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To cite this article: Esther Ling-Yee Li, Ben Shaw-Ching Liu & Sherriff T. K. Luk (2017) Customer Participation Behavior in High- Versus Low-Contact Services: The Multiple Roles of Customer Trust, Journal of Global Marketing, 30:5, 322-341, DOI: [10.1080/08911762.2017.1343886](https://doi.org/10.1080/08911762.2017.1343886)

To link to this article: <https://doi.org/10.1080/08911762.2017.1343886>



Published online: 14 Jul 2017.



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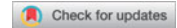
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Customer Participation Behavior in High- Versus Low-Contact Services: The Multiple Roles of Customer Trust

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ABSTRACT

In light of the changing roles of customers from service co-producer to value co-creator, the customer participation literature has conceptualized two types of participation behavior: co-production and value co-creation. However, there is a dearth of knowledge concerning both the antecedents of customer co-creation behavior and the outcomes of such behavior in relation to customer-perceived value and loyalty. Anchored in the trust-commitment theory, the present research (a) examines the effect of how a customer's trust in the service personnel could affect his/her cooperative behavior over the service design and delivery processes; and (b) investigates how the potential impact of a customer's trust in service personnel on his/her co-design and co-delivery behavior could be made contingent upon the customer's trust in the service brand and the types of high- versus low-customer-contact service contexts. Filling the aforementioned research gaps, the present research contributes to advance our knowledge of the roles played by trust at different levels of analysis in facilitating customer participation behavior and improving our appreciation of the customer contact service contexts when designing the service organization for maximizing service value and sustaining brand loyalty over time.

KEYWORDS

Co-creation; co-delivery; co-design; customer participation; service context; trust in brand; trust in frontline personnel

Introduction

In keeping with the service-dominant logic (Lusch & Vargo, 2008), customers are recognized as important co-creators of value during the service consumption process. Enhancing the service experience through co-creation has been among the research priorities for the science of service in recent years. In light of the changing roles of customers from service co-producer to value co-creator, the customer participation (CP) literature has conceptualized two major types of participation behavior: co-production and value co-creation (Dong, 2015). But there has been inadequate empirical research work on identifying, operationalizing, and measuring these two types of customer participation behavior. The majority of studies in this research stream did not differentiate service co-production behavior and value co-creation behavior. Therefore, more empirical studies investigating the antecedents of a customer's co-creation behavior and the outcomes of such behavior in relation to customer-perceived

value and loyalty are encouraged (Mustak, Jaakkola, Halinen, & Kaartemo, 2016).

Given the importance of customer participation to co-creation of value in service settings, the dynamics of customer participation should attract the attention of service marketers when they design their service organizations and operational procedures. Nonetheless, there is an implicit assumption that customers will always give open, honest, frequent feedback to frontline staff, but such an assumption may not be valid. For instance, Voss, Roth, Rosenzweig, Blackmon, and Chase (2004) identified psychological causes for low customer feedback, including that a poor relationship with the service provider accounts for reluctance to give feedback. Other researchers (Dong, 2015; Reinders, Dabholkar, & Frambach, 2008) pointed to contextual causes for low customer feedback in that not all services have a design component, nor do all services offer a choice of whether or not to participate. Taken together, a two-fold research challenge arises:

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(a) little is known about predictor effects of different relational qualities on customer participation behavior; and (b) there is little knowledge about potential moderating effects of different service contexts over the relationships among customer participation, perceived value, and loyalty.

With respect to the first challenge, in view of trust being regarded as the predicting variable most universally accepted as a basis of any human interaction and exchange (Gundlach & Murphy, 1993), many services marketing scholars have explored the relationships among the service firm, the service personnel, and the customer from the angle of the trust-commitment theory (Morgan & Hunt, 1994), which takes the trust established between the service provider and the customer as a critical precondition for mutual commitment that, in turn, affects the quality of the delivered service (Keith, Lee, & Lee, 2004). Results from the B2C services (Young & Albaum, 2003; Luk, Albaum, & Fullgrabe, 2013) point to the important role of trust between customer and sales personnel in affecting customer repurchase and loyalty behavior. Yet, a fundamental challenge of examining the role of trust in economic exchange comes from a query of overextending a construct inherently in the individual level to an organizational level of analysis (Zaheer, McEvily, & Perrone, 1998). Given that most prior empirical studies focused on either *trust-in-the-service-brand* (Babin, Boles, & Robin, 1999; Wong & Sohal, 2003) or *trust-in-the-service-personnel* as the predictors of organizational performance such as commitment and loyalty, only a few (e.g., Macintosh & Lockshin, 1997; Guenzi, Johnson, and Castaldo, 2009) examined trust as a multiple-level phenomenon. As neither alone should be sufficient for understanding relational exchange performance, there have been calls for additional studies to explore the varying effect of trust as a multi-faceted phenomenon (e.g., Doorn et al., 2010; Zaheer et al., 1998).

In a similar vein, the Marketing Science Institute (2012) called for additional research to focus on the particular effect of trust at different levels on customer participation behavior in industries where there are firms with high and low levels of trust. Accordingly, such a research design could shed light on how the impact of an individual customer's trust in the service personnel on his/her participation behavior could be contingent upon the high versus low level of trust for the associated service brands under examination.

For instance, under a high level of trust-in-the-service-brand, a customer could become so dependent on the service firm that s/he could prefer to spend less effort to perform the required service tasks, and instead feel comfortable relying on the service personnel to perform service tasks as much as possible to deliver full service. The potential impact of trust-in-the-service-personnel on customer participation behavior could be expected to be weaker under a high-trust-in-the-service-brand than under a low-trust-in-the-service-brand. However, no specific research has taken up this issue yet.

With regard to the second challenge, if different kinds of services have different degrees of underlying opportunities for customer participation, the service context may be taken as an important moderating factor. In high-contact (HC) systems facing a lot of customer-induced uncertainty (e.g., financial services, retail, hotels, restaurants, and food service), appropriate service facility must be laid out in forms of interpersonally skillful manpower, non-programmable operation, and flexible control (Chase, 1978) so as to accommodate a wide range of customer expectations. Contrastingly, in low-contact (LC) systems facing little customer-induced uncertainty (such as self-help services, automatic teller machines, snack vending machines, etc.), the service facility could be designed in forms of standardized service delivery systems, objective operations, and well-defined controls so as to maximize production efficiency. Different equipment and facility contexts may have implication for the role and service tasks assumedly undertaken by customers. Given the higher level of customer-induced uncertainty in HC systems, a great heterogeneity of customer expectations is the likely result, which could put severe pressure on simultaneous service production-consumption and pose challenges for high-quality service and value creation. It could therefore be expected that the potential impact of customer participation on the customer's perceived value creation and loyalty would be lower in HC systems than that in LC systems. Yet, few empirical studies have taken place to ascertain the moderating role of service context over the customer participation and value co-creation relationship.

Anchored on the trust-commitment theory, the present research aims to (a) examine the effect of how a customer's trust in the service personnel could affect his/her service participation behavior, manifested in value co-design and service co-delivery activities; and

(b) investigate how the potential impact of a customer's trust in service personnel on his/her co-design and co-delivery behavior could vary in line with the customer's trust in the service brand and the types of high- versus low-customer-contact service contexts. Specifically, it aims to answer three major research questions: To what extent does trust in service personnel facilitate customer participation behavior? Would customer's participation behavior in terms of value co-design and service co-delivery actions have a positive effect on the customer's perceived value of the involved service offerings? Would the relationship among trust-in-the-personnel, customer participation behavior, customer perceived value, and loyalty be stronger in a low-contact as opposed to a high-contact service context?

By answering these questions, this study endeavors to achieve the following research objectives:

- a. To examine the relative magnitude of the effect that a customer's trust in service personnel has on the two types of customer participation behavior.
- b. To explore the moderating effect of a customer's trust in the service brand on the relationship between trust-in-the-personnel and customer participation.
- c. To compare the hypothesized relationships among trust, participation behavior, perceived value, and loyalty across two different (HC versus LC) service contexts.

We constructed a theoretical framework that incorporated hypothesized relationships amongst the constructs and tested it in two service categories: high-contact hair dressing (salon) services and low-contact cellular phone retail services. Filling the previously noted research gaps, the present research contributes to the customer participation and value co-creation literature in three ways. First, literature in this research stream traditionally focuses on the potential effects of organizational factors and demographic characteristics of individual customers on customer participation behavior, whereas the importance of psychological factors is underestimated (Mustak et al., 2016). The present results expand the domain of the theory of the antecedents to customer participation behavior by disclosing the role played by a customer's trust in the service personnel in both service co-design and co-delivery behavior. Second, our study extends the conceptualization of the effect of customer trust on customer participation behavior. Extant research

has yet to consider customer trust as a multi-level phenomenon and its total impact on customer participation behavior; our study adds to the existing literature by proving and explaining the interaction effect of trust at the employee level and trust service brand level on service participation behavior. Finally, another theoretical contribution is the effect of customer trust on participation behavior, the effect of participation behavior on perceived value, and the effect of perceived value on loyalty, all of which are context-specific. Thus, the present study contributes to a contingency perspective on customer participation.

An extensive literature review in the next section provides theoretical justification for the development of a conceptual model on the relationships among trust in frontline service personnel, trust in service brand, service co-production and value co-creation behavior, perceived value of the service outcome, and brand loyalty. In the research methodology section, we describe sample design, scale measurement, and statistical analysis issues. Hypotheses testing results with the data collected are reported and discussed next. Finally, theoretical and managerial implications are presented, followed by suggestions for future research.

Literature review and hypotheses

Customer participation behavior and its dual dimensions

Customer participation (CP) was initially conceptualized as a type of specific behavior involving different degrees of customer's effort and involvement, mental and physical, related to the production and delivery of a service (Cermak, File, & Prince, 1994; Silpakit & Fisk, 1985; Dabholkar, 1990). While customers can perform a variety of roles contributing to their own service transactions (Mustak, Jaakkola, & Halinen, 2013), two roles emerge as the most frequently examined in academic research (Lusch, Vargo, & O'Brien, 2007). CP as "producers" (CPP) refers to the situations in which customers primarily contribute physical labor to produce a service offering, such as frame assembly (Bendapudi & Leone, 2003), Internet set-up (Dong, 2015), or railway ticket purchase using kiosks (Reinders et al., 2008). CP as "designers" (CPD), on the other hand, represents situations in which customers primarily share information to create and design a service, such as investment planning (Chan, Yim, & Lam, 2010), medical treatment

(Gallan, Jarvis, Brown, & Bitner, 2013), or customizing pens (Franke, Keinz, & Steger, 2009) and handbags (Moreau & Herd, 2010).

Theoretically, it is important to differentiate co-production from co-creation (Lusch et al., 2007). Whereas CPP can be attributed to the economic rationale of labor cost saving from managing customers as “partial employees” (Halbesleben & Buckley, 2004), CPD stems from the psychological motive of engaging customers as “strategic partners” to co-create value (Bolton, 2011). The theory of experiential consumption (Holbrook & Hirschman, 1982; Payne, Storbacka, & Frow, 2008) further suggests that value resides in the experience of consumption rather than in the object of consumption, and hence provides more theoretical support to include value co-creation as an additional dimension of service participation.

Customer participation in service delivery is a determinant of not only service quality but the value of the service outcome (Chan et al., 2010), and it should include service co-production or co-delivery and value co-creation behavior. Conceptually, customers’ value co-creation behavior should go beyond participation (McCull-Kennedy, Vargo, Dagger, & Sweeney, 2009) and involves much more than decomposing a delivery process and shifting part of the work to the customers (Prahalad & Ramaswamy, 2004). Mustak et al. (2013) have suggested that service participation should not be restricted to customers’ assistance in producing the service. Instead, it should be operationalized to refer to the extent to which customers spend time and effort to share information, offer suggestions and needed resources, consume the service, and get involved in decision making during the service production and delivery process (Bolton & Saxena-Iyer, 2009; Chan et al., 2010; Jaakkola & Alexander, 2014; Yi & Gong, 2013; Youngdahl, Kellogg, & Bowen, 2003). On this basis, service co-delivery and value co-design should be the two major aspects of service participation behavior, leading to the co-creation of greater value for the service outcome.

Predictor effect of trust in frontline personnel on customer participation behavior

Trust is a crucial condition for high-quality human interactions. Parasuraman, Zaithaml, and Berry (1988) have argued for the need for service firms to nurture trust so as to influence customers’ perception of service quality and their motivation to develop a relationship

with the firm. Only when the customer feels that the service personnel are honest, reliable, and supportive will he or she then provide more information pertaining to his/her expectations, offer suggestions of how to customize the service for his/her specific needs, and feel confident in and comfortable cooperating with the service personnel to perform the required service tasks. It is thus expected that trust displayed by the customer is a precondition for customer participation in the service delivery process.

In the customer service area, trust can be interpreted as “the expectations held by the customer that the store, its people, and its products are dependable and can be relied on to deliver on their promises” (Sirdeshmukh, Singh, & Sabol, 2002). In this regard, trust is conceptualized as “placed trust,” which refers to the act of placing trust in someone under certain circumstances (Zucker, 1986). Placed trust is based on the other’s knowledge, competence, and motive, and performs the function of cognitive trust (Mayer, Davis, & Schoorman, 1995). In a service setting, this can be the trust placed in the service brand and/or the firm’s service employee. Placed trust in a retailer brand can be based solely on previous experience with or observation of the retailer. Conversely, customers base their trust in the service personnel not only on observation of their competence, but also on the judgment of their ability through a personal consumption experience. We argue that trust in service personnel would facilitate customer participation in service design, which contributes to value creation and efficiency in using the service, ultimately encouraging repurchase and loyalty.

A more robust level of placed trust is expected to trigger a greater inclination to approach the service organization and its employees for service. Luk et al. (2013) found a direct and positive impact of customers’ trust in frontline service personnel on their intention to deal with the same personnel again and their commitment to the retailer brand. Only if the customer places his/her trust in the word or promise of the service employee will s/he be more willing to share information and work with the frontline employee to co-design the needed service efficiently and effectively. Therefore, a customer’s trust, placed with the frontline service personnel, should be an antecedent to both types of customer participation behavior: service co-delivery and value co-design behavior.

Trust-in-personnel is a very critical precipitating precondition that enables various forms of value

co-creation behavior on the part of the customer. In keeping with studies on trust in dyadic relationship settings between customer and frontline sales personnel (Doney & Cannon, 1997; Gefen, Karahanna, & Straub, 2003; Mayer et al., 1995), *trust-in-personnel* is defined in this study as a customer's willingness to depend on a frontline service personnel's promise and to be vulnerable to the actions of this representative as a result of their willingness to show appropriate integrity, benevolence, and ability. Based on the "value-in-use" approach, value is experiential. Accordingly, value is perceived and co-created by customers, who draw value not just from the product itself, but also from its use, transformation, and consumption (Vargo & Lusch, 2008). The simultaneous consumption and production processes will enhance the interaction and communication between customers and service providers (Grönroos, 2006), and these will ultimately contribute to the assessment of service value (e.g., Auh, Bell, McLeod, & Shih, 2007; Dong, Evans, & Zou, 2008; Lusch & Vargo, 2006). According to the affect theory of social exchange (Lawler, 2001), customer participation is a typical form of social exchange in which the participants involved will assume "shared responsibility" for the outcome, which refers to "mutual dependence or accountability for the success of a service outcome, through verbal and physical efforts by the parties directly involved in the service exchange" (Sierra, Heiser, & McQuitty, 2009, p. 111). Emotional responses can result from perceived shared responsibility for either the success or failure of the service task (Sierra & McQuitty, 2005), and ultimately impact the service evaluation. For instance, Sierra et al. (2009) find that customer perceptions of shared responsibility for service outcomes tend to invoke positive emotional response during the service consumption process, which consequently increases the value of the service outcome. Therefore, in line with the theory of shared responsibility, it is argued here that a customer's trust in the frontline personnel would foster mutual responsibility, dependency, as well as accountability for service success in terms of shared inventiveness and co-designing the service consumption experience in ways to invoke positive emotional values, such as delight and fun.

However, customers' mental and physical efforts in the service exchange are crucial for a successful transaction (Bateson, 1985; Ponsonby & Boyle 2004). Customers' energy, expenditure, and effort are considered by Seiders, Berry, and Gresham (2000) to be distinct

types of nonmonetary cost that influence service evaluation. In addition to money, time and effort are also the basic costs of consumption (Lloyd, Luk, & Yip, 2011; Sharma, Chen, & Luk, 2012b). Cronin, Brady, and Hult (2000) report that customers have to sacrifice time and spend energy/effort in order to consume retail services. Berry, Seiders, and Grewal (2002) find service convenience has a positive impact on service evaluation, and the level of convenience is subject to how much time and effort the customer spends in initiating a service, making the purchase decision, closing the transaction, and understanding the benefits resulting from consumption. The paradox is that service participation behavior is assumed to have a positive impact on the service outcome (e.g., Oliver & Swan, 1989), but the incurred non-monetary costs, like energy and effort, may have a negative impact on service evaluation.

We therefore argue that if service participation behavior refers to the tasks performed by the customer to ensure smooth delivery and consumption of the service, the customer may tend to focus on the cost of his/her involvement in these activities to evaluate the service experience. As perceived value involves the comparison of the cost versus the benefit received through consumption, it is possible that the emotional value resulting from positive emotional responses as a result of perceived shared responsibility will not be strong enough to compensate for the perceived cost of co-producing and using the service. The potential impact of trust-in-the-personnel on service co-delivery behavior can arguably be unstable, and dependent on cost-benefit considerations. In spite of the potential trade-offs calculated when an individual customer decides whether and to what extent to participate in co-delivery or co-designing a service experience, his/her trust in the frontline personnel is expected to have an overall positive effect on customer participation behavior. On these grounds, the following hypotheses are set for testing:

H1A: Customers' trust in the frontline service personnel has a positive impact on co-designing the service.

H1B: Customers' trust in the frontline service personnel has a positive impact on co-delivering the service.

The moderating role of trust in service brand

In an attempt to understand how customer experience is created, Verhoef, Katherine, Parasuraman, Tsiros, and Leonard (2009) pointed to the importance of

examining the interaction between the brand and the customer experience. Taking a dynamic view, prior customer brand perceptions of the retailer may influence future customer experience (Verhoef et al., 2009). Apart from customer brand perceptions' direct effect on pre-purchase customer expectations, which have been found to have a significant impact on post-purchase evaluation of the shopping experience (Ofir & Simonson, 2007), such perceptions may have reinforcing effects on the customer experience over time. Among the many customer brand perceptions (such as emotional brand attachment, self-brand connection, and trust), special attention has been drawn to "customer's perceived trust in the brand" in terms of customer-perceived security/reliability in brand interactions and the belief that the brand acts in a customer's best interests (Delgado-Ballester, Munuera-Aleman, & Yague-Guillen, 2003).

Trust-in-service-brand is defined in this study as "the expectations held by the customers that the store is dependable and can be relied on to deliver on their promises" (Sirdeshmukh et al., 2002). In general, brands with high reputation or high levels of brand equity are likely to engender higher levels of service participation behavior (de Matos & Rossi, 2008; Keller, 1998; Walsh, Mitchell, Jackson, & Beatty, 2009).

Given that retail service brands differ in reputation and brand equity, customers place different levels of trust in service brands. For the same industry, some brands can have high trust while others have low trust. In this study, the relative magnitude of trust-in-the-service-brand is expected to strengthen or weaken the impact of trust-in-personnel on customer participation behavior. The moderating role of trust-in-the-service-brand can be appreciated if one takes into account the transaction versus cumulative evaluations of service quality and satisfaction on the part of customers (Mittal, Kumar, & Tsiros, 1999; Olsen & Johnson, 2003; Verhoef, Antonides, & De Hoog, 2004). While an individual customer can evaluate single, transaction-specific encounters, these isolated encounters are building blocks of overall cumulative experience evaluations of the service brand. When a customer places a high trust in a service brand, it implies that s/he has arrived at a global assessment of high-quality satisfactory service accumulated from different service encounters, relationships, and experiences with the brand over time. For a customer who places a high-trust-in-the service-brand, s/he tends to

rely on a global assessment of previous experiences involving organizational policies, procedural design, IT investment, service support, etc., and hence seems to be less dependent on the perceived trustworthiness of frontline service personnel in governing his/her service participation behavior in the immediate encounter. However, when a customer has little or no trust in a service brand, s/he tends to focus on the current transaction and the immediate service episode's performance, and hence to readily rely on trust in frontline personnel in guiding his/her service participation behavior in the immediate service encounter. In sum, trust-in-personnel can be expected to have a stronger effect on customer participation behavior when the customer has a low rather than high trust in the service brands under study. It is hence hypothesized that:

H2A: The influence of customers' trust in service personnel on value co-design behavior will be stronger when the customer has a lower trust in the service brand.

H2B: The influence of customers' trust in service personnel on service co-delivery behavior will be stronger when the customer has a lower trust in the service brand.

The contextual influence of high-contact versus low-contact services

The customer contact model holds that a service system's potential operating efficiency is a function of the degree to which the customer is in direct contact with the service facility relative to a total service creation time for the customer (Chase & Tansik, 1983). Notably, "service facilities characterized by high customer contact (HC) are perceived as being inherently limited in their production efficiency because of the uncertainty that the customers introduce into the service creation process.... Systems characterized by low customer contact (LC) are seen as essentially free of this type of uncertainty and therefore are capable of operating at high levels of production efficiency, analogous to that achieved in well-run manufacturing organizations" (Chase & Tansik, 1983, p. 1040). In keeping with Perrow's (1967) concept of raw material variability in "people-changing" systems, specific human attributes which create uncertainty are unique perceptions of quality, unique proceeding needs and expectations, and unique prior experience that the customer has had with the service organization. As a contrast to LC systems, control is expected to be more difficult to

effectuate for HC systems because the customer brings an uncertain input to the process being controlled (Chase, 1978).

The examined relationships among customer's perceived trust-in-personnel, customer participation behavior, customer-perceived value and loyalty in this study are expected to vary and subject to the context of high- versus low- customer contact. Facing much lower uncertainty in terms of input and demand expectations from customers in LC systems, frontline personnel are more likely to operate efficiently and inspire trust from customers. Similarly, customers themselves are more likely to take part in standardized service production, offer well-defined feedback, form clear-cut value judgment, and arrive at preference and loyalty. The impact of customers' trust-in-personnel on service co-delivery behavior (or value co-design behavior) can therefore be expected to be stronger under a low-contact system as opposed to a high-contact system. It is therefore hypothesized that:

H3A: The influence of customers' trust in service personnel on value co-design behavior is stronger under a low-contact service context.

H3B: The influence of customers' trust in service personnel on service co-delivery behavior is stronger under a low-contact service context.

The concept of "value-in-use" (Lusch & Vargo, 2006) in particular put emphasis on customer-perceived value at the consequence level (e.g., more customization), rather than at the attribute level (e.g., physical features). The perceived value of customer participation may include monetary discounts, convenience (Meuter, Bitner, Ostrom, & Brown, 2005), better quality, customized service, and greater control (Chan et al., 2010; Dong, 2015; Yim, Chan, & Simon, 2012). The role of co-design and co-production can vary by types of services (Dong, 2015), as not all services have a design or production component. In general, for services involving self-service technologies (such as airline and hotel self-check-in), customers perform co-producing behavior (CPP), do some physical labor, and receive some side benefits like convenience and efficiency, but the service outcome remains the same and the unique value created is minimal (Dong, 2015). In contrast, for tailor-made services (e.g., investment consulting and healthcare), customers perform co-designing behavior (CPD), provide information on personal preference and tastes, receive customized

experience and enjoyment, and benefit from a substantial increase of idiosyncratic value.

The impact of CP behaviors over value creation in terms of participation enjoyment can vary from low-contact to high-contact services. Under a LC system where standardized services are made available, customers are more likely to believe they have the competence and skills to provide the needed inputs and follow the required procedures to consume the service. In contrast, under a HC system where tailor-made services are offered, customers will feel stressed because they are less likely to interpret themselves as competent and skillful enough in articulating personal preference and in co-developing the service. It is therefore hypothesized that:

H4A: Value co-design behavior has a positive effect on perceived value of the service outcome.

H4B: The influence of customers' value co-design behavior on customer perceived value is stronger under a low-contact service context.

H4C: Service co-delivery behavior has a positive impact on perceived value of the service outcome.

H4D: The influence of customers' service co-delivery behavior on customer perceived value is stronger under a low-contact service context.

Consistent with the service quality and satisfaction literature, customer loyalty can be attributed to value derived from high-quality services and satisfactory experiences. Under a LC system where little or no customer-induced uncertainty prevails, customers get what they expect, enjoy standardized outputs and value outcomes, and repeat buying time after time to account for their loyalty behavior. The impact of customer-perceived value on loyalty is expected to be stronger under a LC than HC system. Furthermore, the downside of customer co-creation has to be considered in service failure episodes. In case of highly co-created service failure, perceived negative disconfirmation arises and leads to greater dissatisfaction (Heidenreich, Wittkowski, Handrich, & Falk, 2015). In other words, with increasing customer involvement covering many more contact points between customers and service providers, customers are likely to formulate an expectation of high-quality service provision. As such, if higher expectations are only met with poor performance, disappointment with the co-created service could be inflated. On these grounds, it is hypothesized that:

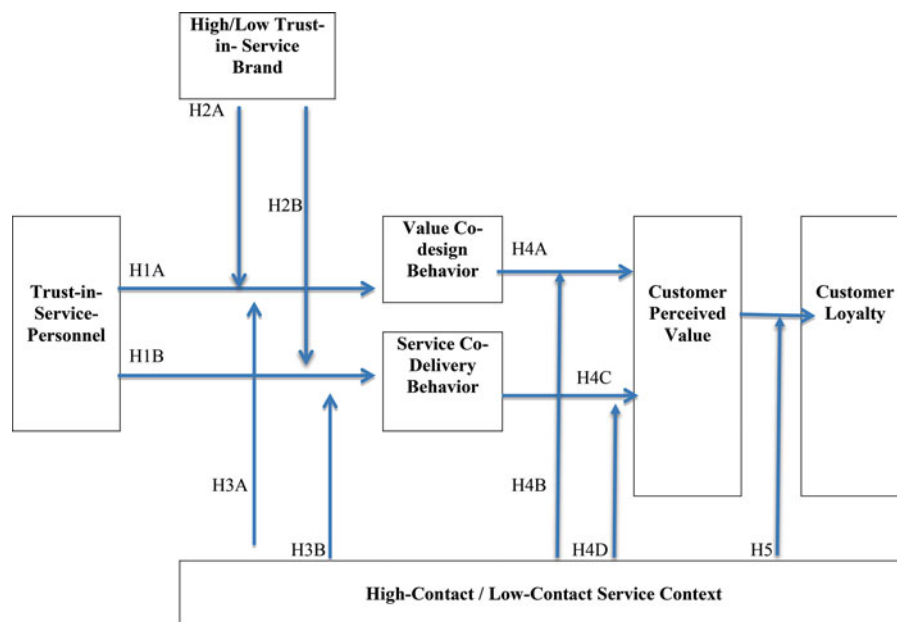


Figure 1. The conceptual model.

H5: The influence of customer perceived value on customer loyalty is expected to be stronger under a low-contact service context.

These hypotheses form the structural model, which is represented in Figure 1.

Research method

Two services, hairdressing versus cellular phone retailing, were selected for investigation. Zaichkowsky (1985) classified hairdressing as a high involvement service and many other types of retail services (e.g., supermarkets) as low to moderate involvement services. Hairdressing is characterized by repeated interactions, normally with the same supplier of the service, and most customers have a desire to establish a lasting relationship with the service personnel. This service fulfills the conditions of a context of interpersonal relationship marketing, including quality, variability, and high involvement (Haaff, 1998). According to the contact-based classification scheme in the services marketing literature (Chase, 1978; Chase & Aquilano, 1977), salon service is a kind of high-contact or pure service where production is carried on in the presence of the customers. In addition, salon services usually entail heavy customer involvement and represent a typical relational marketing context where a customer normally has a desire to establish lasting relationships with the service personnel and the firm (Luk, Li, & Liu, 2014). In contrast, given the fact that virtually no

face-to-face contact is involved, cellular phone retail service can be classified as a kind of low to moderate contact services/. Mobile phones are tangible and customers in mature markets like Hong Kong and the US normally have good product knowledge and, if allowed, most know how to test the products without help from frontline employees. This eventually assumes the form of a low to moderate contact service, and the feedback from focus group discussion revealed that this was particularly true when customers were purchasing low-end market models.

Data collection and sample design

We tested the proposed model in two different customer-service contexts in the US and Hong Kong. Two focus group studies were conducted in Hong Kong to understand customers' expectations of their role in the service delivery process and the activities they normally performed in order to ensure that the service outcome would be what they desired. The majority of participants in the first group were female employees of local businesses, and the second group of respondents was a mix of Chinese and foreign exchange students from the United States. The following were commonly reported by group members pertaining to service participation behavior:

- (a) For the hairdressing service: I had to spend time in waiting for the stylist I liked; I had to learn the hair style trends by collecting information

Table 1. Demographic characteristics of all respondents.

	Salon <i>N</i> = 445	Cell Phone <i>N</i> = 440	All <i>N</i> = 885
Gender $\chi^2 = 14.057^{***}$ <i>df</i> = 1			
Male	328 (73.7%)	273 (62.0%)	601 (67.9%)
Female	117 (26.3%)	167 (38.0%)	284 (32.1%)
Age $\chi^2 = 124.017^{**}$ <i>df</i> = 4			
18–22	236 (53.0%)	382 (86.8%)	618 (69.8%)
23–30	115 (25.8%)	28 (6.4%)	143 (16.2%)
31–40	50 (11.2%)	20 (4.5%)	70 (7.9%)
41–50	27 (6.1%)	9 (2.0%)	36 (4.1%)
51–65	17 (3.8%)	1 (0.2%)	18 (2.0%)
Education $\chi^2 = 25.304^{***}$ <i>df</i> = 2			
High School or below	87 (19.6%)	66 (15.0%)	153 (17.3%)
College	334 (75.1%)	373 (84.8%)	707 (79.9%)
Graduate School	24 (5.4%)	1 (0.2%)	25 (2.8%)

****p* < .001, ***p* < .01, **p* < .05

from magazines or websites; I had to explain my expectations beforehand to the frontline employees; I provided feedback on the cutting to the stylist during the service process; I discussed with the stylist which hair style would fit me most.

- (b) For mobile phone retail service: I would collect the information pertaining to new phone models first; definitely I would inspect the quality and design of the phone and test its functions; I could not change the design of the phone but I could make it look more beautiful by adding some accessories on it; yes, I would tell the frontline employees my needs but the advice from them might not be useful because I knew what kind of phone I wanted to have.

Respondents for survey interviews were selected based on convenience sampling and recruited at service outlets. In Hong Kong, we asked members of each group to identify the salons that were popular (i.e., popular salon brands) in the community. No focus group study was undertaken in New England; however, the co-author there asked his students to identify some popular salons. Subsequently, respondents were sampled from the identified salons. In both Hong Kong and New England, mobile phone retailing was dominated by 4–5 retailer brands and respondents were hence sampled outside the outlets of these retailer brands.

A personal interview survey technique was employed to collect data from respondents. Two groups of interviewers were recruited from local universities in each of these countries. All respondents were asked to report their participation activities right after the transaction was completed. Each respondent was subject to a screening question to ensure that s/he had sufficient experience with the service brand and

its frontline personnel. For the hair salon sample, the screening question asked if the respondents had used the service provided by the stylist at least three times in the past. For the cellular phone service sample, the screening question asked if the respondents had used the purchased mobile phone or customer service provided by the shop assistant at least three times in the past 12 months. Only those who confirmed would continue to complete the survey exercise. All interviews were completed within two weeks in Hong Kong and New England. A total of 440 cellular phone respondents and 445 hair salon respondents completed questionnaires, and the resultant findings were used for statistical analysis. The resultant respondent profile of each sample is shown in Table 1.

Measures

This study employed well-established measurement scales in the literature that display sound content validity and have been shown to possess good psychometric properties in previous studies. In a customer service setting, the scale measurements pertaining to customer trust placed in the trustworthiness of the service brand and/or the firm's service employee were developed on the basis of the work of Sirdeshmukh et al. (2002). The scales contain items pertaining to the attitudinal and behavioral aspects of trust and appeared as robust in terms of reliability and validity in replication studies (Luk et al., 2013).

The customers' co-production (including value co-design and service co-delivery) behavior scale was derived from the adoption of items used by Sharma, Chen, and Luk (2012a, 2012b) to measure effort spent in consuming the service under examination. The customers' value co-design behavior scale, on the

other hand, was derived on the basis of the conceptual definition of the construct (Lush, Vargo, & O'Brien, 2007; Lusch & Vargo, 2008), and this latter scale has recently been validated (Luk et al., 2014).

Finally, the scale of customer perceived value tapped into the customer's perception of the overall value offered by the service store, and was based on Luk et al. (2013). The scale of loyalty only dealt with the behavioral aspect of loyalty and was based on Yoon, Guffey, and Kijewski (1993) and Luk et al. (2013).

Findings and discussion

We undertook a normality test and common method variance test to ensure that the quality of the collected data was good for statistical analysis. The results of a normality test indicated that, except for a few items whose skewness values are from -0.519 to -0.625 , all other items had a value lower than -0.5 . As for the kurtosis values, only one item had a value over -0.5 and the majority had a value lower than -0.15 , slightly below the reference point of 0.3 . These results suggested that the data could be used for statistical analysis because the distribution should be approximately symmetric and close to normal distribution.

Given that each questionnaire was completed by a single key respondent, common method bias may be a potential problem. First, we followed the Harman test procedures suggested by Podsakoff et al. (2003) to assess common method variance in our data by comparing the fit indices between the original model and another model with all items loaded on a general factor. The general factor model obtained a relatively poor fit (CFI = 0.868, NFI = 0.840, IFI = 0.871) and a significantly higher Chi-square value (Chi-square = 760.484), suggesting that most of the variance in this data was explained by the six factors in the proposed model and the common method variance should not be a serious threat to our analysis.

Second, we followed the latent methods factor procedures recommended by Podsakoff et al. (2003) and Williams, Gavin, and Williams (1996) to assess the existence of common method variance. When designing the questionnaire, we purposefully introduced two items pertaining to the values of "inequality" to test the potential common method variance issue. The first item was "inequalities among people should be minimized" and the second was "a person is identified by their position in the social networks." We used the

mentioned two value items, which were assumed to have no interaction with the predictor and criterion constructs, to form a latent methods factor that was typically a surrogate measure representing common method variance. Then, we added this latent methods factor to the measurement model of "value co-creation behavior" and performed a CFA test. The fit statistics of this expanded value co-creation measurement model are CFI = 0.981 and GFI = 0.977, whereas the key fit statistics of the original value co-creation model are CFI = 0.988 and GFI = 0.981. Both models are statistically significant, but apparently there is almost no change in the value of GFI and CFI. In addition, the loadings of all items from both co-delivery and co-design factors on inequalities are statistically insignificant. All of these results suggest that common method variance bias should not be a serious issue here.

Reliability and validity testing

All relevant scales were adopted in previous empirical studies; therefore, a Cronbach Alpha Reliability test and confirmatory factor analysis were performed based on the collected data to test the robustness of these scales. As indicated in Table 2, the Cronbach Alpha value of each scale ranges from 0.763 to 0.893, all higher than the recommended cut-off value of 0.700 (Bagozzi & Yi, 1988), suggesting acceptable level of reliability. The statistics of confirmatory factor analysis are higher than the recommended thresholds and suggest good model fit (Chi-square value of 485.803; CFI = .958; NFI = .938; IFI = .947; RMSEA = .063), and the standardized factor loadings are all statistically significant. In addition, the value of composite reliability of each scale is higher than 0.70. The average variance extracted value of all of the scales is higher than 0.50. These measurement scales have therefore been retained for Structural Equation Modeling (SEM) analysis.

With respect to the convergent validity, all of the items are statistically significant at t-value greater than 1.96 and all standardized loading coefficients are greater than 0.50 (Steenkamp & Van Trijp, 1991). As illustrated in Table 3, the square root of the AVE value of individual construct is larger than its correlation with other constructs (Fornell & Larcker, 1981), providing support for discriminant validity. The comparison between item loadings and cross loadings in Table 3 clearly shows that all of the items loaded higher on the

Table 2. Measurement items and validity assessment: Full sample ($N = 885$).

	Standardized Factor Loading
<i>Trust in Personnel: CR = .888; AVE = .668; Cronbach's $\alpha = .886$</i>	
1. I feel that the employee who served me this time is dependable.	.860
2. I feel that the employee who served me this time is competent.	.885
3. I feel that the employee who served me this time is of high integrity.	.830
4. I feel that the employee who served me this time is responsive to customers.	.677
<i>Co-delivery Behavior: CR = .776; AVE = .542; Cronbach's $\alpha = .763$</i>	
1. I have been involved in determining how the service should be with the service employee.	.560
2. I received more value through negotiation with the service personnel.	.762
3. Throughout the process the service delivered was efficient because of my involvement in it.	.856
<i>Value Co-design Behavior: CR = .892; AVE = .674; Cronbach's $\alpha = .893$</i>	
1. The service outcome meets my expectations because I explained in detail what I wanted to the service personnel.	.846
2. The service employee tended to go along with my wishes; when I assisted in the process, the service was delivered.	.845
3. My involvement in the process as the service was delivered made me feel happy psychologically.	.809
4. I am confident with the service outcome; because of my participation in the process, the service was delivered.	.783
<i>Customer Perceived Value: CR = .781; AVE = .641; Cronbach's $\alpha = .779$</i>	
1. Overall, the value of the service offered to me at this store is high.	.841
2. Compared to what I had to give up, the overall ability of this store to satisfy my needs is high.	.758
<i>Loyalty: CR = .849; AVE = .586; Cronbach's $\alpha = .846$</i>	
1. I am likely to do most of my future services at this store.	.779
2. I will recommend this store to friends, neighbors, and relatives.	.789
3. I am likely to use this store the very next time I need the services.	.819
4. I will spend more than 50% of my service budget at this store.	.667
Overall model fit: $\chi^2_{(109)} = 485.803^{***}$; CFI = .958; NFI = .947; IFI = .958; RMSEA = .063	
<i>Trust in Service Brand: CR = .928; AVE = .755; Cronbach's $\alpha = .925$</i>	
1. I feel that this store is dependable.	.918
2. I feel that this store is competent.	.938
3. I feel that this store is of high integrity.	.830
4. I feel that the store is responsive to customers.	.780
$\chi^2_{(2)} = 66.381^{***}$; CFI = .978; NFI = .977; IFI = .978; RMSEA = .191	
EFA Extracted Cumulative % = 81.440	

* $p < .05$, ** $p < .01$, *** $p < .001$ Notes: CR = composite reliability

Table 2a. Measurement items and validity assessment: Salon sample ($N = 445$).

	Standardized Factor Loading
<i>Trust in Personnel: CR = .816; AVE = .532; Cronbach's $\alpha = .802$</i>	
1. I feel that the employee who served me this time is dependable.	.805
2. I feel that the employee who served me this time is competent.	.824
3. I feel that the employee who served me this time is of high integrity.	.726
4. I feel that the employee who served me this time is responsive to customers.	.524
<i>Co-delivery Behavior: CR = .814; AVE = .596; Cronbach's $\alpha = .812$</i>	
4. I have been involved in determining how the service should be with the service employee.	.673
5. I received more value through negotiation with the service personnel.	.782
6. Throughout the process, the service delivered was efficient because of my involvement in it.	.851
<i>Value Co-design Behavior: CR = .889; AVE = .669; Cronbach's $\alpha = .887$</i>	
5. The service outcome meets my expectations because I explained in detail what I wanted to the service personnel.	.883
6. The service employee tended to go along with my wishes; when I assisted in the process, the service was delivered.	.891
7. My involvement in the process as the service was delivered made me feel happy psychologically.	.775
8. I am confident with the service outcome; because of my participation in the process, the service was delivered.	.707
<i>Customer Perceived Value: CR = .706; AVE = .548; Cronbach's $\alpha = .699$</i>	
1. Overall, the value of the service offered to me at this store is high.	.809
2. Compared to what I had to give up, the overall ability of this store to satisfy my needs is high.	.664
<i>Loyalty: CR = .816; AVE = .528; Cronbach's $\alpha = .812$</i>	
1. I am likely to do most of my future services at this store.	.731
2. I will recommend this store to friends, neighbors, and relatives.	.770
3. I am likely to use this store the very next time I need the services.	.771
4. I will spend more than 50% of my service budget at this store.	.624
Overall model fit: $\chi^2_{(109)} = 392.921^{***}$; CFI = .926; NFI = .902; IFI = .927; RMSEA = .077	
<i>Trust in Service Brand: CR = .911; AVE = .722; Cronbach's $\alpha = .914$</i>	
1. I feel that this store is dependable.	.922
2. I feel that this store is competent.	.949
3. I feel that this store is of high integrity.	.774
4. I feel that the store is responsive to customers.	.733
$\chi^2_{(2)} = 56.528^{***}$; CFI = .960; NFI = .959; IFI = .960; RMSEA = .248	
EFA Extracted Cumulative % = 79.653	

* $p < .05$, ** $p < .01$, *** $p < .001$ Note: CR = composite reliability

Table 2b. Measurement items and validity assessment: Cell phone sample (N = 440).

	Standardized Factor Loading
<i>Trust in Personnel: CR = .940; AVE = .796; Cronbach's α = .939</i>	
1. I feel that the employee who served me this time is dependable.	.887
2. I feel that the employee who served me this time is competent.	.922
3. I feel that the employee who served me this time is of high integrity.	.907
4. I feel that the employee who served me this time is responsive to customers.	.850
<i>Co-delivery Behavior: CR = .721; AVE = .479; Cronbach's α = .675</i>	
7. I have been involved in determining how the service should be with the service employee.	.426
8. I received more value through negotiation with the service personnel.	.760
9. Throughout the process, the service delivered was efficient because of my involvement in it.	.823
<i>Value Co-design Behavior: CR = .869; AVE = .625; Cronbach's α = .872</i>	
9. The service outcome meets my expectations because I explained in detail what I wanted to the service personnel.	.804
10. The service employee tended to go along with my wishes; when I assisted in the process, the service was delivered.	.765
11. My involvement in the process as the service was delivered made me feel happy psychologically.	.782
12. I am confident with the service outcome; because of my participation in the process, the service was delivered.	.810
<i>Customer Perceived Value: CR = .813; AVE = .685; Cronbach's α = .813</i>	
1. Overall, the value of the service offered to me at this store is high.	.842
2. Compared to what I had to give up, the overall ability of this store to satisfy my needs is high.	.813
<i>Loyalty: CR = .878; AVE = .643; Cronbach's α = .873</i>	
1. I am likely to do most of my future services at this store.	.813
2. I will recommend this store to friends, neighbors, and relatives.	.803
3. I am likely to use this store the very next time I need the services.	.881
4. I will spend more than 50% of my service budget at this store.	.701
Overall model fit: $\chi^2_{(109)} = 263.831^{***}$; CFI = .970; NFI = .951; IFI = .971; RMSEA = .057	
<i>Trust in Service Brand: CR = .926; AVE = .758; Cronbach's α = .924</i>	
1. I feel that this store is dependable.	.905
2. I feel that this store is competent.	.926
3. I feel that this store is of high integrity.	.854
4. I feel that the store is responsive to customers.	.792
$\chi^2_{(2)} = 11.648^{**}$; CFI = .993; NFI = .992; IFI = .993; RMSEA = .105	
EFA Extracted Cumulative % = 81.721	

*p < .05, **p < .01, ***p < .001 Note: CR = composite reliability.

expected construct than on other constructs, reflecting that all scales possess adequate validity (Fornell & Larcker, 1981).

Hypotheses testing: The fit statistics obtained from the SEM analysis suggest acceptable model fit (CFI = .933; NFI = .922; IFI = .933; RMSEA = .077). As shown in Table 4, the SEM results were based on the data of the full sample. Consistent with expectations, “trust-in-personnel” has a very powerful impact on the customer’s commitment to co-design valuable service outcomes (B = .744, P < .000). In addition, “trust-in-personnel” has a positive impact on the customer’s commitment to co-deliver standard service outcomes (B = .314, P < .000). Both H1A and H1B are thus supported. Notably, the pattern of findings

suggests that trust-in-personnel has a stronger impact on the customer’s co-designing than co-delivering behavior.

Given that the concept of customer involvement assumes customer’s service participation would vary along the low-contact versus high-contact continuum, we thus performed an ANOVA test and the results indicated (except for one item) that the differences in the responses to all other items representing the five constructs are statistically significant. This apparently suggests that pooling the data from these two samples into one for statistical analysis is inappropriate. As a result, we tested both the measurement models and structural model based on the data of each sample, respectively. The CFA results also support the reliability and

Table 3. Correlation matrix and discriminant validity.

Construct	M	SD	Construct				
			Trust in Personnel	Co-delivery Behavior	Value Co-design Behavior	Customer Perceived Value	Loyalty
1. Trust in Personnel	5.454	1.166	(.665)				
2. Co-delivery Behavior	3.325	1.309	-.121**	(.757)			
3. Value Co-design Behavior	5.189	1.157	.527***	-.097*	(.833)		
4. Customer Perceived Value	5.111	1.135	.583***	-.125**	.663***	(.740)	
5. Loyalty	4.954	1.208	.584***	-.016	.496***	.615***	(.727)

*p < .05, **p < .01, ***p < .001 The values on the diagonal represent variance of the constructs; off-diagonal are the correlation coefficients between each pair of the constructs.

Table 4. Results of SEM analysis and multi-group analysis (high-trust-in-store and low-trust-in-store samples).

	Full Sample <i>N</i> = 885	Cellular Phone Sample <i>N</i> = 440		Hair Salon Sample <i>N</i> = 445	
		Low-trust in store	High-trust in store	Low-trust in store	High-trust in store
Trust in personnel → Value Co-design	.744***	.642***	.479***	.607***	.303**
Trust in personnel → Co-delivery	.314***	.541***	.315***	.510***	-.015
Value Co-design → CPV	.884***	.883***	.727***	.754***	.638***
Co-delivery → CPV	.008	.040	.045	.118	-.012
CPV → Loyalty	.779***	.769***	.758***	.706***	.628***
χ^2	719.173***				
df	114				
CFI	.933				
NFI	.922				
IFI	.933				
RMSEA	.077				

#*p* > .10; **p* > .05; ***p* > .01; ****p* > .001

Cellular Phone Comparison

Model Descriptions	χ^2	df	χ^2/df	RMSEA	IFI	CFI
Unconstrained	626.498***	228	2.748	.063	.899	.897
Measurement weights	636.984***	240	2.654	.061	.899	.897
Measurement intercepts	896.050***	257	3.487	.075	.836	.834
Structural weights	910.096***	262	3.474	.075	.834	.832
Structural covariances	928.793***	263	3.532	.076	.829	.827
Structural residuals	939.378***	267	3.518	.076	.827	.825

Hair Salon Comparison

Model Descriptions	χ^2	df	χ^2/df	RMSEA	IFI	CFI
Unconstrained	692.917***	228	3.039	.068	.839	.834
Measurement weights	707.055***	240	2.946	.066	.837	.833
Measurement intercepts	955.032***	257	3.872	.081	.741	.737
Structural weights	1020.319***	262	3.894	.081	.734	.730
Structural covariances	1133.332***	263	4.309	.086	.694	.690
Structural residuals	1178.234***	267	4.413	.088	.680	.675

validity of the measurement models (Table 2), and the results of SEM succinctly indicate that the co-efficient value of each path varies under different service contexts. The effect of trust-in-personnel on service co-delivery behavior is significantly stronger for cellular phone retail service, and the predictive power of perceived value to loyalty is greater (Table 4).

In order to test the moderating effect of customers' perceived trust-in-service-brand, we used the aggregated mean of the "trust in service brand" as a cut-off line to separate each sample in the "high-trust group" versus "low-trust group." The resultant findings reveal that effects of the trust in service personnel on both value co-design and service co-delivery behavior tend to depend on degree of trust in the service brand under examination. As shown in Table 4, in the cellular phone sample, the trust-in-personnel has a stronger positive effect on value co-design behavior when the customer has a low trust ($B = .642, p < .000$) rather than a high level of trust in the involved service brand ($B = .479, p < .000$). In addition, the trust-in-personnel

has stronger positive effect on service co-delivery behavior when the customer has low trust in the involved service brand ($B = .541, p < .000$) than when s/he has a high trust in the brand ($B = .315, p < .000$). Similarly, in the hair salon sample, the impact of trust-in-personnel on value co-design behavior has been found to be stronger when the customer has a low trust in the service brand ($B = .607, p < .000$) than a high trust in the involved brand ($B = .303, p < .01$). The trust-in-personnel also has a stronger effect on service co-delivery behavior when the customer has low trust ($B = .510, p < .000$) as opposed to high trust in the service brand ($B = -.015$, not significant). These findings provided support for H2A and H2B.

With regard to the contextual influence of low-contact versus high-contact services, the effects of the customer's perceived trust-in-personnel on its service participation behaviors were observed to be stronger under the LC system of cellular phone service than under the HC system of hair salon service. As shown in Table 5, trust-in-personnel has a slightly stronger

Table 5. Results of SEM analysis and multi-group analysis (cellular phone service and hair salon service).

	Full Sample N = 885	Cellular Phone Sample N = 440	Hair Salon Sample N = 445
Trust in personnel → Value Co-design	.744 ***	.735 ***	.707 ***
Trust in personnel → Co-delivery	.314 ***	.548 ***	.168 **
Value Co-design → CPV	.884 ***	.875 ***	.851 ***
Co-delivery → CPV	.008	.036	-.019
CPV → Loyalty	.779 ***	.838 ***	.724 ***
χ^2	719.173 ***	471.440 ***	502.834 ***
df	114	114	114
CFI	0.933	0.932	0.899
NFI	0.922	0.912	0.874
IFI	0.933	0.932	0.9
RMSEA	0.077	0.085	0.088

$p > .10$; * $p > .05$; ** $p > .01$; *** $p > .001$

Model Descriptions	χ^2	df	χ^2/df	RMSEA	IFI	CFI
Unconstrained	974.274***	228	4.273	.061	.918	.918
Measurement weights	1032.582***	240	4.302	.061	.913	.913
Measurement intercepts	1203.414***	257	4.683	.065	.896	.896
Structural weights	1241.820***	262	4.740	.065	.893	.892
Structural covariances	1251.315***	263	4.758	.065	.892	.891
Structural residuals	1319.295***	267	4.941	.067	.885	.884

impact on value co-design behavior for cellular phone service ($B = .735, p < .000$) than that for hair salon service ($B = .707, p < .000$). Moreover, trust-in-personnel has a much stronger positive impact on service co-delivery behavior for cellular phone service ($B = .548, p < .000$) than that for hair salon service ($B = .168, p < .01$). These findings provided support to H3A and H3B. As a whole, our results suggest that trust-in-personnel can strengthen customers' co-delivery behavior to a much greater extent under the LC cellular phone service context than under the HC hair salon service context. This implies that, when operating under a LC system, managers should foster trust-in-personnel that is conducive to customers' commitment to co-deliver the service, to serve as partial employees, and to ultimately contribute to the firm's efficient operations.

Concerning the contextual effects of LC versus HC service systems over the linkage between customer participation behavior and customer perceived value, the resultant findings indicated that customers' value co-design behavior has a positive and statistically significant impact on perceived value of the service outcome, whereas the effect of service delivery on perceived value is minimal and statistically insignificant in both kinds of services. This phenomenon can be attributed to the fact that it would be difficult for customers to co-produce a hair-dressing service and that customers were normally required to perform limited service tasks when buying basic or popular models of cellular

phones. Hence, H4C and H4D are not supported. However, the effect of service co-design behavior on perceived value is positive and statistically significant and a slightly stronger positive effect is observed in the case of LC cellular phone service ($B = .875, p < .000$) than for the HC hair salon service ($B = .851, p < .000$), providing support for H4A and H4B. Essentially, customers' value co-designing behavior could contribute to significant increments of customer perceived value in the LC and HC systems. Nonetheless, when taking into account the influence of customer's self-efficacy in different customer contact systems, the customer is much more (less) likely to interpret himself as competent in articulating his needs, wants, and expectations when consuming under the LC (or HC) systems. As a result, the stronger value-enhancing impact of customers' value co-designing behavior under the LC cellular phone service than the HC hair salon service can be accounted for. Conversely, since there is little or no design component in LC systems such as cellular phone service, customers' co-delivery behavior could result in improved convenience, but the service remains more or less the same, and hence co-delivering in itself does not contribute to customer perceived value.

With respect to the contextual influence of LC versus HC systems over the relationship between customer perceived value and customer loyalty, the current findings reported a relatively stronger effect under the LC cellular phone context ($B = .838, p < .000$) than under

Table 6. Summary of hypotheses and testing results.

Hypotheses under Testing	Results of Testing
H1A: Customers' trust in the frontline service personnel has a positive impact on co-designing the service.	Supported
H1B: Customers' trust in the frontline service personnel has a positive impact on co-delivering the service.	Supported
H2A: The influence of customers' trust in service personnel on value co-design behavior will be stronger when the customer has a lower trust in the service brand.	Supported
H2B: The influence of customers' trust in service personnel on value co-delivery behavior will be stronger when the customer has a lower trust in the service brand.	Supported
H3A: The influence of customers' trust in service personnel on value co-design behavior will be stronger under a low-contact service context.	Supported
H3B: The influence of customers' trust in service personnel on value co-delivery behavior will be stronger under a low-contact service context.	Supported
H4A: Value co-design behavior has a positive effect on perceived value of the service outcome.	Supported
H4B: The influence of customers' value co-design behavior on customer perceived value is stronger under a low-contact service context.	Supported
H4C: Service co-delivery behavior has a positive impact on perceived value of the service outcome.	Not Supported
H4D: The influence of customers' value co-delivery behavior on customer perceived value is stronger under a low-contact service context.	Not Supported
H5: The influence of customer perceived value on customer loyalty can be expected to be stronger under a low-contact service context.	Supported

the HC hair salon context ($B = .724, p < .000$), giving support to H5. These hypothesis testing results are summarized in Table 6.

Conclusion

The present study goes against an implicit assumption of the services marketing literature that service quality is a function of both the design and delivery of the service, which, in turn, is dependent on the management and frontline staff (Heskett and Schlesinger, 1994). It argues that customers also play an important role in influencing the value of the service outcome through service participation mechanisms.

Theoretical implications

Previous studies on trust in both B2B and B2C settings tended to adopt a post-transaction approach to examining how trust was developed and how it would determine the commitment by the parties involved in terms of maintenance of the relationship and future purchase. Research designed to focus on how trust will

influence service consumption and production behavior during the transaction period is lacking. To the best of our knowledge, the present study represents the first attempt to investigate the potential impact of customer trust at multi-levels on customers' value co-design and service co-delivery behavior during the service delivery process. Our study makes an important theory-based contribution as to the impact of customer trust on service participation behavior and the moderator effect of service contextual factor by examining two important theoretical and empirical issues that have not been addressed previously. First, we investigated customer trust as an important antecedent to influence two types of service participation behavior: value co-design behavior and service co-delivery behavior. The form and magnitude of impact of customer trust at both the employee level and brand level were also explored. Second, we posited that the relationship between customer trust and service participation behavior should be context-specific.

Our study provides an important extension to current theoretical perspectives on service participation, as it confirms the significant impact of trust-in-frontline-personnel on service participation behavior and sheds light on the boundary conditions for the effect of customer trust on value co-design behavior and service co-delivery behavior. As extant research has yet to consider consumer trust as a multi-level phenomenon and its total impact on customer participation behavior, our study adds to the existing literature by proving and explaining the interaction effect of trust at the employee level and trust at the service brand level on service participation behavior. Customer trust in service personnel can facilitate value co-design and service co-delivery behaviors, but such impacts appear to be more complicated than what has been suggested in the extant literature, as manifested in the fact that such an effect tends to vary by some firm-based and context-based factors. The findings from multi-group analysis reveal that the relationships between trust in service personnel and customer participation behavior actually depend on customers' trust in the retailer brand. For new and small service brands where customers have little or no consumption experience and hence very low trust in the store, the trust customers placed in the frontline personnel turned out to be a major determinant in inducing value co-design and service co-delivery behaviors. Additional research is needed to examine ways of

building up trust in service personnel. On the other hand, in spite of the theoretical appeal of the customer contact model, extant studies have not considered how different underlying opportunities for customer participation as available from high-contact (HC) versus low-contact (LC) service contexts matter. In view of the current multi-group analyses, the relationship between trust-in-personnel and customer participation behavior, that between customer participation behavior and customer perceived values, and that between customer perceived value and customer loyalty are dependent on the HC or LC service context under examination. As a whole, the linkage of trust-participation-value-loyalty is stronger under a LC context than under a HC context. Our study contributes to a contingency perspective on customer participation.

Managerial implications

Our research provides important insights for service marketers. First, as the present findings confirm that trust-in-personnel can trigger value co-design behavior to add value to the service outcome and thus show the path to loyalty intentions, service firms have to develop customer trust. Service firms may inspire trust from customers by achieving a higher level of service performance, continuously improving their competence, designing a service operation process that provides benefits and evokes positive emotional responses so as to involve customers, and get their participation in value-enhancing activities. Service marketers should also infer from the current findings new ways to build customer trust through developing customer perceived security in dealing with the brand, reinforcing customer trust with continuous reliable experiences, and establishing a brand positioning of operating with the customers' best interests in mind at all times.

Second, in view of the findings that trust-in-the-service-personnel has a much stronger impact on value co-design than service co-delivery behavior, scholars and practitioners could be inspired to explore further ways of building up trust in frontline personnel where many co-design activities are needed for developing customized service experiences. In addition, academics and managers could be reminded of the importance of distinguishing between services with high and low customer contact. Moreover, the nature of trust-in-the-service-personnel has the potential to

be a double-edged sword whereby too much trust and over-dependency on service personnel may reduce a customer's motivation to engage in customer participation behavior. Service firms should train frontline service personnel in ways to make service participation a more enjoyable experience for customers. In addition to providing customers with the knowledge and skills to perform the required service tasks, service firms need to educate those customers who are more willing to participate in how to provide decision inputs so that the service outcome will better meet their expectations.

Third, given that trust in service brand can moderate the effect of customer trust in personnel on service co-delivery and value co-design behaviors, it is critical for an individual services marketer to develop the particular kind of brand perceptions that reinforce the right kind of customer experience over time so as to establish desirable positioning and branding.

Fourth, some context-based factors, such as customer contact opportunities, can moderate the chain effects of customer trust-participation-value-loyalty. For low-contact service contexts, service marketers should develop more effective service strategies via convenience service design to reduce the cost of service participation. For high-contact service contexts, service marketers could identify the types that are more conducive to co-creation activities. Alternatively, service managers might consider redesigning service operations and renovating service designs with the support of information technology so as to cater to personalized and customized needs and demands. For instance, offering a computerized animation device for customers to use to design new hairstyles would enable them to have a greater sense of ownership of the service outcome. Service providers who have only limited experience in co-creation could consider offering services which are low in co-creation until they have gained the necessary expertise to provide successful, highly co-created services.

All in all, trust is formed on the basis of competence and performance, and it can be sustained as long as the service firm is able to maintain a high level of performance. Since trust can facilitate value co-creation behavior that leads to greater value of the service outcome and customer loyalty, increasing customer trust is warranted, and retail firms should work hard to perform better.

Limitations and future research directions

Our research project is not without limitations. First, the research design is cross-sectional; future studies should employ a longitudinal approach to investigate the dynamic effect of customer trust on customer participation behavior. Second, the present study used customer trust in service personnel as a single predictor accounting for customer participation behavior. Although customer trust in personnel has been identified as an important attitudinal antecedent affecting customer participation behavior, other customer-based factors affecting such behavior exist. Additional studies are needed to examine customer factors like customer goals, customer resources, customer traits, and customer affective states (Doorn et al., 2010), since these also affect a customer's decision to participate and engage in service delivery.

Another limitation is related to the use of multi-group analysis involving low-trust brands versus high-trust brands. Being defined, through customer expectations, as a service brand that is dependable and can be relied on to deliver on its promises, trust in service brand is expected to have some overlapping properties with trust in personnel and trust in products (Sirdeshmukh et al., 2002). Trust in a brand appears as a holistic measure of firm context, but suffers from a lack of obvious, actionable properties. Alternatively, other firm-specific factors affecting customers' participation behavior have been identified, including a firm's technologies and platforms used to enable customers to voice their concerns, compliments, suggestions, and ideas. Future research can explore how these firm-specific factors may moderate the effect of customer trust on service participation.

Third, future research can be designed to investigate to what extent the effect of customer trust on service co-delivery and value co-design behavior may be moderated by other context-specific factors. While the present study used cellular mobile phone and hair salon services to investigate the potential moderating role of low-contact versus high-contact services, empirical studies designed to test the model across service contexts are needed. Additional studies may examine how the impact of customers' participation behaviors on their perceived value can be enhanced or inhibited by the availability of the firm's informational processes and website platform designs (Doorn et al., 2010; Yim et al., 2012; Heidenreich et al., 2015).

These may include online instructions, self-help aids, and customer-friendly training for technology-based co-creation service settings such as online games, hotel booking, and real-time medical consultations. Future studies are also encouraged to investigate how the linkage between customer participation behavior and value perceptions can be moderated by customers' perceived costs and benefits (Doorn et al., 2010), perceived guilt, and internal failure attribution (Heidenreich et al., 2015) in non-technology-based co-created services.

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