

Customer participation behavior and customer citizenship behavior in hotels: Testing co-production and value-in-use as mediators

Tourism and Hospitality Research
2025, Vol. 0(0) 1–18
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DOI: 10.1177/14673584241310050
journals.sagepub.com/home/thr



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Abstract

This study investigates customers' contribution to value co-creation by exploring the associations between customer co-creation behavior, including customer participation and customer citizenship behavior, and co-creation processes, namely, co-production and value-in-use. It combines co-creation theory with equity and social exchange theories to propose a model for customer behavior towards value co-creation. Using Partial Least Squares Structural Equation Modeling (PLS-SEM), data were collected from tourists staying at hotels in Portugal. Results indicate that customer participation behavior envisages co-production and value-in-use, while the two forms of value co-creation subsequently improve customer citizenship behavior. Moreover, co-production enhances value-in-us. Additionally, customer participation behavior is associated with customer citizenship behavior through co-production and value-in-use. This research contributes to the co-creation theory by proving co-production and value-in-use as transforming mechanisms that turn customer participation behavior into customer citizenship behavior. Applying the proposed model as a managerial tool in hotels improves co-creation processes and boosts customer citizenship behavior.

Keywords

Customer participation behavior, customer citizenship behavior, value co-creation, co-production, value-in-use

Introduction

Value co-creation is a well-known contemporary marketing theory widely applied in various sectors, including tourism and hospitality. While the traditional marketing perspective is provider-centric as it considers the provider as the primary contributor who designs, produces, and distributes products/services to customers, the value co-creation theory is a customer-

centric perspective in which the customer is a source of the firm's competitive advantage (Prahalad and

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Ramaswamy, 2004a). Based on the co-creation theory, service providers should co-create unique customer experiences through interaction to differentiate themselves from rivals (Pralhad and Ramaswamy, 2004b). Many scholars contribute to co-creation theory. For instance, Vargo and Lusch (2008a) proposed the holistic perspective of service-dominant logic in which value is collaboratively co-created when all social and economic participants (e.g., customers, employees) integrate operant resources (e.g., knowledge, skills, capabilities) through interaction for the benefit of all. Grönroos and Ravald (2011) also suggested the empirical perspective of service logic in which value co-creation occurs when the customer participates in co-production or when the service provider is able to help the customer create personalized value-in-use during consumption through direct interaction.

By conducting a literature review on value co-creation, Ranjan and Read (2016) identified two forms of value co-creation: co-production and value-in-use. Co-production, which is measured by equity, knowledge, and interaction, refers to the joint creation of a distinctive offering with the customer, requires the service provider to build an interactive environment, shares control of the service provision process with customers, and welcomes customers' new ideas and suggestions about its products/services (Ranjan and Read, 2016; Vargo, 2011). Value-in-use, measured by personalization, experience, and relationship, denotes co-creating a personalized value with the customer through interaction during consumption to enhance the customer experience and improve customer relationship (Grönroos, 2011; Ranjan and Read, 2016).

Literature reviews on value co-creation in the hospitality and tourism industry identified customer participation as a prerequisite for value co-creation (Campos et al., 2018; Mohammadi et al., 2021). Yi and Gong (2013) investigated customer behavior in value co-creation in services and proposed a model for customer value co-creation behavior, including customer participation behavior and customer citizenship behavior. Customer participation behavior is defined as in-role behavior necessary for fruitful value co-creation, such as seeking information about the firm and its services, sharing information about the needs and preferences with the service provider, executing responsible behavior as per the employee's direction, and maintaining respectful and friendly personal interaction with the service employees (Yi and Gong, 2013). In contrast, customer citizenship behavior denotes voluntary extra-role behavior, which is not necessarily required for value co-creation but may lead to extraordinary value for the service provider (Gong and Yi,

2021). Customer citizenship behavior includes providing solicited or unsolicited feedback to assist the service provider in enhancing its services in the long run, recommending its services to others, helping other customers in using the services, and having tolerance while facing a service failure (Yi and Gong, 2013).

Customer participation behavior and customer citizenship behavior have received significant attention in the hospitality and tourism industry. Some scholars focused on customer participation behavior to discover its antecedents and consequences. For example, Feng et al. (2024) showed that customer participation enhanced brand engagement, subsequently improving hotel brand preference. González-Mansilla et al. (2019) asserted that customer participation behavior elevated customer perceived value in IBS hotels. Sarmah et al. (2023) revealed that customer innovativeness and hotel trust improve customer participation behavior. In timeshare exchange services, Lelo de Larrea and Gregory (2020) investigated the link between customer participation behavior and co-production. However, their results failed to approve any significant association between customer participation and co-production due to the complex nature of timeshare exchange services; thus, they recommended further studies to test the association between customer participation, co-production, and value-in-use in other sectors of the hospitality industry. Later, in the hotel context, Sadighha et al. (2024) showed that customer participation behavior enhances co-production and value-in-use in hotels; however, they did not address if stimulating value co-creation processes by customer participation behavior may add any extra value for the service provider. Assiouras et al. (2019) also investigated the association between value co-creation as a higher-order variable with customer satisfaction and willingness to engage in citizenship behavior. Although their findings revealed that value co-creation improves the willingness to engage in citizenship behavior through satisfaction, they failed to propose any mechanism to transform customer participation behavior into customer citizenship behavior. Other studies also focused on customer citizenship behavior, triggers, and outcomes without considering customer participation behavior. For instance, Hossain et al. (2020) proved that customer involvement moderates the positive association between customer love and customer citizenship behavior. O'Connor and Assaker (2022) also confirmed that hotel service quality and corporate social responsibility predict hotel reputation through trust and satisfaction, further enhancing customer citizenship behavior.

Also, a few studies that focused on customer participation behavior and customer citizenship behavior

did not investigate how they may be interrelated (Gong and Yi, 2021). For example, Yen (2023) confirmed customer innovativeness and customer brand identification as drivers of customer participation behavior and customer citizenship behavior, whereas Uslu and Tosun (2024) revealed that the more agreeable and extroverted customers are, the more likely they will demonstrate participation and citizenship behavior leading to customer satisfaction and emotional well-being. Li et al. (2023) also affirmed that communal identity and existential authenticity are predictors of customer psychological ownership, which positively impact customer participation behavior and customer citizenship behavior.

Moreover, Gong and Yi (2021) called for further investigation into the relationship between value co-creation processes (co-production and value-in-use) and customer value co-creation behavior (customer participation behavior and customer citizenship behavior) to clarify how customers may contribute to value co-creation considering that customer participation behavior differs from customer citizenship behavior based on their definitions and different patterns they follow. Lelo de Larrea and Gregory (2020) also recommended further studies on associations between co-production and value-in-use to explore if co-production can be a trigger of value-in-use to improve customer experience.

To fill the identified gaps and respond to the previous calls, this research explores the intersection of the two streams of research, customer value co-creation behavior and co-creation processes, to clarify how customer participation behavior and customer citizenship behavior are associated with co-production and value-in-use. Accordingly, the research objectives are fourfold: (1) to evaluate the prediction role of customer participation behavior for co-production, value-in-use, and customer citizenship behavior; (2) to examine co-production and value-in-use as drivers of customer citizenship behavior; (3) to gauge co-production as a trigger of value-in-use; and (4) to estimate the mediating role of co-production and value-in-use between customer participation behavior and customer citizenship behavior.

By bonding co-creation theory as a prominent foundation of this research with equity theory and social exchange theory, this research takes a novel approach to propose a comprehensive model of customer behavior towards value-co-creation including both dimensions of customer co-creation behavior (customer participation behavior, customer citizenship behavior) and both forms of co-creation process (co-production and value-in-use). Accordingly, this study proposes a model that not only improves co-creation processes but also

transforms customer participation behavior into customer citizenship behavior to add extra benefits for the service provider. As a contribution to co-creation theory, the present study confirms customer participation behavior as a direct predictor of customer citizenship behavior and as a trigger of a transforming mechanism, including co-production and value-in-use that boost customer citizenship behavior, leading to outstanding benefits for the service provider. In practice, the proposed integrated model assists hotel managers in effectively co-producing desired services (by giving voice to customers and opportunities to participate) and enhancing customer experience, subsequently increasing customer citizenship behavior and providing extra value for the hotel.

Literature review and developing hypotheses

Customer participation behavior as a prerequisite

According to Yi and Gong (2013), customer participation behavior includes seeking information about the service provider and its services, which reduces customers' uncertainties about value co-creation, empowers them to control the co-creation environment, and assists them in mastering their role as value co-creators. Customers also share adequate and essential information with the employees about their specific needs to ensure service quality meets their needs; exhibit their responsibilities, such as following employees' directions for a successful value co-creation; and communicate with employees in a friendly and respectful manner to increase engagement in a pleasant service environment (Roy et al., 2020; Yi and Gong, 2013).

In timeshare exchange services, Lelo de Larrea and Gregory (2020) found a significant association between customer-employee interaction and co-production. As Lelo de Larrea and Gregory (2020) discussed, customers (timeshare owners) considered the role of the service provider (exchange company) as intermediaries in this complex sector, where a luxury lodging interval may be exchanged with an equivalent or with an airfare or a cruise. Therefore, customers preferred to book personalized timeshare exchanges with employees' assistance through interaction. In turn, the association between customer participation and co-production was not meaningful, probably because customers did not have enough time or deep knowledge to participate in co-production or did not perceive a high experiential benefit. In the hospitality sector, Wang (2011) attested that collecting information about the service provider

and its services eliminated customer overestimation of services, sharing of information about the desired services diminished the gap between management perception and customer expectation of services; customer participation in hotel service design and delivery reduced the gap between service quality specifications and management perceptions, and customer's friendly interaction with the employee enhanced the service quality by decreasing the gap between service delivery and service specifications. Furthermore, [Koc et al. \(2017\)](#) have debated that customer participation in service co-production (e.g., deciding on the best holiday package, being eager to receive the service, and choosing food from an open buffet) may increase feelings of cognitive control (ability to obtain information and predict the situation), decisional control (having choices among different options), and behavioral control (ability to amend the situation) over the co-creation process ([Averill, 1973](#)). In restaurant contexts, findings ascertained that decisional control was the most influential type of control that aroused the customers' affective responses (i.e., satisfaction, happiness) toward their participation behavior ([Stevens et al., 2017](#)).

In adventure tourism, [Prebensen and Xie \(2017\)](#) revealed that tourists' participation during consumption significantly improved tourist perceived value. Moreover, [González-Mansilla et al. \(2019\)](#) showed that customer participation behavior enhances customer perceived value and satisfaction in hotels, while [Kim and Tang's \(2020\)](#) findings revealed that customer participation behavior, such as informing frontline employees regarding their food allergies or preferred ingredients/cooking style, improved customers' perceived value during consumption. [Li and Hsu \(2018\)](#) asserted that customer information and emotional participation, such as clearly explaining what they require and showing courtesy toward service employees, improved employees' innovative behavior in co-creating services. [Sadighha et al. \(2024\)](#) also confirmed that customer participation assisted hotels in co-producing tailor-made offerings and improved guests' experience of personalized value during consumption. According to [Ranjan and Read \(2016\)](#), co-production occurs when the service provider is open to customers' needs and ideas and shares control with them, considering the customer's role equally important. In turn, it is the customer who determines value-in-use by experiencing personalized value during consumption while the service provider facilitates this process. Considering that customer participation behavior is defined as in-role behavior mandatory for successful co-creation processes ([Yi and Gong, 2013](#)) and is a prerequisite of co-creation based on previous literature

reviews ([Mohammadi et al., 2021](#)), the authors propose that:

H1: Customer participation behavior is positively associated with co-production.

H2: Customer participation behavior is positively associated with value-in-use.

The findings from the previous studies also supported that customer participation in value co-creation improved customer loyalty ([Chen et al., 2015](#)), while loyalty (e.g., word of mouth) has been categorized as one indicator of advocacy, a dimension of customer citizenship behavior ([Gong and Yi, 2021](#)). Furthermore, results showed that customers who participated in co-creating value with the hotel were more understanding of the co-creation process and had a softer propensity to complain regarding their experience of a service failure. As [Gong and Yi \(2021\)](#) discussed, customer participation behavior also improves customer mastery of how to utilize services; therefore, customers who participate in value co-creation and have considerable experiences with services are more likely to provide valuable feedback/suggestions on how to improve the provider's services or help other customers who experience similar difficulties applying services as they did. Therefore, this study proposes that:

H3: Customer participation behavior is positively related to customer citizenship behavior.

Customer citizenship behavior as a consequence

Customer citizenship behavior is defined by [Yi and Gong \(2013\)](#) as voluntary and not necessarily required behavior for successful value co-creation that includes four factors, namely, advocacy, feedback, tolerance, and helping, through which customers may reciprocate added value to the service provider by offering suggestions about the services, recommending the service provider to others, assisting other customers in using services and having tolerance in case of a service failure. Therefore, hotel managers highly appreciate increasing customer citizenship behavior as it provides added benefits once customers surpass their expected in-role behavior ([Zoghbi-Manrique-de-Lara et al., 2017](#)).

In hospitality, [Assiouras et al. \(2022\)](#) investigated the association between value co-creation and customers' enjoyment through perceived justice in lodging facilities in Greece. Results revealed that value co-creation

positively correlated with customers' enjoyment through perceived distributive and interactional justice (Assiouras et al., 2022). Moreover, Assiouras et al. (2019) affirmed that value co-creation significantly improved customers' willingness to engage in citizenship behavior, while customer satisfaction was the mediator of this relationship.

Grounded in equity theory, an encounter will be seen as fair when the outcome (experiences) to input (effort, money, time) of it is comparable with other such encounters (Adams, 1963). Considering that value co-creation occurs in customer-service employee interactions to co-produce a distinctive offering or to experience unique value, customers who regard value co-creation as fair are more eager to participate and collaborate with the service provider (Shulga et al., 2018). Customers assess the fairness of value co-creation by considering the costs they pay (e.g., effort and time spent on producing desired offerings or creating personalized experiences) against a desired outcome/benefit they receive, as well as the fairness in the service provider manner (e.g., courtesy and respect) and the co-creation processes and policies (Devlin et al., 2014). Moreover, based on social exchange theory, individuals who receive benefits or assistance are likely to feel an obligation to reciprocate it towards others through interaction (Blau, 2017; Tung et al., 2017). Therefore, customers who have given voices and are treated equally as important as the service provider during the co-production of desired offerings or who have been assisted respectfully by the service provider to experience personalized value during consumption are expected to reciprocate the benefits/assistance received by practicing higher citizenship behavior.

H4: Co-production is positively associated with customer citizenship behavior.

H5: Value-in-use is positively associated with customer citizenship behavior.

Furthermore, co-production requires the customer's willingness and ability to provide information to the firm about their needs; without it, the quality of the provided services may not meet the customer's desire (Ranjan and Read, 2016; Yi and Gong, 2013). Lelo de Larrea and Gregory (2020) also discussed that co-producing a desired offering with customers may improve customers' experience of personalized value-in-use during consumption, which needs further investigation. As Chathoth et al.'s (2020) findings in hotels showed, guests' personal needs are known only to themselves (e.g., preferred pillow type); thus, the initial requests come from the guests, allowing employees to co-create tailor-made experiences that best meet their

particular needs. Therefore, to complement Assiouras et al.'s (2022) discussion highlighting that co-production may improve customers' evaluation of their unique experiences, which meets their idiosyncratic needs, this study proposes that:

H6: Co-production is positively related to value-in-use.

Co-production and value-in-use as mediators

Customer participation behavior has been defined as in-role behavior to initiate a successful value co-creation (Yi and Gong, 2013) and identified as a prerequisite of value co- (Campos et al., 2018; Mohammadi et al., 2021) that stimulated the co-production of a desired offering and experience of unique value-in-use (Sadighha et al., 2024). In contrast, customer citizenship behavior as voluntary behavior (Yi and Gong, 2013) was the outcome of value co-creation in hotels asserting that customers who had been offered superior value propositions addressing their preferences or experienced tailor-made services during consumption were more likely to reciprocate added values to the service provider by increasing their citizenship behavior (Assiouras et al., 2019). Berenguer-Contró et al. (2024) also showed that co-producing a superior value and facilitating customers' creation of value-in-use during consumption enhances customers' overall experience with the hotel, satisfaction, and loyalty. Therefore, the authors expect that the co-creation processes mediate customer participation behavior and customer citizenship behavior.

H7: Co-production is the mediator between customer participation behavior and customer citizenship behavior.

H8: Value-in-use is the mediator between customer participation behavior and customer citizenship behavior.

Furthermore, co-production is expected to positively relate to value-in-use (H6), as discussed earlier. Hossain et al. (2020) also suggested that hotel managers encourage customers to interact with the hotel employees and co-create personalized values because they uncovered that the exchange of information through customer-service employee interaction empowered employees in tuning hotel services that fulfill customers' individual demands, leading to experiencing unique value-in-use that may increase customer citizenship behavior. Additionally, Tu et al. (2018) unveiled that guests' participation in designing their rooms with the hotel during co-production improved

their perceived value during consumption as they experienced personalized services meeting their needs; therefore, they paid higher prices for tailor-made services they received, which is a type of citizenship behavior as it significantly boosts the hotel's revenue (Gong and Yi, 2021). As co-creation processes are designed to ensure that customers experience tailored value-in-use during consumption by involving them in co-producing superior value propositions (Grönroos and Gummerus, 2014), the present study postulates that:

H9: The concurrence of co-production and value-in-use mediates the relationship between customer participation behavior and customer citizenship behavior.

Accordingly, this study proposes a model for customer behavior toward value co-creation as shown in (Figure 1).

Study method

Setting and study population

In southern Portugal, the Algarve region is one of the most attractive destinations due to its 318 km coastline, golden sandy beaches, magnificent landscape, calm sea, and Mediterranean gastronomy. Tourists to the Algarve region are predominately from the UK, totaling 4.3 million tourists, followed by other regions, namely Germany and France (Turismo De Portugal, 2023). In 2023, tourists from the UK stayed nearly 5 million nights in Algarve accommodations (Algarve Sustainable Tourism

Observatory, 2023). Therefore, the target population for this study consisted of tourists from the UK market visiting Algarve hotels during the summer of 2022.

Constructs measures

Researchers designed an English questionnaire with three sections to conduct the survey. Travel characteristics (i.e., the reason for staying with the traveling party) are addressed in the first section, followed by scales to assess customer participation behavior, customer citizenship behavior, co-production, and value-in-use in the second section. In section two, the survey borrows the scales from Roy et al. (2020) and Assiouras et al. (2019), which have already been used in the hospitality industry. To evaluate customer participation behavior and customer citizenship behavior, which are reflective-reflective constructs (Yi and Gong, 2013), the scales from Roy et al. (2020) have been applied. To assess co-production and value-in-use, which are formative-formative variables (Ranjan and Read, 2016), the scales from Assiouras et al. (2019) have been used. The scales are represented in Table 1 in the appendix. The scales of each construct have been assessed by applying a five-point "Likert" scale (1 = strongly disagree, 5 = strongly agree). At the end of the survey, tourists are asked about their socio-demographic profiles (e.g., age, gender, marital status). Table 2 shows the constructs' names, abbreviations, dimensions, and references in the hospitality sector.

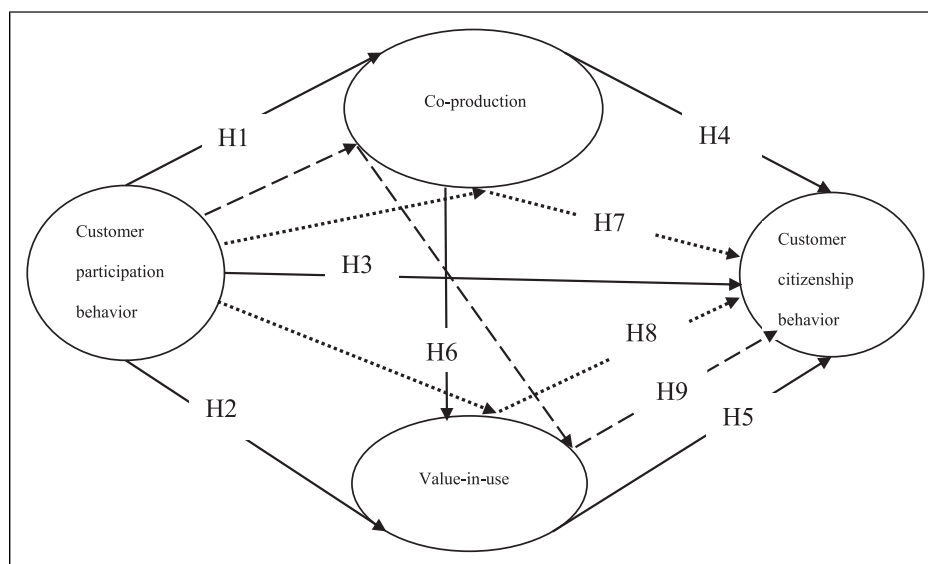


Figure 1. Recommended model for customer behavior toward value co-creation and research hypotheses.

Table 2. Variables, dimensions, and references.

Variables and their structure	Dimension	Applied measures in hotels
Customer participation behavior as a reflective-reflective variable	Information seeking, information sharing, responsible behavior, and responsible behavior (Yi and Gong, 2013)	(Roy et al., 2020)
Customer citizenship behavior as a reflective-reflective variable	Advocacy, feedback, tolerance, and helping (Yi and Gong, 2013)	(Roy et al., 2020)
Co-production as a formative-formative variable	Equity, knowledge, and interaction (Ranjan and Read, 2016)	(Assiouras et al., 2019)
Value-in-use as a formative-formative variable	Personalization, experience, and relationship (Ranjan and Read, 2016)	(Assiouras et al., 2019)

Data collection

Data collection was authorized by the authorities at the Faro International Airport in the summer of 2022. The questionnaires were distributed by research assistants in the airport departure area while tourists were waiting to board a plane. All tourists from the UK who were over 18 years old and stayed in hotels in the Algarve were invited to complete the questionnaire. Data collection occurred at different times of the day and week to integrate different tourist profiles. Thus, tourists were not selected based on convenience, but all had a chance to participate in the survey voluntarily. The research assistants explained the purpose of the study and verified the confidentiality of the data that would be collected. Thirty tourists participated in a pilot study, and a few items were reworded in response to their feedback (Perneger et al., 2015). A total of 600 questionnaires were distributed among tourists, of which 564 (94%) collected questionnaires were valid (excluding incomplete questionnaires/outliers); thus, they were considered for the analysis. Although a random sampling procedure was not implemented, this research almost reached the minimum questionnaire needed (583) to achieve 95% confidence and a 4% margin of error (Cochran, 1963).

Data analysis plan

In this survey, all constructs were measured using the Likert scale (from 1 to 5); thus, there was a possibility of facing responses' consistency, which increases the covariances between the variables, leading to the "common method bias" (CMB) (Podsakoff et al., 2012). Therefore, the researchers applied Harman's (1976) single-factor test by conducting an exploratory factor analysis (EFA) using SPSS 28.0.1.0(142), which included all items loaded into one common factor, as advised by Roni (2014).

Accordingly, CMB confirmed no adverse effects on the dataset, with a total explained variance of 40.781%, lower than 50%.

Next, by using the "SmartPLS" software version 4.0.8.2, the authors applied partial least squares structural equation modeling (PLS-SEM) to estimate the proposed model (Ringle et al., 2022). PLS-SEM has been found suitable as the complex model incorporates both formative and reflective second-order constructs (customer participation behavior, co-production, value-in-use, and customer citizenship behavior), and data are not normally distributed (Kolmogorov-Smirnov and Schapiro Wilk test for most items: $p = .00$). To estimate the measurement model, this study deploys a two-stage approach (Hair et al., 2022). During the first stage, the authors attained the scores of each dimension corresponding to the first-order constructs. A PLS-SEM algorithm with interconnected first-order reflective/formative constructs was applied to the model. The second stage involved measuring the second-order constructs based on the scores obtained for first-order constructs. Following the recognition of the quality of the measurement model, the structural model was assessed, and the research hypotheses were estimated.

Result

Characteristics of the study participants

Participants in this study includes 54.90% female, and 45.10 % male. The majority were between 30 and 60 years old (76%) and came to the region with their families or partners (90.10%) for vacation (97.70%). Most tourists (86.10%) had a university degree, and 55.20% were self-employed. Moreover, 90% of the respondents stayed in 4- or 5-star hotels, while 10% stayed in 3-star hotels. These results are aligned with the results of a recent study about the sociodemographic profile of UK tourists visiting the Algarve in 2022 (Turexperience, 2023).

Measurement model: Phase 1

In stage 1, as presented in Table 3 in the appendix, the constructs' reliability and convergent validity of the reflective variables have been assessed. It is evident that all factor loadings, which indicate how reliable the reflective first-order latent variables are, were higher than the threshold value of 0.708 (Hair et al., 2019), suggesting that there is more variance shared between each indicator and the corresponding variable than error variance. Also, all indicators relating to one construct have higher Cronbach alpha and composite reliability (CR) coefficients than 0.7, confirming that they are internally consistent. Furthermore, the "Average Variance Extracted" (AVE) values represent the variance shared between each construct and its indicator, exceeding the threshold of 0.5; convergent validity is thus demonstrated. (Hair et al., 2019). Then, an analysis of non-parametric bootstrapping for 5,000 samples was conducted to determine each indicator's significance to its corresponding constructs (all bootstrapping $p = .00$).

For evaluating discriminant validity, which reflects how well each construct represents a distinct concept that is separate from the others, results in Table 4 in the appendix reveal that each construct's square root of each AVE value (in the diagonal) exceeded its correlations with the other constructs (out of the diagonal) achieving the discriminant validity based on "Fornell and Larcker"'s (1981) criterion. The "Heterotrait-Monotrait Ratios" (HTMT) values below 0.85 were also observed, and the bootstrap confidence intervals did not include the value of 1, suggesting discriminant validity (Henseler et al., 2015). Moreover, the cross-loading values demonstrated that each indicator's loading on its corresponding construct was more significant than on other constructs, establishing discriminant validity (Hair et al., 2019). However, the results of cross-loadings and the HTMT confidence intervals have not been presented to save space.

Table 5 in the appendix also provides the evaluation of formative variables in the first-stage measurement model. Results show that all weights are significant at a 5% level (all bootstrapping $p < .02$), and the bootstrap confidence intervals do not include zero (have not been presented to save space). This demonstrates that all indicators are associated with formative latent variables. Furthermore, all "variance inflation factors" (VIFs) are less than 3.218, lower than the threshold of 5, indicating that there is no evidence of a multicollinearity issue regarding the formative items (Hair et al., 2019).

Measurement model: Phase 2

Considering the validity of the first-stage results for all formative/reflective first-order constructs, their scores were used in the second stage to evaluate the measurement model of the second-order reflective variables. As indicated in Table 6, all factor loadings are higher than the threshold of 0.708, except for personal interaction (0.634), which corresponds to customer participation behavior. Nonetheless, considering that the other quality criteria were met and that Yi and Gong (2013) and Roy et al. (2020) identified and assessed this construct as having content validity, this measure was retained (Hair et al., 2022). Moreover, Cronbach alpha (0.796), CR (0.806), and AVE (0.631) validated the reliability and convergent validity of the customer participation behavior, while Cronbach alpha (0.821), CR (0.825), and AVE (0.650) established the reliability and convergent validity of the customer citizenship behavior (Hair et al., 2019, 2022). As shown in Table 7, the square roots of each AVE (located on the diagonal) are more significant than the correlations between each construct and all other constructs (found outside the diagonal). Therefore, the discriminant validity of the model was confirmed using the criteria outlined by Fornell and Larcker (1981). A further indicator of discriminant validity is the "Heterotrait-Monotrait ratio" (HTMT) value of 0.800, below the threshold of 0.85 (Henseler et al., 2015).

As a result of bootstrapping 5,000 subsamples, all outer weights were significant for the second-order formative variables (Hair et al., 2019, 2022). The VIFs for each sub-dimension of co-production and value-in-use were also below threshold 5, indicating no evidence of collinearity (Hair et al., 2019).

Structural model assessment and hypotheses testing

Once the measurement model was evaluated, the focus moved to the structural model. Hair et al. (2019) stated that the coefficient of determination (R^2) of the endogenous latent variables determines the exploratory and predictive capability of a model, which can be high (0.75), moderate (0.5), or low (0.25). According to the results, the model has a moderate to high ability to predict co-production (0.721), value-in-use (0.363), and customer participation behavior (0.595). Moreover, Stone Geisser's Q^2 values, which were obtained from Smart PLS 4.0's blindfolding routine, confirm the predictive accuracy of the constructs of the model (Q^2 for co-production = 0.358; Q^2 for value-in-use = 0.368; Q^2 for customer citizenship behavior = 0.414). Furthermore, the proposed model reports a "Standardized

Table 6. Measurement model for higher-order latent variables.

Construct	Type	Sub-dimension	Loading/weight	Cronbach's alpha	CR	AVE
Customer participation behavior	Reflective	Information seeking	0.747 ^a	0.796	0.806	0.631
		Information sharing	0.881 ^a			
		Responsible behavior	0.887 ^a			
		Personal interaction	0.634 ^a			
Customer citizenship behavior	Reflective	Feedback	0.83 ^a	0.821	0.825	0.65
		Advocacy	0.804 ^a			
		Helping	0.828 ^a			
		Tolerance	0.762 ^a			
Co-production	Formative	Knowledge	0.203 ^a			VIF
		Equity	0.512 ^a			
		Interaction	0.36 ^a			
Value-in-use	Formative	Experience	0.344 ^a			
		Personalization	0.379 ^a			
		Relationship	0.381 ^a			

^a $p = .000$.

Table 7. Correlations among the reflective higher-order variables.

Construct	Customer citizenship behavior	Customer participation behavior
Customer citizenship behavior	0.806 ^a	
Customer participation behavior	0.646 0.8 ^b	0.794 ^a

^aDiagonal values refer to the squared root value of AVE for each latent variable to appraise the Fornell-Larcker criterion.

^bHTMT Values.

Root Mean Square Residual" (SRMR) value of 0.068 and a "Normed Fit Index" (NFI) value of 0.869, which supports a good model fit (Hair et al., 2022).

To test the hypotheses, a one-tailed bootstrapping procedure was performed. Results show that all the direct path coefficient values were statistically significant, thus supporting H1 to H6, as presented in Table 8. This means that customer participation behavior has a positive relationship with customer citizenship behavior and has a significant relationship with co-production and value-in-use. Moreover, co-production has a positive relationship with value-in-use; both value-in-use and co-production positively relate to customer citizenship behavior. Results also indicate significant p values for H7, H8, and H9 when evaluating the mediating role of co-production and value-in-use between customer participation behavior and customer citizenship behavior. Accordingly, co-production and value-in-use mediate the relationship

between customer participation behavior and customer citizenship behavior, as shown in Table 8. Furthermore, customer participation behavior's total effect on customer citizenship behavior is 0.646, whereas its direct impact on customer citizenship behavior is 0.305. The co-production and value-in-use as mediators emphasize the importance of a mechanism that transforms customer participation into customer citizenship behavior, leading to additional value for hotels.

Discussion

The results of the present study support that customer participation behavior has strong direct associations with co-production (H1: $\beta = 0.603$), value-in-use (H2: $\beta = 0.165$), and customer citizenship behavior (H3: $\beta = 0.306$). This is aligned with the previous studies findings that customers' active participation in value co-creation improved hotel services quality (Wang, 2011) and

Table 8. Results of the structural model.

	Path coefficient	T value	p value	Support
Direct hypotheses				
H1. Customer participation behavior -> co-production	0.603	18.435	0.000	Yes
H2. Customer participation behavior -> value-in-use	0.165	5.184	0.000	Yes
H3. Customer participation behavior -> customer citizenship behavior	0.306	7.087	0.000	Yes
H4. Co-production -> value-in-use	0.739	26.807	0.000	Yes
H5. Co-production -> customer citizenship behavior	0.373	6.038	0.000	Yes
H6. Value-in-use -> customer citizenship behavior	0.190	3.243	0.001	Yes
Specific indirect hypotheses assessing the mediators				
H7. Customer participation behavior -> co-production -> customer citizenship behavior	0.225	5.776	0.000	Yes
H8. Customer participation behavior -> value-in-use -> customer citizenship behavior	0.031	2.754	0.003	Yes
H9. Customer participation behavior -> co-production -> value-in-use -> customer citizenship behavior	0.085	3.135	0.001	Yes
Total effect				
Customer participation behavior -> customer citizenship behavior	0.647	18.970	0.000	Yes

assisted service employees in delivering services that best match with customers' specific needs (Yi and Gong, 2013), which was not only enhanced the customer perceived value of services (González-Mansilla et al., 2019) and satisfaction with hotel services but also increased customers' willingness to implement citizenship behavior that brings extra benefit for the hotel such as loyalty and feedback (Assiouras et al., 2019; Gong and Yi, 2021).

Moreover, co-production (H5: $\beta = 0.373$) and value-in-use (H6: $\beta = 0.190$) are significantly related to customer citizenship behavior. Results show that equity (0.512) is the most crucial element in co-production, whereas relationship (0.381) and personalization (0.379) are the most significant factors that form value-in-use. These findings are aligned with previous results by Ranjan and Read (2016) and Sadighha et al. (2024), revealing the significance of equity, personalization, and relationship in forming co-production and value-in-use in various services, including hospitality services (hotels and Subway). Assiouras et al.'s (2022) results also confirm interaction, relationship, and personalization as the most substantial factors of co-creation processes. The main difference among the findings regards the importance of equity in forming co-production. This study's population includes tourists from the UK who mostly stayed in 4- and 5-star hotels (90%), most probably benefiting from professional service employees whose outstanding communication skills assist them in maintaining equity during interaction with guests to recognize their specific needs better. Thus, employees' communication skills may be the reason for this difference.

Table 8 shows that co-production strongly drives value-in-use (H4: $\beta = 0.739$). Additionally, value-in-

use and co-production mediate the positive associations between customer participation behavior and customer citizenship behavior (H7: $\beta = 0.225$, H8: $\beta = 0.031$ and H9: $\beta = 0.085$). Therefore, customer participation in the co-production of a desired value proposition and the customer's creation of a unique value-in-use during consumption are the two transforming mechanisms that boost customer citizenship behavior. These empirical findings strongly support the application of equity theory, social exchange theory, and the fundamental premise of co-creation theory, highlighting that the customer is a leading creator of value (Grönroos, 2008; Vargo and Lusch, 2017) and the source of the firm's competitive advantage (Chathoth et al., 2014; Ramaswamy and Ozcan, 2018). Therefore, value co-creation requires the service provider consider the equal role for customers to contribute in designing and producing favorable offerings that meet their real needs (equity theory) (Ranjan and Read, 2016), leading to experiencing personalized value-in-use (co-creation theory), for instance, specialized seafood made up of high-quality local ingredients, which not only improves customer relationship with the service provider (Chathoth et al., 2016; Taheri et al., 2017) but also increases customer willingness to practice citizenship behavior to reciprocate extra-benefits to the firm (social exchange theory) (Assiouras et al., 2019).

Table 8 also shows that the direct relation between customer participation behavior and customer citizenship behavior is 0.306, whereas the total effect of customer participation behavior on customer citizenship behavior is 0.646 (almost double the direct effect). Therefore, through co-producing a desired offering with

the hotel and providing customers with a tailor-made value in use, the impact of customer participation behavior on customer citizenship behavior has indirectly increased by 0.340 (almost equal to the direct effect), indicating the significance of co-production and value-in-use as transformer mediators that turn customer participation behavior into customer citizenship behavior effectively.

Conclusion

This study investigates how customers contribute to value co-creation by exploring the relationships between customer participation behavior (customer in-role behavior, a prerequisite of co-creation, and customer citizenship behavior as extra-role, voluntary behavior) and co-creation processes, co-production, and value-in-use. This research joins the equity, social exchange, and co-creation theories in tourism and hospitality to take a novel approach and proposes a comprehensive model for customer behavior towards value co-creation, which better gauges the associations between customer participation behavior, customer citizenship behavior, co-production, and value-in-use. The result reveals that customer participation behavior (responsible behavior, information sharing, information seeking, and personal interaction) directly enhances customer citizenship behavior (helping, feedback, tolerance, and advocacy), and co-production directly enhances value-in-use. It also shows that customer participation behavior significantly predicts co-production and value-in-use; and co-production and value-in-use drive customer citizenship behavior, adding value to hotels. Additionally, the positive association between customer participation behavior and customer citizenship behavior increases meaningfully through co-production and value-in-use, affirming the pivotal roles of the co-creation processes in enhancing customer citizenship behavior and the hotel's extra benefit.

Theoretical implications

The present research contributes to the body of knowledge of value co-creation in the hospitality sector as it explores the associations between the two dimensions of customer value co-creation behavior (customer participation behavior and customer citizenship behavior) and the two forms of value co-creation (co-production and value-in-use).

In the first place, this research asserts a direct association between customer participation behavior and customer citizenship behavior in response to the call for distinguishing these two concepts because the former refers to customer in-role (mandatory) behavior to co-

create value while the latter is customer extra-role (voluntary) behavior; thus they follow different patterns (Gong and Yi, 2021). Accordingly, the present research deepens the knowledge of customer value co-creation behavior by showing that customer participation behavior predicts customer citizenship behavior. Moreover, it complements the previous findings, showing that customer participation behavior changes customers' understanding of the service processes that may improve customer citizenship behavior in hotels, such as increasing loyalty to the hotel or tolerance to service failure (Koc et al., 2017).

Secondly, this study affirms the direct link between co-production and value-in-use as the two forms of value co-creation in response to the call for further exploration of their association (Lelo De Larrea and Gregory, 2020). Thus, this research expands knowledge on value co-creation by revealing co-production as a predictor of value-in-use, meaning customers who co-produce desired offerings with hotels are expected to have more personalized experiences while using the hotel's services. The empirical findings of this research, which are the results of applying quantitative methods, support previous qualitative findings, revealing that without considering customers as the primary co-creator of value, the service provider may fail to maintain the service quality per the customers' idiosyncratic preferences (Chathoth et al., 2020).

Thirdly, this study expands knowledge on how customers contribute to co-creation processes. It joins equity theory and social exchange theory with the co-creation theory to ascertain that customer participation behavior is a prerequisite of co-production and value-in-use, whereas increased customer citizenship behavior is a consequence of co-creation processes in hotels. Based on its empirical findings, this research highlighted equity as the most fundamental factor in co-producing the desired offering. Therefore, the findings add to previous studies by showing that participation behavior empowers customers to seek information about service providers' processes and services to anticipate co-creation outcomes better (Koc et al., 2017). Moreover, giving voice to customers, considering their roles as co-creators of values, and assisting them in choosing the most desirable services or applying their knowledge and skills to improve proposed offerings leads to experiencing personalized services. (Koc et al., 2017; Prebensen and Xie, 2017). Consequently, the findings of this study support social exchange theory by affirming that customers who co-produce superior value propositions and experience personalized services reciprocate extra benefits to the hotel as they tend to execute more citizenship behavior. The findings of this study expand on previous studies that either investigated customer participation behavior to promote value co-creation

(Sadighha et al., 2024) or explored customer willingness for citizenship behavior as the result of successful value co-creation (Assiouras et al., 2019).

Lastly, the main contribution/novelty of the present study is to propose a transforming mechanism that turns customer participation behavior into customer citizenship behavior. This research confirms that the two co-creation processes, co-production and value-in-use, mediate customer participation behavior to customer citizenship behavior. By comparing the direct impact of customer participation behavior on customer citizenship behavior with the total effect, this research showcases that although customer participation behavior is a direct trigger of customer citizenship behavior, successful co-production/value-in-use are transforming mediators that turn customer participation behavior into customer citizenship behavior, leading to extra-ordinary value for the hotels.

Practical implications

The present study proposes a model for customer behavior towards co-creation processes in hotels and encourages hotel practitioners to apply this model as a managerial tool that not only co-produces a desired offering (by giving voice to customers) and enhances customers' experience (by personalizing hotel services per customer preferences), but also boosts customer citizenship behavior which reciprocates added benefits for hotels.

Based on the empirical findings, customer participation behavior directly drives customer citizenship behavior. Therefore, this study recommends hotels facilitate customer participation behavior (information seeking, information sharing, responsible behavior, and interaction). To do so, hotels should empower their interactive platforms (hotel website, hotel mobile application, hotel social media platforms) with multiple touchpoints to accelerate the exchange of information between customers and service employees, particularly before and during their stay. Hotels should effectively use these platforms to provide accurate information about hotel services, processes, and policies, understand customers' requirements and preferences, and inform customers about their responsibilities for successful value co-creation. For instance, hotels may update guests about their food safety policies, room cancellation policies, or damage property policies via websites. Via social media platforms, hotels may also update and educate guests by sharing informative posts on how to use hotel mobile applications for different services such as online check-in/check-out (Lei et al., 2021), reserving a table in hotels' restaurants, scheduling a massage or spa appointment or sharing individual preferences such as preferred pillow type with service employees during book-in process (Roy et al., 2020).

The empirical findings of the present research also affirm co-production and value-in-use as transformer mediators that effectively turn customer participation behavior into customer citizenship behavior. Therefore, to strengthen the co-production of desired offerings with hotels, this study suggests that practitioners consider customers as primary value co-creators whose distinctive needs and preferences must be recognized. Accordingly, hotels should involve guests in designing their rooms, for instance, by monitoring room preparation using a hotel's mobile app with additional features (Shulga and Busser, 2020) to accelerate sharing their requirements (e.g., extra in-room services for kids) or hobbies (e.g., music) (Roy et al., 2020) which assists service employees in providing tailor-made services (e.g., in-room extra bed or audio system).

Moreover, to reinforce value-in-use, this research advises hotels to detect and rectify misalignment between a guest's requirement and the provided services. To achieve this, hotels should provide one-on-one interactions between staff and guests through direct communication such as chat, email, or call to receive customer feedback to be able to provide prompt replies and take necessary actions to mitigate misalignment in the earliest possible (Lei et al., 2021). For instance, hotels must ensure that non-smoker customers will be hosted and served only in non-smoker rooms at check-in time to avoid value destruction (Järvi et al., 2020). Therefore, having sufficient trained receptionists who spend enough time interacting with customers is essential to identify misalignments and provide service recovery. Furthermore, hotels may provide 'WOW' experiences to customers by proactively recognizing their needs and providing personalized services; for instance, Fairmont Hotels and Resorts offers the convenience of having a resident dog on site to those guests who may miss their furry companions (Chathoth et al., 2016). Additionally, hotels may organize events for regular guests to share innovative ideas for improving stay experiences. Regular guests may also be encouraged to share their original videos about participating in hotels' events on their social media pages (Roy et al., 2020) and recommend hotel services to others.

Limitations and future studies

First, the present study has limited generalizability because it only includes tourists from the UK who stayed at hotels in the Algarve during the high season. Although a large number of tourists participated in this study, they were not randomly selected, which impedes the generalization of this target population. Moreover, the results cannot be generalized to the tourists visiting the Algarve region or those visiting Portugal.

Accordingly, the authors recommend replicating the survey among national and international tourists or other services/hospitality industries in Portugal as well as other European or non-European countries (e.g., Austria, India) to assess and compare the effectiveness of co-production/value-in-use as a transforming mechanism to boost customer citizenship behavior (ideally, using random samples of tourists).

Moreover, future studies may include other variables, such as culture to the model or other dimensions of customer citizenship behavior, such as displays of relationship affiliation identified by Gong and Yi (2021), and provide more profound knowledge on customer contribution to value co-creation.

Finally, further experimental research is recommended to determine whether the proposed model for customer behavior in value co-creation is causally related to the variables.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This paper is financed by National Funds provided by FCT- Foundation for Science and Technology through project UIDB/04020/2020 with DOI 10.54499/UIDB/04020/2020.

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Appendix

Table 3. Results summary for reflective constructs in the first-stage measurement model.

Construct an item	Loading	Cronbach's alpha	CR	AVE
Information seeking		0.738	0.774	0.653
ISk1	0.773 ^a			
ISk2	0.753 ^a			
ISk3	0.873 ^a			
Information sharing		0.896	0.897	0.763
ISh1	0.826 ^a			
ISh2	0.891 ^a			
ISh3	0.897 ^a			
ISh4	0.861 ^a			
Responsible behavior		0.924	0.925	0.816
RB1	0.833 ^a			
RB2	0.92 ^a			
RB3	0.91 ^a			
RB4	0.915 ^a			
Personal interaction		0.955	0.955	0.849
PI1	0.926 ^a			
PI2	0.932 ^a			
PI3	0.937 ^a			
PI4	0.932 ^a			
PI5	0.865 ^a			
Feedback		0.775	0.782	0.688
F1	0.815 ^a			
F2	0.847 ^a			
F3	0.827 ^a			
Advocacy		0.915	0.918	0.855
A1	0.916 ^a			
A2	0.943 ^a			
A3	0.915 ^a			
Helping		0.901	0.901	0.771
H1	0.87 ^a			
H2	0.9 ^a			
H3	0.882 ^a			
H4	0.858 ^a			
Tolerance		0.812	0.839	0.729
T1	0.751 ^a			
T2	0.888 ^a			
T3	0.914 ^a			

^abootstrapping $p < .001$.

Table 4. Correlations between variables.

C	A	F	H	ISk	ISh	PI	RB	T
A	0.925 ^a							
F	0.591 0.689 ^b	0.83 ^a						
H	0.49 0.539	0.593 0.713 ^b	0.878 ^a					
ISk	0.35 0.415	0.418 0.542	0.45 0.541 ^b	0.808 ^a				
ISh	0.417 0.457	0.479 0.570	0.436 0.483	0.627 0.756 ^b	0.874 ^a			
PI	0.587 0.624	0.539 0.611	0.28 0.300	0.199 0.240	0.352 0.379 ^b	0.921 ^a		
RB	0.44 0.475	0.437 0.508	0.342 0.372	0.529 0.625	0.755 0.825	0.498 0.532 ^b	0.903 ^a	
T	0.467 0.532	0.457 0.577	0.605 0.721	0.333 0.425	0.339 0.391	0.371 0.397	0.351 0.392 ^b	0.854 ^a

Note: C: Construct; ISk: Information Seeking; ISh: Information Sharing; RB: Responsible Behavior; PI: Personal Interaction; F: Feedback; A: Advocacy; H: Helping; T: Tolerance.

^aDiagonal values refer to the squared root value of AVE for each latent variable to evaluate the Fornell-Larcker criterion.

^bHTMT Values.

Table 5. Results summary for formative constructs in the first-stage measurement model.

Constructs and items	Weight	VIF
Knowledge		
K1	0.309 ^c	1.819
K2	0.248 ^c	1.920
K3	0.207 ^b	1.797
K4	0.434 ^c	2.037
Equity		
Eq1	0.365 ^c	2.115
Eq2	0.351 ^c	2.578
Eq3	0.201 ^a	3.218
Eq4	0.233 ^c	2.601
Interaction		
I1	0.366 ^c	2.559
I2	0.267 ^c	2.853
I3	0.353 ^c	2.311
I4	0.154 ^c	1.379
Experience		
Exp1	0.563 ^c	1.540
Exp2	0.32 ^c	1.857
Exp3	0.295 ^c	2.099
Personalization		
P1	0.345 ^c	1.951
P2	0.301 ^c	2.380
P3	0.142 ^a	2.287
P4	0.428 ^c	1.635
Relationship		
R1	0.357 ^c	1.610
R2	0.22 ^b	2.384
R3	0.214 ^a	2.534
R4	0.389 ^c	2.685

^a $p < .05$.

^b $p < .01$.

^c $p < .001$.

Table 1. Constructs and measurements.

Customer participation behavior

- ISK1. I asked others for information on what services this hotel offers
- ISK2. I searched for information on where this hotel and its services are located
- ISK3. I paid attention to how others behave to using this hotel and its services well
- ISH1. I clearly explained what I wanted the employees of this hotel to do
- ISH2. I gave the proper information to the employees of this hotel
- ISH3. I provided the necessary information so that the employees of this hotel could perform their duties
- ISH4. I answered all the service-related questions of the employees of this hotel
- RB1. I performed all the tasks that were required
- RB2. I adequately completed all the expected behaviors
- RB3. I fulfilled my responsibilities to this hotel
- RB4. I followed the directives and/or orders of the employees of this hotel
- PI1. I was friendly to the employees of this hotel
- PI2. I was kind to the employees of this hotel
- PI3. I was polite to the employees of this hotel
- PI4. I was courteous to the employees of this hotel
- PI5. I didn't act rudely to the employees of this hotel

Customer citizenship behavior

- F1. If I had a useful idea on how to improve the services of this hotel, I let the hotel know
- F2. When I received good services from this hotel, I commented on it
- F3. When I experienced a problem, I let the hotel know about it
- A1. I said positive things about this hotel and its employees to others
- A2. I recommended this hotel and its employees to others
- A3. I encouraged friends and relatives to use this hotel and its services
- H1. I assisted other guests if they needed my help
- H2. I helped other guests if they seemed to have problems
- H3. I taught other guests to use the services of this hotel correctly
- H4. I gave advice to other guests
- T1. If service was not delivered as expected, I could be willing to put up with it
- T2. If the employee made a mistake during service delivery, I could be willing to be patient
- T3. If I had to wait longer than I usually expected to receive the services of this hotel, I could be willing to adapt

Co-production

- K1. This hotel was open to my ideas and suggestions about its existing services or the development of new services
- K2. This hotel provided sufficient illustrations and information to me regarding the services
- K3. I would willingly spare time and effort to share my ideas and suggestions with this hotel to help it further improve its products/services, and processes
- K4. This hotel provided me a suitable environment and opportunities to offer suggestions and ideas
- Eq1. This hotel had easy access to information about my preferences
- Eq2. The guest experience at this hotel was aligned with my requirements (i.e., the way I wish them to be)
- Eq3. This hotel considered my role as important as its own in the guest experience
- Eq4. We shared an equal role in determining the outcome of the guest experience
- I1. During the guest experience, I could conveniently express my specific requirements
- I2. This hotel conveyed to its guests the relevant information related to the guest experience
- I3. This hotel allowed sufficient interaction with its guests
- I4. To get the maximum benefit from the services of this hotel, I had to play a proactive role during my interaction (i.e., I had to apply my skill, knowledge, time, etc.)

Value-in-use

- Ex1. It was a memorable experience for me that lasted for quite a while
- Ex2. Depending upon the nature of my participation, my experiences in the process might be different from those of other guests
- Ex3. It was possible for a guest to improve the experience by experimenting with and trying new things
- P1. The benefit, value, or fun of the services of this hotel depended on the guest and the usage condition
- P2. This hotel tried to serve the individual needs of each of its guests
- P3. Depending on their taste, choice, or knowledge, different guests involved themselves differently in the services of this hotel
- P4. This hotel provided an overall good experience
- R1. The hotel's extended facilitation was necessary for guests to enjoy the hotel services fully
- R2. I felt an attachment or relationship with this hotel
- R3. There is usually a group, a community, or a network of guests who are fans of this hotel
- R4. This hotel is renowned because its guests usually spread the positive word about it on their social networks