction was assumed to be influenced by such expectations.

Building on the acceptance of expectations in satisfaction models, this study incorporates qualitative findings: during evaluation, expectancy–disconfirmation remains salient,

but consumers rarely articulate prior expectation levels, which fluctuate over the course of the experience. Regarding disconfirmation, it tends to be element-specific, and its impact depends on the number of elements disconfirmed. Accordingly, the model considers element-level disconfirmations as potential drivers of satisfaction. In contrast, expectation levels are excluded, as their scope and intensity vary depending on the phase of the experience, and they are easily forgotten—a limitation of expectation measures also noted in prior research (e.g., Bolton and Drew 1991b; Oliver 2010).

Satisfaction

In considering the construct of satisfaction, two issues identified in prior studies warrant attention: (1) whether satisfaction is based on a single or multiple experiences, and (2) whether it is measured using a single item or as a multi-dimensional construct.

Regarding the first issue, Oliver (1980) states that satisfaction resembles a surprise, gradually decays into attitude over time, implying it is a one-time occurrence. Similarly, Wilton and Tse (1983) suggest that satisfaction is strongly influenced by a single consumption experience, whereas attitude tends to remain stable despite specific experiences. Tse et al. (1990) define it as a "dynamic, multi-dimensional subjective process following a single purchasing experience." Bitner (1990) also focuses on a one-time service experience, referring to it as a "specific service encounter." In contrast, widely used Customer Satisfaction Index (CSI) models derive satisfaction from multiple experiences over the preceding year. Since this study aims to identify the contribution of each factor to satisfaction, including multiple experiences could obscure the relationship between specific attributes and satisfaction by blending impressions across different events. Therefore, the study adopts Bitner's (1990) approach, analyzing customer experiences from first-time restaurant visits within the past 3 months.

For the second issue, multi-dimensional measures of satisfaction are common (e.g., Fornell 1992; Tse et al. 1990; Zeithaml 1988), but these often rely on predefined dimensions and variables, which may not reflect how people actually perceive satisfaction. Such approaches may also be chosen for their ease of interpretation—if satisfaction is seen as a "single entity," it is harder to break down and analyze. On the other hand, some studies use a single-question measure (Bitner 1990; Kekre et al. 1995; LaBarbera and Mazursky 1983; Mittal et al. 1998; Yi 1990). The present study employs both approaches, extracting satisfaction as a multi-dimensional construct and also measuring it with a single item. This enables the estimation of their correlation and cross-country comparison across the three nations.

Finally, when evaluating the disconfirmation–satisfaction link, it is important to avoid embedding disconfirmation variables within the satisfaction construct, as is done in CSI-type models.

Model

This study adopts a framework comprising three factors: (1) Performance, (2) Price, and (3) Expectancy–disconfirmation. This aligns with prior studies. Churchill and Surprenant (1982) state that "satisfaction is an outcome of purchase and use resulting from the buyer's comparison of the rewards and costs in relation to the anticipated consequences (p. 493)," indicating that expectations encompass both performance and cost aspects. Day (1977) also distinguishes expectations of product nature from expectations of costs. Oliver and DeSarbo (1988) identify five determinants—performance, expectation, expectancy–disconfirmation, equity, and attribution—and find performance and disconfirmation most influential. Fornell (1992) confirms that satisfaction depends on perceived performance, value, and expectancy–disconfirmation. Following Yamamoto's (1995) categorization of service evaluation models by inclusion of costs or expectations, this study incorporates both without making prior assumptions about their effects on satisfaction. This design enables an empirical examination of the relationship between disconfirmation and satisfaction.

As noted in the *Satisfaction* section, considering this study's objective, the outcome construct of satisfaction should exclude the measures of disconfirmation from the very construct. This requirement is not met in the CSI model, where two of the three satisfaction measures represent disconfirmation—one against ideal levels and one against neutral predictions (e.g., Fornell et al. 1996; Morgeson et al. 2015). SERVQUAL-type frameworks are also unsuitable, as they a priori assume linear effects of expectations.

International comparisons explicitly focusing on expectations or disconfirmation remain limited. Brady et al. (2005) analyze causal relationships across five countries but exclude both expectations and disconfirmation. Morgeson et al. (2015) include expectations in their CSI-based model, yet do not examine the path from expectations to satisfaction. Their findings suggest that perceived value exerts a greater influence in emerging markets, whereas perceived quality exerts less, compared to developed markets. Other research (e.g., Aksoy et al. 2013; Morgeson et al. 2011) compares satisfaction structures across cultures, but the roles of expectations and expectancy–disconfirmation remain underexplored.

To assess measurement invariance across the three countries, we conducted multi-group confirmatory factor analysis (MGCFA). Two models were estimated:

Configural model (unconstrained: factor loadings were freely estimated across groups)

Metric invariance model (constrained: factor loadings were constrained to be equal)

Formally, the measurement model can be written as:

$$y_g = \Lambda_g \eta_g + \varepsilon_g$$

where y_g is the vector of observed variables for group g, Λ_g is the factor loading matrix, η_g is the vector of latent variables, and ε_g is the error vector, with g∈{Japan, India, Vietnam}. Since the analysis is based on standardized data (correlation matrices), intercepts and means were not estimated. To evaluate metric invariance, the chi-square difference test was applied:

$$\Delta\chi^2 = \chi^2_{\text{constrained}} - \chi^2_{\text{unconstrained}}, \Delta df = df_{\text{constrained}} - df_{\text{unconstrained}}$$

A statistically significant χ^2 difference (or *p*-value) indicates that the factor loadings are not equivalent across groups. Fit indices such as GFI, AGFI, CFI, and RMSEA were also evaluated. All analyses were performed using R (version 4.5.1) with the lavaan package for structural equation modeling. More detailed construct-level representations, including the first- and second-order factor structures, are provided in Web Appendix B2.

Table 3 Outline of the questionnaire surveys

	Japan	India	Vietnam
Effective sample	n=500	n=454	n=557
Respondents	Aged 20–69 years, from the three countries. Had dined out for dinner at a first-visited restaurant of their own choosing and at their own expense within the past three months, which they remembered well and were willing to discuss		
	Tokyo, Osaka, and Nagoya	Delhi, Mumbai, and Chennai	Hanoi, Da Nang, and Ho Chi Minh
	Household annual income:		
	2 million JPY or above	200,000 INR or above	10 million VND or above
Period	From September to October, 2023		
Method	Online survey answered by monitors managed by an agent in each country		
Question items	* Demographic information, including gender, age, residential area, and household annual income * Name of the restaurant the respondent visited * Satisfaction level (overall and for each of the 16 elements identified by the CIT): 11-point scale * Expectancy-disconfirmation for each element: Four choices (worse, same, better, and not expected)		

Note:

1. Key questions used in the analysis are listed in Web Appendix B1

2. The research team translated the questionnaire from Japanese into English (for the India survey) and into Vietnamese (for the Vietnam survey), and then back into Japanese. This back-translation process was repeated twice, with necessary adjustments made to ensure translation equivalence

Data

Data were obtained from questionnaire surveys (Table 3), with items listed in Web Appendix B1. Observed variables for Performance and Price were derived from the qualitative results (Table 2b) and measured on 11-point Likert scales.

Expectancy–disconfirmation is operationalized by considering both the number of expected elements and the direction of disconfirmation, consistent with Mittal et al. (1998). Disconfirmation was assessed for 14 elements: 13 for Performance and 1 for Price, with the latter evaluated against the immediately prior price prediction. Respondents assessed each element's deviation from prior expectations using four options: (1) worse than expected, (2) about the same level as expected, (3) better than expected, or (4) no particular prediction made. From these, three non-overlapping variables are computed: (a) the ratio of elements above expectations among those expected, (b) the ratio below expectations among those expected, and (c) the net difference (above minus below) among all 14 elements. For analysis, variable (b) is transformed (subtracted from one) so that its direction would align with the other variables.

As noted earlier, this study also examines the correlation between comprehensive satisfaction derived from the three factors and single-question-based satisfaction, the latter measured by asking, "Overall, how satisfied were you?" on an 11-point Likert scale.

Construct reliability and validity

The hypothetical framework comprises three constructs derived from corresponding observed variables. An exploratory factor analysis on the pooled sample from three countries (Table 4) confirmed three factors consistent with the hypothesized constructs—"Perceived performance," "Price (Perceived value)," and "Expectancy–disconfirmation." After Promax rotation, factor correlations were 0.756 (Factors 1–2), 0.477 (1–3), and 0.444 (2–3).

Reliability and validity indicators are shown in Table 5. Cronbach's α and composite reliability (CR) exceeded 0.8 for all constructs, satisfying Bagozzi and Yi's (1988) criterion. For "Perceived performance," a purification process following Churchill (1979) led to the removal of Non-smoking arrangement (item–total correlation=0.40), improving α from 0.963 to 0.969. No items were removed from the other constructs. The refined constructs are hereafter referred to as factors 1–3.

Convergent validity, assessed following Fornell and Larcker (1981), was supported: AVE values were 0.725, 0.846, and 0.673 for factors 1–3, all above 0.5, with all standardized loadings significant (Web Appendix B3). Discriminant validity was confirmed by comparing the square roots of AVEs with inter-construct correlations (Brady and Cronin 2001; Hair et al. 2021) for all construct pairs (Table 5b). It was further supported by the heterotrait–monotrait (HTMT) ratios, all of which were below the conservative threshold of 0.85 (Henseler et al. 2015), indicating satisfactory discriminant validity across all three countries (Table 5c).

Estimation results

Figure 2 illustrates the two-step factor model, with rectangles representing observed variables and ovals denoting latent constructs. Results are reported for the pooled sample (n=1511) and for each country using multi-group analysis (Table 6).

All estimated coefficients are significant at the 5% level, and model fit is satisfactory. Although the RMSEA values are not ideal, they remain within the acceptable range (Toyoda 2014, p. 108). All factor loadings are significant (Web Appendix B3). factor 1 ("Perceived performance") has the largest coefficient to satisfaction in all samples, with Wald tests confirming it is significantly larger than factor 2 in most cases. factor 2 ("Perceived value") ranks second, showing consistent though smaller effects across countries. This contrasts with Morgeson et al. (2015), who found value more influential in emerging markets—a difference possibly reflecting shifts toward greater quality-consciousness among urban middle-class consumers.

Smaller but positive effects are observed for factor 3 ("Expectancy–disconfirmation") except in India, where it has a significant negative coefficient. This suggests that in India, higher immediate pre-experience expectations may raise satisfaction even when performance falls short.

The correlation between single-question and comprehensive satisfaction is high overall (0.820) but lower in India than in Japan and Vietnam. However, the significant positive correlation suggests that single-question measures can be practically used for explaining and predicting overall satisfaction.

Multi-group confirmatory factor analysis assessed cross-country equivalence. Configural invariance holds (CFI exceeds 0.95 for both integrated and country-specific models; Laroche et al., 2004). Metric invariance is not supported:

Table 4 Factor loadings: result of exploratory factor analysis

	Factor1	Factor2	Factor3
1. Location	0.706 *	0.091	− 0.054
2. Waiting time until seated	0.662 *	0.091	− 0.066
3. Customer service by staff	0.866 *	− 0.003	0.010
4. Waiting time until served	0.741 *	0.098	− 0.040
5. Taste of food/drink	0.747 *	0.143	0.025
6. Variety of food/drink menu	0.767 *	0.127	0.014
7. Cleanliness of the shop	0.976 *	− 0.083	− 0.004
8. Ambience, such as decoration, BGM	0.953 *	− 0.041	− 0.003
9. Comfort of seats and tables	0.923 *	− 0.034	0.007
10. Other guests' attire and attitude	0.808 *	0.049	0.033
11. Non-smoking arrangement	0.403 *	0.226	− 0.094
12. Smoothness of bill payment	0.877 *	− 0.021	0.002
13. Courtesy at bill payment	0.872 *	0.001	0.010
14. Experience-based perceived price	0.308	0.639 *	− 0.002
15. Purpose-based perceived price	0.075	0.879 *	0.011
16. Income-based perceived price	0.068	0.885 *	− 0.013
17. Ratio 1	0.139	0.103	0.729 *
18. Ratio 2	− 0.171	− 0.057	0.663 *
19. Ratio 3	0.013	− 0.019	1.002 *

Note:

1. Three factors were extracted through maximum likelihood method with Promax rotation, under the condition that eigenvalues are equal to or greater than one

2. Cells marked with * denote factor loadings of 0.4 or higher

3. The definitions of Ratios 1–3 are provided below:

Ratio 1: Ratio of elements above expectation among the expected elements

Ratio 2: Ratio of elements below expectation among the expected elements, subtracted from one

Ratio 3: Ratio of elements (above-below) among all 14 elements

Table 5 Construct reliability and validity

5a: Reliability and convergent validity

		Cronbach's α	CR	AVE
Performance ("Perceived Performance")		0.969	0.969	0.725
	1. Location			
	2. Waiting time until seated			
	3. Customer service by staff			
	4. Waiting time until served			
	5. Taste of food/drink			
	6. Variety of food/drink menu			
	7. Cleanliness of the shop			
	8. Ambience: decoration, BGM etc			
	9. Comfort of seats and tables			
	10. Other guests' attire and attitude			
	11. Smoothness of bill payment			
	12. Courtesy at bill payment			
Value ("Perceived Value")		0.942	0.943	0.846
	13. Experience-based perceived price			
	14. Purpose-based perceived price			
	15. Income-based perceived price			
Disconfirmation ("Expectancy-Disconfirmation")		0.807	0.854	0.673
	16. Ratio1			
	17. Ratio2			
	18. Ratio3			

5b: Discriminant validity: Fornell-Larcker Criterion

	Performance	Value	Disconfirmation
Performance	0.851		
Value	0.823	0.920	
Disconfirmation	0.472	0.448	0.820

5c: Discriminant validity: HTMT (Heterotrait-Monotrait) Ratios

	Performance	Value	Disconfirmation
Japan			
Performance	1.000		
Value	0.660	1.000	
Disconfirmation	0.515	0.439	1.000
India			
Performance	1.000		
Value	0.772	1.000	
Disconfirmation	− 0.220	− 0.107	1.000
Vietnam			
Performance	1.000		
Value	0.744	1.000	
Disconfirmation	0.494	0.469	1.000

Note (for Table 5a): The construct refining process based on the examination of item-total correlations resulted in the exclusion of "Non-smoking arrangement" from "Perceived Performance," which improves Cronbach's α from 0.963 to 0.969."

Note (for Table 5b): Diagonal cells denote square root of AVEs and non-diagonal cells show correlation coefficients between constructs

χ^2 difference ($\Delta\chi^2$)=346.5 with $\Delta df=34$, $p<0.001$, comparing the constrained model [$\chi^2(430)=2809.6$] with the unconstrained model [$\chi^2(396)=2463.1$]. These results indicate: (1) the three constructs can be estimated across countries, (2) the same observed variables can be used, but (3) factor loadings differ significantly, limiting model generalizability.

While the above results are based on the structural equation model, the effects of the three latent constructs on satisfaction may involve asymmetric or non-linear relationships. To explore this possibility, we conducted an additional exploratory regression using a log–log specification, in which comprehensive satisfaction served as the dependent variable and the three factors (Performance, Value, and Disconfirmation) as independent variables, applying the transformation $\ln(1+|x|/100)$. As shown in Web Appendix B6, the results suggest mild asymmetry and non-linearity,

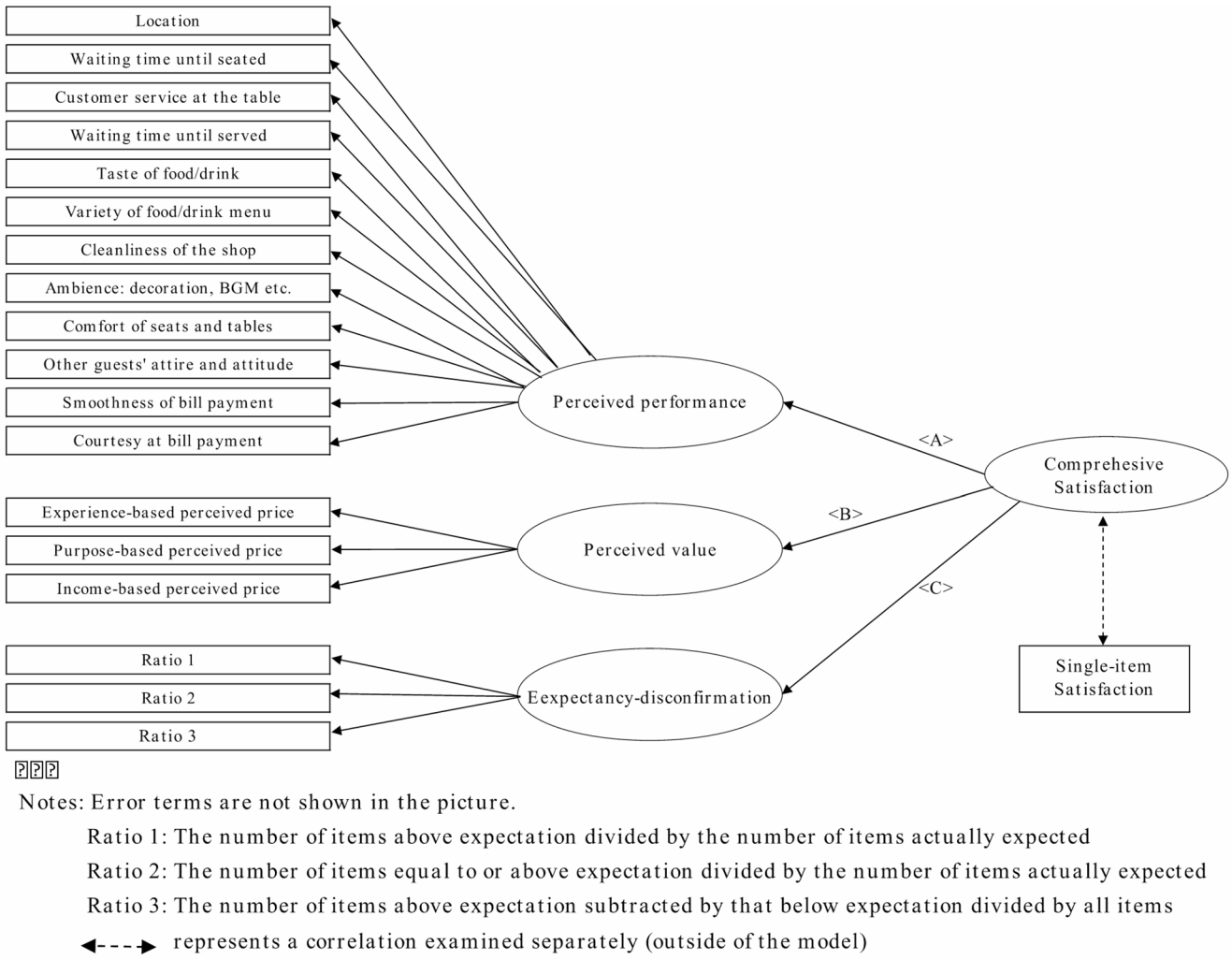

Fig. 2 Model description—Hierarchical factor model

indicating that more rigorous testing of such effects is warranted in future studies. In addition, as illustrated in the scatterplots presented in Web Appendix B7, possible threshold effects are observed particularly in the value–satisfaction and disconfirmation–satisfaction relationships.

Discussion

Theoretical contribution

This study examined service experiences and customer satisfaction, focusing on expectations and disconfirmation. Building on the Four E's Framework, the qualitative findings highlight the transient nature of expectations. As pre-experience phases unfold, both the targets and levels of expectations are likely to change, making it inappropriate to treat expectations as fixed constructs. By contrast, element-specific disconfirmation—defined as the mismatch with immediately preceding expectations of individual elements—tends to be more stable and memorable, and is therefore suitable for incorporation into satisfaction models. These findings support the disconfirmation paradigm. At the same time, satisfaction models may be extended to incorporate expectations per se. In such cases, heightened overall expectations—those recalled as "how enjoyable the experience was expected to be"—could be considered as one potential option, although such expectations are typically retrieved only after some time has elapsed (in our study, more than two months after the experience).

The notable aspects of the transient nature of expectations and evaluations are as follows.

1. For non-routine services, expectations peak around the time the service is chosen. As the experience approaches, expectations shift from the overall service to specific elements, consistent with Construal Level Theory (e.g., Trope and Liberman 2003). Once the experience begins,

Table 6 Results: estimators and model fit

Standardized estimate		Std. error	Z value	*p* value	Correlation
Pooled sample (n = 1511)					
Comprehensive Satisfaction = ~					0.820
Factor1	0.950	N/A	N/A	N/A	
Factor2	0.899	0.049	26.712	0.000	
Factor3	0.604	0.009	21.510	0.000	
		GFI	AGFI	CFI	RMSEA
		0.972	0.954	0.990	0.042
Japan (n = 500)					
Comprehensive Satisfaction = ~					0.693
factor1	0.879	N/A	N/A	N/A	
factor2	0.788	0.144	10.180	0.000	
factor3	0.506	0.013	6.903	0.000	
		GFI	AGFI	CFI	RMSEA
		0.940	0.908	0.979	0.057
India (n = 454)					
Comprehensive Satisfaction = ~					0.460
factor1	1.264	N/A	N/A	N/A	
factor2	0.605	0.239	2.694	0.007	
factor3	− 0.183	0.025	− 2.091	0.037	
		GFI	AGFI	CFI	RMSEA
		0.929	0.900	0.960	0.060
Vietnam (n = 557)					
Comprehensive Satisfaction = ~					0.721
factor1	0.912	N/A	N/A	N/A	
factor2	0.825	0.127	11.389	0.000	
factor3	0.548	0.022	9.426	0.000	
		GFI	AGFI	CFI	RMSEA
		0.952	0.922	0.977	0.051

Note:

1. To secure the identification condition, non-standardized estimates of parameters for factor 1 are set to one, resulting in "N/A" being placed in the corresponding cells. All factor loadings are available in Web Appendix B3

2. The results of Wald tests, wherein the null hypothesis posits the equality of coefficients between factors 1 and 2, are as follows. Total: $\chi^2 = 41.059$ ($df = 1$), $p < 0.001$; Japan: $\chi^2 = 10.378$ ($df = 1$), $p = 0.001$; Vietnam: $\chi^2 = 12.180$ ($df = 1$), $p < 0.001$ (These tests are conducted when the difference in estimated coefficients is less than 0.1.)

3. "Correlation" denotes the Pearson correlation coefficient between comprehensive satisfaction and single-question-based satisfaction

disconfirmation becomes more salient, while expectations tend to fade into the background. Whereas Bolton and Drew (1991b) pointed out the difficulty of capturing prior expectations, this study explains the process underlying that phenomenon. Additionally, consumers generally perceive their expectations as neutral, implying they can only identify the type of their expectations retrospectively.

2. Regarding costs, consumers focus on price, treating it as a subject of search and verification. Before usage, price is primarily perceived in absolute terms. After usage, however, price is evaluated in relative terms—as perceived value. Post-use price evaluations are often revised: consumers first compare price with the experience, but later with their purpose of use or disposable income.
3. Over time, pre-experience expectations tend to be reconstructed in memory as enjoyable, alongside the actual experiences.

The quantitative results clarify the limited applicability of the disconfirmation paradigm through a model that (1) explicitly distinguishes satisfaction from disconfirmation and (2) focuses on first-time service use. This enables the extraction of genuine expectations and avoids their convergence with perceived performance. Satisfaction can be explained by performance, costs, and disconfirmation, but their factor loadings differ significantly. Further, even among emerging markets such as India and Vietnam, the effect of disconfirmation on satisfaction varies. In India, negative disconfirmation (performance worse than expected) appears to enhance satisfaction rather than diminish it. This difference suggests that a simple developed–emerging dichotomy is not always adequate.

These findings may reflect a tendency to judge infrequent experiences less through disconfirmation. Interviews revealed that some Indian housewives often view dining out as neglecting duties—a sentiment absent in the other countries. This implies Indian consumers value the emotional meaning of special occasions, consistent with Oliver's view that "pleasant anticipations may be more satisfying than the actual usage" (Oliver 2010, p. 14). From a cultural standpoint, India scores relatively higher on Power Distance and Motivation toward Achievement, compared with Japan and Vietnam (Hofstede et al. 2010). However, attributing the negative disconfirmation effect to these cultural differences is not theoretically convincing. A more plausible interpretation relates to lifestyle: because restaurant visits are relatively rare, they may evoke feelings of gratitude for the opportunity itself. Moreover, as suggested by our qualitative findings, the longer the time elapsed since the experience, the more pre-experience expectations tend to be reconstructed in memory as enjoyable in their own right. This process may be likened to a train departing from a station: as the station recedes from view, the surrounding landscape gradually comes into focus. In sum, the less frequently a non-routine service is used, the stronger the assimilation effect may be. This finding extends prior insights on the assimilation effect (e.g., Spreng and Chou 2002; Schiebler et al. 2025).

Business implications

This study offers several implications for practitioners, particularly regarding how expectation-management strategies can be tailored to different phases of the customer journey.

Pre-decision phase. Around the time of decision-making, customers often experience heightened overall expectations. Firms can positively shape this stage by providing high-resolution photos or videos that vividly illustrate the upcoming service. These materials can be tailored to the role of the reservation maker—for example, presenting scenarios for party organizers or family event planners—so that the anticipatory period itself becomes part of a rewarding experience.

Pre-service phase. As the date of use approaches, overall expectations tend to recede and element-specific expectations become more salient, often accompanied by practical concerns. Restaurants can address this by sending confirmation emails a few days in advance, clarifying details such as whether prices include tax, seat location, hygiene measures, or the responsible staff. Since most restaurants already send such messages, adding these details entails only minimal cost. For organizers, this reassurance is particularly valuable, while selective surprise options (e.g., keeping details hidden from participants) can also be offered via online reservations.

During-service phase. Restaurants can encourage not only organizers but also participants to share photos or short videos within defined guidelines. Selected content can later be featured in pre-decision materials for future customers. Soliciting user-generated content reduces promotional costs, and small incentives such as meal vouchers for selected submissions can deepen attachment and encourage revisits.

Post-service phase. After the experience, firms can deepen customer understanding through purpose-based CRM. Unlike traditional CRM, which centers on customer attributes and purchase history, purpose-based CRM focuses on usage context and motives. Post-service surveys should therefore capture purpose of use, overall and element-specific evaluations, the degree of pre-service excitement, willingness to reuse and recommend, and price perceptions. Because evaluations may evolve, follow-up surveys—e.g., after two weeks and again after three months—can be conducted, with small incentives such as coupons to encourage participation. Responses should be collected from both organizers and participants, using QR codes distributed at the point of service. Although these activities incur additional costs, they yield deeper insights into the "true customer" and help build databases with substantial medium- to long-term benefits. This approach represents purpose-based CRM in practice.

Constraints and cultural contingencies. While these measures are practical, their implementation is not without challenges. The main barrier may lie in managerial mindset rather than direct financial cost, as these measures require strategic commitment. Successful providers often point out two effective practices: conveying customer feedback directly to top management—so that suggestions are framed as "coming from customers, not from subordinates"—and introducing new initiatives as "experiments" rather than "changes." Such approaches can reduce resistance and often yield visible results even in the short term. Furthermore, cultural differences must be considered. For instance, "half refund if not satisfied" policies are often perceived in Japan as signs of confidence and sincerity, with actual refund requests being rare. Whether such measures would be interpreted similarly elsewhere remains uncertain, calling for careful cultural adaptation.

Broader implications. The principles of expectation management and purpose-based CRM extend beyond the restaurant industry, offering a practical foundation for managing customer experiences in diverse service contexts. Methodologically, CIT can be applied across industries to uncover key elements shaping satisfaction. This approach aligns with the logic of bundle services (Ribeiro et al. 2024), offering a foundation for integrative service design.

Limitations and future research

This study has several limitations. First, it examines only one service type in three Asian countries with urban middle-class populations, limiting generalizability. Although the qualitative research in this study is consistent with prior studies (e.g., Bitner et al. 1990) and the quantitative analysis focuses on the primary consumer segment in emerging economies (Kharas 2010), both approaches relied on non-probability samples, which may limit representativeness beyond the studied populations.

Second, the research design is subject to potential self-report biases. Specifically, the evaluations of individual elements and the direction of disconfirmation may have been influenced by the overall affective state at the time of response, possibly leading to factor–satisfaction links that appear stronger than they actually are.

Third, the best-fitting model may differ across countries, and the common model presented in this study may not necessarily represent the optimal model in terms of data fit. Further, incorporating appropriate moderators into the model would be necessary to better capture real-world variations. Such moderators include the frequency of restaurant visits within the past year, the time elapsed since the most recent visit, and situational factors such as the subjective meaning

of the experience (e.g., whether it evoked feelings of gratitude). These variables may also help clarify the negative disconfirmation effect observed in India.

Fourth, the model specification did not incorporate heightened overall expectations as an influential antecedent of satisfaction—identified in the qualitative phase, a potential source of omitted-construct bias.

Building on these limitations, several directions for future research can be proposed.

First, the quantitative model could incorporate heightened pre-experience emotions and expectations, for example, by measuring peak expectations in line with the Peak–End Rule (Kahneman et al. 1999). Our qualitative findings suggest that overall expectations tend to rise as the decision point approaches, and that pre-decision excitement is often recalled as "enjoyable" after the experience. Building on these insights, future studies may operationalize the Exploration and Expectation phases more explicitly—for instance, by asking respondents to evaluate how enjoyable they found these pre-experience phases on a 5- to 7-point scale. Incorporating such variables (or a latent construct) into quantitative models would allow more direct testing of how expectation dynamics shape satisfaction and post-experience evaluations. This approach may also help in developing a longer-term, loyalty-centric model in which attitudinal evaluations (e.g., perceived quality, trust) lead to loyalty, and enjoyable pre-experience expectations positively influence these attitudinal evaluations. At the same time, a more microscopic focus on the disconfirmation process—such as examining cognitive–affective pathways or attributional mechanisms—represents another promising direction for future research.

Second, the number of observed variables in this study varies across constructs—twelve for performance but only three each for price and disconfirmation. Future studies could subdivide performance into finer dimensions. Based on the CIT results, it may also be useful to distinguish stages of the experience—such as beginning, middle, and end—following the framework proposed by Nagashima (2009) for non-face-to-face services. This approach aligns with the Sequential Incident Technique (SIT), a CIT variant that incorporates temporal sequencing (Stauss and Weinlich 1997).

Finally, this study employed a linear compensatory model, assuming that low evaluations in one area can be offset by high ones in another. An exploratory log–log regression analysis was conducted to examine potential asymmetry and non-linearity, but more rigorous testing of such effects is also needed. Along with these aspects, identifying non-compensatory or combination effects remains a promising avenue for future research. Including consumers who chose not to purchase may provide further insights in this regard.

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1057/s41270-025-00453-z.

Acknowledgements I would like to thank the editor and the anonymous reviewers for their constructive comments. I am also grateful to the session chairs and participants at the AMA Global Marketing SIG 2024 Conference in Verona and the AIB 2024 Conference in Seoul for their valuable feedback. Special thanks are extended to the late Yoshie Nagashima.

Funding This work was supported by Grants-in-Aid for Scientific Research from the Japan Society for the Promotion of Science (JSPS), Grant Number 19K01899. Additionally, open access funding was provided by Toyo University.

Data availability The data that support the findings of this study are available from the author upon reasonable request.

Declarations

Conflict of interest The author declares no competing interests.

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