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## Customer value co-creation behavior: Scale development and validation

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### ABSTRACT

This investigation reports a series of four studies leading to the development and validation of a customer value co-creation behavior scale. The scale comprises two dimensions: customer participation behavior and customer citizenship behavior, with each dimension having four components. The elements of customer participation behavior include information seeking, information sharing, responsible behavior, and personal interaction, whereas the aspects of customer citizenship behavior are feedback, advocacy, helping, and tolerance. The scale is multidimensional and hierarchical, and it exhibits internal consistency reliability, construct validity, and nomological validity. This study also shows that customer participation behavior and customer citizenship behavior exhibit different patterns of antecedents and consequences.

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### 1. Introduction

Practitioners' and scholars' interest in the service-dominant (S-D) logic of marketing has increased sharply in the last decade (Vargo & Lusch, 2004). Although previous customer behavior literature has focused on the customer decision-making process regarding purchases, customers are not merely responders but rather active value creators, and scholars need to focus on customer behavior in this regard (Xie, Bagozzi, & Troye, 2008). The core concept of S-D logic is that the customer is always a co-creator of value. As active participants and collaborative partners in relational exchanges, customers co-create value with the firm through involvement in the entire service-value chain.

To date, few studies have systematically explored the exact nature of dimensionality of customer value co-creation behavior, leaving its precise composition unclear. Some studies use a multidimensional approach to capture customer value co-creation behavior and consider it to consist of many distinctive components (e.g., Bettencourt, 1997; Bove, Pervan, Beatty, & Shiu, 2008; Groth, 2005), whereas other studies employ a unidimensional approach and use single- or multiple-item measures (e.g., Cermak, File, & Prince, 1994; Dellande, Gilly, & Graham, 2004; Fang, Palmatier, & Evans, 2008). However, this method ignores the conceptual richness of customer value co-creation behavior. None of the previous research explores the relationship between the overall construct and its dimensions. Therefore, both practitioners and scholars need research that (1) clearly identifies and measures customers' behavior in co-creating

value, (2) fully validates a comprehensive customer value co-creation behavior construct, and (3) explores the hierarchical dimensionality of customer value co-creation behavior. The primary motivation for this study is thus the development and validation of a scale to measure customer value co-creation behavior.

The present article makes several contributions. First and most important, the scale will be useful not only in academic research but also in practice. As marketers engage in projects to understand and improve the value co-creation behaviors of their customers, they can use the scale for assessing, planning, and tracking purposes. Second, the firm can use the scale to detect weaknesses and strengths of customer value co-creation behavior. Based on their customer behavior assessment and business strategies, companies can allocate corporate resources to the important customer value co-creation aspects uncovered by this study. Third, the scale could be used for all types of service industries. Unfortunately, the previous related constructs were not applied to many contexts. In fact, researchers were unable to identify any broad or abstract category of customer value co-creation attributes. As an alternative, this study offers a new protocol to measuring customer value co-creation behavior that captures all related dimensions of customer behavior across industries.

The current research first defines customer value co-creation behavior and the dimensions that compose the concept. This research then reports a series of studies that develop a measure of customer value co-creation behavior and assess the new measure's reliability and validity.

### 2. Customer value co-creation behavior and its dimensions

Early research identifies two types of customer value co-creation behavior: customer participation behavior, which refers to required

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(in-role) behavior necessary for successful value co-creation, and customer citizenship behavior, which is voluntary (extra-role) behavior that provides extraordinary value to the firm but is not necessarily required for value co-creation (Bove et al., 2008; Groth, 2005; Yi & Gong, 2008; Yi, Natarajan, & Gong, 2011). Empirical evidence shows that in-role and extra-role behaviors follow different patterns and have different antecedents and consequences (Groth, 2005; Yi et al., 2011). Therefore, researchers should use separate scales for assessing customer participation behavior and customer citizenship behavior.

This study conceptualizes customer value co-creation behavior as a multidimensional concept consisting of two higher-order factors, each made up of multiple dimensions. These two factors are customer participation behavior and customer citizenship behavior. This study also posits that customer participation behavior comprises four dimensions: information seeking, information sharing, responsible behavior, and personal interaction. In a similar vein, this study views customer citizenship behavior as consisting of feedback, advocacy, helping, and tolerance. This study suggests a hierarchical conceptualization in a third-order factor model.

This typology parallels the traditional management literature on the distinction between employee in-role and extra-role behavior. According to Borman and Motowidlo's (1993) theoretical framework on partitioning of the individual performance domain, performance can be divided into task performance and contextual performance. Task performance involves behaviors that are expected and necessary for the successful completion of service delivery so that without these behaviors service delivery will be incomplete. Similar to employees, customers who participate in service delivery should engage in some behavior such as information seeking, information sharing, responsible behavior, and personal interaction, which are classified as customer participation behavior in this study. For example, customers seek information to perform their expected behaviors without which value co-creation could not be completed successfully. Meanwhile, contextual performance involves voluntary and discretionary behaviors that are not required for the successful value co-creation. In this regard, customers do not have to exhibit behaviors such as feedback, advocacy, help, and tolerance for the successful completion of service co-creation.

## 2.1. Customer participation behavior

### 2.1.1. Information seeking

According to Kellogg, Youngdahl, and Bowen (1997), customers seek information to clarify service requirements and satisfy other cognitive needs. More specifically, customers want information about service status and service parameters. Customers need information about how to perform their tasks as value co-creators as well as what they are expected to do and how they are expected to perform during a service encounter. Providing this information reduces customer uncertainty regarding value co-creation with employees. Just as employees acquire the task, role knowledge, and behaviors needed to participate as organizational members, customers seek to understand the nature of service and their roles in the value co-creation process (Kelley, Donnelly, & Skinner, 1990; Kellogg et al., 1997).

Information seeking is important to customers for two primary reasons. First, information reduces uncertainty and thereby enables customers to understand and control their co-creation environments. Second, information seeking enables customers to master their role as value co-creators and become integrated into the value co-creation process. Customers can seek information from the firm in a number of ways. For example, customers might directly ask another person for information or they can monitor the behavior of experienced customers to obtain informational cues (Kelley et al., 1990; Morrison, 1993).

### 2.1.2. Information sharing

For successful value co-creation, customers should provide resources such as information for use in value co-creation processes (Lengnick-Hall, 1996). If customers do not provide essential information, employees cannot even begin or perform their duties. Through sharing information with employees, customers can ensure that employees provide the service that meets their particular needs (Ennew & Binks, 1999). For example, taking the car in for service, customers need to give the mechanic information about strange noises or vibrations. Or when ordering a cake for a special occasion, customers should provide adequate information for the flavor and design. Patients should provide the physician with proper information about their condition so that the physician can make an accurate diagnosis. If customers fail to provide accurate information, the quality of value co-creation may be low. Thus, information sharing is the key to the success of value co-creation.

### 2.1.3. Responsible behavior

Responsible behavior occurs when customers recognize their duties and responsibilities as partial employees (Ennew & Binks, 1999). For successful value co-creation between themselves and employees, customers need to be cooperative, observing rules and policies and accepting directions from employees (Bettencourt, 1997). For example, customers must follow the employees' directives and be physically present for the successful value co-creation. Without customers' responsible behavior, little value co-creation occurs in the service encounter.

### 2.1.4. Personal interaction

Personal interaction refers to interpersonal relations between customers and employees, which are necessary for successful value co-creation (Ennew & Binks, 1999). Kelley et al. (1990) use the term customer functional quality to refer to the interaction between customers and employees, which includes interactional aspects such as courtesy, friendliness, and respect. Value co-creation in a service context takes place in a social setting; the more pleasant, congenial, and positive the social environment is, the more likely customers are to engage in value co-creation (Lengnick-Hall, Claycomb, & Inks, 2000).

## 2.2. Customer citizenship behavior

### 2.2.1. Feedback

Feedback includes solicited and unsolicited information that customers provide to the employee, which helps employees and the firm to improve the service creation process in the long run (Groth, Mertens, & Murphy, 2004). Customers are in a unique position to offer guidance and suggestions to employees, because customers have considerable experience with the service and are experts from the customer perspective (Bettencourt, 1997). Customers are on the receiving end of employees' behavior, and the firm can benefit greatly from customers' suggestions for better service. While feedback from customers can be valuable, it clearly constitutes an extra-role behavior and is not a requisite for successful service delivery.

### 2.2.2. Advocacy

Advocacy refers to recommending the business – whether the firm or the employee – to others such as friends or family (Groth et al., 2004). In the context of value co-creation, advocacy indicates allegiance to the firm and promotion of the firm's interests beyond the individual customer's interests (Bettencourt, 1997). Advocacy through positive word-of-mouth is often an indicator of customer loyalty, and it contributes greatly to the development of a positive firm reputation, promotion of the firm's products and services, higher service quality evaluations, and increase in the customer base size (Bettencourt, 1997; Groth et al., 2004). Like other

customer citizenship behaviors, advocacy is completely voluntary and not mandatory for successful value co-creation.

### 2.2.3. Helping

Helping refers to customer behavior aimed at assisting other customers. In a service co-creation process, customers usually direct helping behavior at other customers rather than at employees because other customers in a service encounter may need help behaving in ways consistent with their expected roles (Groth et al., 2004). Unlike the roles of employees, the roles of customers are less defined and role-scripted, placing customers in a situation that can require spontaneous help from other customers (Groth et al., 2004). Rosenbaum and Massiah (2007) also argue that customers might extend empathy to other customers through helping behaviors. They note that customers recall their own difficult experiences and display a sense of social responsibility to help other customers experiencing similar difficulties.

### 2.2.4. Tolerance

Tolerance refers to customer willingness to be patient when the service delivery does not meet the customer's expectations of adequate service, as in the case of delays or equipment shortages (Lengnick-Hall et al., 2000). Because service encounter failure is the second largest cause of customer switching behavior, which damages market share and profitability of the firm, customer tolerance will plausibly help the firm in the aggregate overall (Keaveney, 1995).

## 3. Scale development

### 3.1. Study 1: item generation

This research generated an initial pool of more than 100 items from a review of previous literature and exploratory in-depth interviews. In the interviews, 15 students and five adult customers were asked to describe in an open-ended format the behaviors they exhibit during a service encounter. The purpose of the in-depth interviews was to uncover specific characteristics of customer value co-creation behavior. The interviews were transcribed, analyzed, and converted into items.

Following development of this original set of statements, the items were screened to eliminate any items that were ambiguous, redundant, and otherwise faulty, which resulted in 72 items. Seven marketing faculty and Ph.D. students then evaluated these 72 items. After reading the definition of each dimension of customer value co-creation behavior, a related explanation, and an example of the behavior, they assigned the items to one of the eight dimensions or to a "not applicable" category. An item was retained if at least six of the judges chose the same category (Bearden, Netemeyer, & Teel, 1989; Tian, Bearden, & Hunter, 2001). Additional four judges rated how well each of the 72 items reflects the different dimensions of customer value co-creation behavior, using the following scale: 1 = clearly representative, 2 = somewhat representative, and 3 = not at all representative. For the eight dimensions, this study retained only items that three judges evaluated as clearly representative and that a fourth judge evaluated as somewhat representative (Bearden, Hardesty, & Rose, 2001; Tian et al., 2001; Zaichkowsky, 1985). This process eliminated 28 items, leaving 44 items.

### 3.2. Study 2: item purification

In an effort to determine the factor structure of customer value co-creation behavior and purify the measurement tool on the basis of its psychometric properties, this research collected survey data from 296 undergraduate and graduate student customers. The average age of the respondents was 23.5 years, and 41% were male. All respondents were asked to recall their most recent encounter within the last three months from experiences with service providers across several industries (e.g., retailing, full-service restaurant, hair salons, health care facilities, and travel) and multiple-service providers in each industry, and then to

answer questions about their behavior as customers. To enhance recall of the particular encounter, a number of open-ended questions requested respondents to provide details on the type of service provided and their overall service experience.

This study first examined corrected item-to-total correlations and item correlations for each set of items representing customer co-creation behavior, and then deleted items that had corrected item-to-total correlations below .50 and item correlations below .20 (Bearden et al., 1989; Bearden et al., 2001; Zaichkowsky, 1985). This research then evaluated the remaining items using exploratory factor analysis (principal components factor analysis with varimax rotation). An iterative process eliminated items that had a factor loading below .50, high cross-loadings above .40, and low commonalities below .30 (Hair, Black, Babin, & Anderson, 2009). The final factor analysis resulted in eight factors with eigenvalues exceeding 1 and explained 77.91% of the total variance. Cronbach's alpha values for the eight dimensions ranged from .79 to .93, all exceeding the .70 cut-off value recommended by Nunnally (1994). The Kaiser–Meyer–Olkin (KMO) value of .82 and a significant chi-square value for the Bartlett's test of sphericity ( $\chi^2 = 2303.74, p < .001$ ) indicated that factor analysis was appropriate for the data. Table 1 presents the final list of items retained for confirmatory factor analysis.

### 3.3. Study 3: reliability assessment and construct validation

To evaluate the reliability and validity of the scale, this study recruited and trained researchers to serve as data collectors for Study

**Table 1**

Customer value co-creation behavior scale.

<i>Information seeking</i> (composite reliability = .91, average variance extracted = .78)
I have asked others for information on what this service offers.
I have searched for information on where this service is located.
I have paid attention to how others behave to use this service well.
<i>Information sharing</i> (composite reliability = .94, average variance extracted = .79)
I clearly explained what I wanted the employee to do.
I gave the employee proper information.
I provided necessary information so that the employee could perform his or her duties.
I answered all the employee's service-related questions.
<i>Responsible behavior</i> (composite reliability = .93, average variance extracted = .77)
I performed all the tasks that are required.
I adequately completed all the expected behaviors.
I fulfilled responsibilities to the business.
I followed the employee's directives or orders.
<i>Personal interaction</i> (composite reliability = .95, average variance extracted = .74)
I was friendly to the employee.
I was kind to the employee.
I was polite to the employee.
I was courteous to the employee.
I didn't act rudely to the employee.
<i>Feedback</i> (composite reliability = .93, average variance extracted = .82)
If I have a useful idea on how to improve service, I let the employee know.
When I receive good service from the employee, I comment about it.
When I experience a problem, I let the employee know about it.
<i>Advocacy</i> (composite reliability = .92, average variance extracted = .80)
I said positive things about XYZ and the employee to others.
I recommended XYZ and the employee to others.
I encouraged friends and relatives to use XYZ.
<i>Helping</i> (composite reliability = .97, average variance extracted = .85)
I assist other customers if they need my help.
I help other customers if they seem to have problems.
I teach other customers to use the service correctly.
I give advice to other customers.
<i>Tolerance</i> (composite reliability = .90, average variance extracted = .75)
If service is not delivered as expected, I would be willing to put up with it.
If the employee makes a mistake during service delivery, I would be willing to be patient.
If I have to wait longer than I normally expected to receive the service, I would be willing to adapt.

Notes: respondents were asked to indicate their agreement or disagreement with each of the items listed here, using a 7-point scale ranging from "strongly disagree" through "strongly agree," with a midpoint labeled "neither agree nor disagree."

3. They contacted respondents face-to-face and gave the self-administered questionnaire. This data collection procedure yielded 311 responses. Of the respondents, 52% were male. About 43.2% of the respondents belonged to the age group of 21 to 30, 42.3% were in the 31 to 40 age group, and the remainder (14.4%) were 41 years old and above. Most of the respondents were currently employed (82.9%).

3.3.1. Dimensionality and reliability

To assess the dimensionality of the constructs, this study performed confirmatory factor analysis using Mplus 5.21 (Muthén & Muthén, 2009). Fig. 1A shows the results for the CFA model. The results confirm the dimensionality of the 29-item, eight-dimension scale ( $\chi^2_{(349)} = 535.59, p < .001, CFI = .94, TLI = .93, RMSEA = .06, SRMR = .04$ ). This study also assessed the reliability of each scale by calculating composite reliability and average variance extracted. The results show that the scale possesses good reliability, as the composite reliability for each scale is greater than .70, and the average variance extracted for each dimension is greater than .50 (Bagozzi & Yi, 1988) (see Table 1). These results suggest that no further deletion of items is necessary.

3.3.2. Construct validity

All factor loadings were statistically significant and were greater than .7, indicating convergent validity. To assess discriminant validity, this study conducted chi-square difference tests for each pair of constructs in a series of two-factor confirmatory models. For all pairs, this research compared the constrained model, which constrained the phi coefficient to equal one, with a free model without this constraint. In all cases, the chi-square difference was significant, indicating discriminant validity (Bagozzi & Yi, 1988).

3.3.3. Test of hierarchical factor structure

The present study views the customer value co-creation behavior as a third-order factor. More specifically, the two second-order constructs of customer participation behavior and customer citizenship behavior would sum algebraically to give the third-order customer value co-creation behavior. However, the eight first-order dimensions are behavioral manifestations of each second-order factor (customer participation behavior or citizenship behavior), which suggests a reflective model specification.

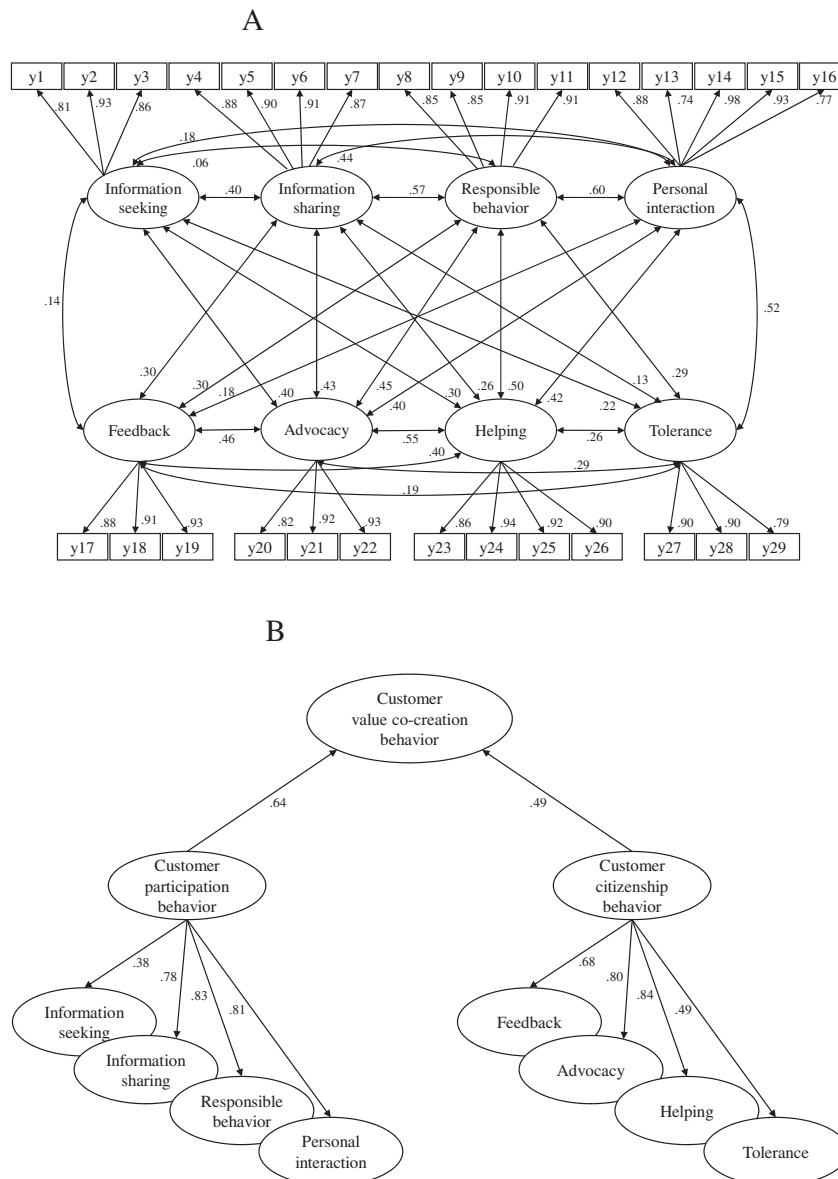


Fig. 1. CFA models and results for the customer value co-creation behavior scale. A: First-order eight-factor model. B: Third-order factor model.

To test the third-order factor structure, this study employed component-based structural equation modeling (PLS, specifically Smart-PLS 2.0 M3) (Ringle, Wende, & Will, 2005). This research used hierarchical component modeling (Wetzels, Odekerken-Schroder, & van Oppen, 2009). The findings show that the third-order, second-order, and first-order factor loadings are high and statistically significant (see Fig. 1B). These results provide strong support for the customer value co-creation behavior scale as a third-order construct.

#### 3.4. Study 4: nomological validity

For the nomological validity of the scale, the present study obtained data from 153 undergraduate students. This study replicated the data collection procedure employed in Study 2. The average age of the respondents was 22.7 years, and 38% were male.

In assessing the nomological validity of the customer value co-creation behavior scale, this study investigated three antecedents of customer participation behavior (role clarity, ability, and motivation) and three antecedents of customer citizenship behavior (procedural justice, distributive justice, and interactional justice), which were identified from the literature. One consequence (customer value) was also investigated.

This study used the PLS model (Smart-PLS 2.0 M3) to investigate nomological validity in a multivariate sense. The results of the structural model indicate an acceptable explanatory power. The  $R^2$  values (coefficient of determination) range from .22 to .41. In order to establish the significance of the parameter estimates, the  $t$ -values were computed using 500 bootstrap samples. Because directional hypotheses were offered, one-tailed significance tests were conducted. Role clarity ( $\beta = .40$ ,  $t = 3.77$ ), ability ( $\beta = .15$ ,  $t = 1.78$ ), and motivation ( $\beta = .19$ ,  $t = 2.11$ ) predict customer participation behavior, which in turn predicts customer value ( $\beta = .39$ ,  $t = 4.16$ ).

With regard to antecedents and consequence of customer citizenship behavior, only distributive justice ( $\beta = .39$ ,  $t = 3.08$ ) predicts customer citizenship behavior, which in turn predicts customer value ( $\beta = .31$ ,  $t = 3.25$ ). A possible explanation for this finding is the following. In service delivery settings like this study, the distributive justice dimension is more likely to be relevant to customers than in service failure/recovery settings. In other words, when service failure is absent, other justice dimensions such as procedural and interactional justice are less important compared with distributive justice. That is, the greater relevance of distributive justice in a service delivery context might have led to a stronger impact on customer citizenship behavior so that the effect of other justice dimensions is outweighed. The context of this study (e.g., retailing) may also have contributed to the failure to find a statistically significant link between procedural/interactional justice and customer citizenship behavior, because the interactions between employees and customers are somewhat limited and the firm procedure is relatively simple.

## 4. Discussion

The study makes a number of theoretical contributions. Through qualitative and empirical research, this study has developed and validated the customer value co-creation behavior scale. The scale conforms to a third-order factor model that ties customer value co-creation behavior to two distinct dimensions: participation and citizenship. Each of these dimensions comprises four sub-dimensions: information seeking, information sharing, responsible behavior, and personal interaction in the case of customer participation, and feedback, advocacy, helping, and tolerance with respect to customer citizenship. A series of studies suggests that the scale exhibits internal consistency reliability, construct validity, and nomological validity. Overall, the scale appears to be conceptually sound and psychometrically valid.

Specifically, Study 1 generated an initial item pool from a review of the literature and in-depth interviews. Study 2 purified the measurement item, and Study 3 examined the reliability and construct validity of measures. The scale shows satisfactory measurement quality in terms of reliability, convergent validity, discriminant validity, and hierarchical factor structure. Study 4 shows that customer value co-creation behavior exhibits good nomological validity in terms of its antecedents and consequence.

This investigation explores the multidimensional nature of customer value co-creation behavior. Analogous to employee performance, customer value co-creation behavior seems to be a rich concept that a single measure cannot capture. Rather, it is a multidimensional construct. Researchers should be cautious in measuring customer value co-creation behavior at different levels of abstraction, as a failure to distinguish measurement levels and individual dimensions would lead to model misspecification and measurement inaccuracy. On a theoretical level, this study integrates the literature of customer participation behavior and customer citizenship behavior, finding the common ground in the higher dimension of customer value co-creation behavior. The primary contribution lies in an initial attempt to develop an integrative multidimensional hierarchical scale.

The findings also suggest a number of important managerial implications. The customer value co-creation behavior scale can aid managers in selecting customers to facilitate value co-creation behavior. For instance, managers may use the scale for market segmentation and customer profiling to gain useful information for maximizing customer value co-creation behavior. The customer value co-creation behavior scale is useful for evaluating and rewarding customer performance. If a firm regularly assesses and rewards activities, customers will be more willing to engage in value co-creation behavior.

Managers can adapt the scale in assessing the current level of customer co-creation behavior. The instrument is a diagnostic tool at different levels of analysis. Customer value co-creation behavior can be assessed at the third-order, second-order, and first-order level. Analysis of data at these different levels would permit managers to identify appropriate problem areas in managing customer behavior, and concentrate resources on improving particular aspects of customer value co-creation behavior. A periodic measurement of customer value co-creation behavior could help managers track changes over time. The scale can also help managers develop appropriate training programs designed to improve the customer's understanding of the behaviors involved in value co-creation.

There are a number of limitations of this study, which suggest areas for further research. Future work should consider the applicability of the scale across different countries and cultures. Indeed, the increasing globalization of customer markets provides a compelling reason for exploring the influence of culture on customer value co-creation behavior. Future research must validate the dimensional structure of customer value co-creation behavior across distinct cultures.

It would be enlightening to investigate the long-term and dynamic effects of customer behavior. Studies employing a longitudinal framework may provide useful information in managerial strategy development. The development of a time-series database and the test of the customer behavior association with performance in a longitudinal framework would provide more insight into causation.

Future research should test customer value co-creation behavior within a more comprehensive model that integrates theoretically related constructs. For example, additional consequences (e.g., return on equity, sales, and Tobin's  $q$ ) of customer value co-creation behavior should receive more research attention. Future research could also examine the role of moderators such as customer personality and relationship age.

This study focuses on value co-creation behavior from the customer's point of view. However, value creation is a collaborative work between customers and employees. Further research could examine value co-creation behavior from the employee's point of view.

The number of items (29 in all) used in the scale is rather large. For researchers using this scale as part of an overall research design, some difficulties might exist in actual implementation. A shortened version of the scale would be beneficial to researchers.

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