

When co-creation pays.
Stimulating engagement to increase revenues

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Abstract

Purpose – Customer willingness to pay (WTP) was initially set out to estimate the perceived value from a purchasing experience. However, purchasing decisions have changed as value co-creation has become increasingly applied in the hospitality industry. In adopting a service-dominant (S-D) logic lens, this paper aims to empirically test how co-creation impacts WTP through customer engagement (CE).

Design/methodology/approach – The context for the empirical analysis is the Chinese market, one of the largest online purchasing markets that has been significantly transformed since the proliferation of co-creation. The study is a within-design online experiment with 488 Chinese participants. The analysis makes use of mediation models to evaluate the proposed mechanisms behind co-creation, CE and the moderated role of frequency of stay, and their impacts on WTP.

Findings – The data confirm the hypothesised positive impact of value co-creation on customer WTP. This impact is fully mediated by CE, i.e. CE is the mechanism behind a higher WTP propensity for co-created hotel rooms. Notably, frequency of stay at a hotel, thus positively influencing WTP, does not have a moderated mediation effect on this relationship.

Originality/value – Limited research to date has investigated the price effectiveness of value co-creation in the hospitality context. This study contributes to the S-D logic and value co-creation discourses by testing the effectiveness of these concepts in relation to customer pricing decisions. The study empirically confirms the hypothesised model and provides recommendations for hospitality research and practice.

Keywords Co-Creation; Service-Dominant Logic; Customer Engagement; Willingness to Pay; Hospitality

Paper type Research paper

Introduction

The notion of co-creation has gained wide attention in service marketing research over the past decade (Prahalad and Ramaswamy, 2004; Vargo and Lusch, 2008). Grounded in the idea of a two-way engagement, customers are now portrayed as central, active and involved actors in value co-creation processes (Lusch and Vargo, 2014; Vargo and Lusch, 2016). This has induced major changes in the traditional business landscape, as firms increasingly aspire to implement co-creation to add customer value and maximise their returns (Shaw *et al.*, 2011). With the arrival of the S-D logic, a paradigm shift has occurred, moving away from “value-in-exchange” to “value-in-use” (Vargo and Lusch, 2008). This mindset assumes that companies can no longer deliver value *to* customers, but value is co-created *with* actors, who engage and integrate their resources through co-creation in-context and in-use (Akaka *et al.*, 2013; Wieland *et al.*, 2012). Ultimately, this means that customers themselves are creating their own experiences in different contexts (Cetin and Walls, 2016).

With value discourses advancing contemporary marketing, value co-creation has also been increasingly applied in the tourism and hospitality domains (Chathoth *et al.* 2013; Chathoth *et al.*, 2014; FitzPatrick *et al.*, 2013). Several studies have explored business-to-customer co-creation to date. However, they used a conceptual or empirically tested the concept in relation to specific variables (Grissmann and Stokburger-Sauer, 2012; Neuhofer *et al.*, 2012; Shaw *et al.*, 2011).

While the benefits of customer engagement and co-creation have been widely discussed (Vargo and Lusch, 2016), one key aspect that remains underexplored is whether co-creation efforts can actually lead to increased financial returns. In other words, it is the driving question of our study to find out whether customers would pay more if they have a chance to get involved and co-create their services and experiences with firms. This study draws upon the S-D logic and interlinks the concepts of value co-creation, CE and WTP in order to

empirically test how co-creation might impact the customers' willingness to pay through customer engagement.

WTP represents the total amount of money customers endure in exchange for their desired product or service (Homburg *et al.*, 2005). As this decision is frequently dependent on the customer's perceived value (Beneke *et al.*, 2013), and customers extract high value through participatory engagement and co-creation (Chathoth *et al.*, 2014), this paper proposes the assumption that co-creation may have an influence on customers' WTP. While scholars (e.g. Chathoth *et al.*, 2014; Morossan and DeFranco, 2016; Shaw *et al.*, 2011) have recently discussed both co-creation and WTP in the hospitality context, the relationship between these two concepts has been overlooked to date, both conceptually and empirically. This possible link between co-creation and WTP is of high significance to hospitality management. In fact, it provides an answer to the recurring question of how effective the implementation of co-creation activities may be on a business's return on investment.

Based on this rationale, this study investigates how co-creation through CE can boost WTP. By integrating the above concepts, several hypotheses are developed, suggesting that co-creation is positively related to customers' WTP, and CE mediates this relationship. In addressing the need to expand co-creation research and test its effectiveness with customers beyond pre-dominant Western research contexts, our study adopts a within-design online experiment with a Chinese population. The findings lead to critical implications for co-creation research and practice.

Conceptual Background

The theoretical framework of the S-D logic

Service mindsets emerged at the core of economic efforts and have become the driving forces for contemporary value creation (Vargo and Lusch, 2004). Pine and Gilmore (1999) were among the first to introduce the notion of 'mass customisation' and shifted the focus away from mass production towards an increased emphasis on engaging customers in unique and memorable experiences. In a similar vein, Prahalad and Ramaswamy (2004) offered the idea that value cannot be produced, but needs to be co-created through experiences. Subsequently, organisations have started to align their agendas on how to best deliver services and convey value through engaging and co-creating with their customers (Grönroos, 2008; Lusch and Vargo, 2014).

Numerous studies (Lusch and Vargo, 2014; Vargo and Lusch, 2008; Vargo and Lusch, 2016) have contributed to developing 11 fundamental premises (FPs) that outline the core

assumptions of the S-D logic. One of the most central premises is that “*value can only be created with and determined by the user in the ‘consumption’ process and through use*” (Lusch and Vargo, 2006, p.284). In other words, for value to emerge, customers always need to be actors, who integrate their own operand and operand resources and co-create experiences with firms in-context and through use (Akaka *et al.*, 2013; Mororsan and DeFranco, 2016; Wieland *et al.*, 2012).

While the idea of empowerment, consumer participation and engagement is not new, the co-creation mindset has replaced all goods-dominant (G-D) views of the past decades and opened a new era of how companies and customers engage and form relationships together (Prahalad and Ramaswamy, 2004; Vargo and Lusch, 2008). We are witnesses to a paradigm shift in which once distinct boundaries between production and consumption have blurred, and customers have become ‘prosumers’ and ultimate creators of their own experience (Cetin and Walls, 2016; Chathoth *et al.*, 2013; Cova and Dalli, 2009; Neuhofer *et al.*, 2012).

Customer engagement and value co-creation in hospitality

As value-centric discourses proliferate throughout numerous industries, a wide body of literature has focused on identifying “*what the customer is doing or trying to do, and how a specific service fits into this*” (Heinonen *et al.*, 2010, p.535).

In this vein, recent studies have explored the opportunities of the S-D logic and co-creation for the hotel sector (Shaw *et al.*, 2011) and investigated customer-led co-creation and co-production processes in hospitality (Chathoth *et al.*, 2013). Most recently, Morosan and DeFranco (2016) examined the use of mobile devices to support co-creation in hotels and Chathoth *et al.* (2016) advanced our knowledge on modalities of higher order CE and co-creation in the hospitality context. While the tourism and hospitality literature on co-creation has progressed, Chathoth *et al.* (2016) argue that our knowledge foundation is mostly built on conceptual and qualitative work, and the differences between co-creation and co-production and their characteristics and modalities need to be more nuanced. In fact, a spectrum of terminologies is adopted in recent co-creation discourses, e.g. prosumption (Ritzer and Jurgenson, 2010), mass customisation (Pine and Gilmore, 1999) co-creation and co-production (Chathoth *et al.*, 2013; Prahalad and Ramaswamy, 2004), CE and involvement (Chathoth *et al.*, 2014; van Doorn *et al.*, 2010), working customers and collaborative innovation (Cova and Dalli, 2009), while definitional boundaries may still appear somewhat obscure.

In contrast to G-D logic perspectives, emphasising traditional manufacturing and co-production, this study uses the S-D logic as a theoretical lens to explain co-creation as an overall mindset (Prahalad and Ramaswamy, 2004). A mindset that can be seen as a modern, service-centric variation of co-production, that through the advances of digital technology and CE (Chathoth *et al.*, 2016) can lead to a joint creation of value between customers and firms (Prahalad and Ramaswamy, 2004). Applying the principles of co-creation to the hospitality industry, it is evident that its operationalisation might take different forms, shapes and practices, fostering a wide spectrum of CE and value co-creation (see table 1).

[INSERT TABLE 1 HERE]

Despite these best-practice examples, the measurement of co-creation remains however somewhat unclear (Grönroos and Voima, 2013; Kumar and Stuart, 2016), and the direct effect on revenues and pay are not yet greatly understood (Franke and Schreier, 2008). At the same time, we can observe co-creation projects implemented in different countries, leading to the question whether customers' positive attitude towards and desire for co-creation is universal (Lugosi, 2014). Of particular interest is China, as one of the world's fastest growing consumer markets.

Contextualising co-creation in China

In recent years, China has accelerated innovations to reach international standards through technological advances and the creation of smart tourism destinations (Wang *et al.*, 2013). While still in its early steps, compared to Western domains, co-creation discourses have received accelerated attention in Chinese research and practice. For instance, studies have explored the relationship between co-creation and brand communities for increasing customer loyalty and commitment (Luo *et al.*, 2015), and Chinese manufacturers are innovating products through CE and co-creation (Zhang *et al.*, 2016). While co-creation appears to find application, there is no doubt that restrictive policies in China may hinder the full potential of organisations in fostering technological advances, breakthroughs and new strategies (Zhou and Poppo, 2010). Therefore, the 'empowerment of the customer' mindsets and implementation of co-creation initiatives in China still represent an area in progress that merits a deeper investigation, which this study attempts to achieve.

Customer willingness to pay

Planned behaviour proposed that WTP is interrelated with personal motivation and capability (Ajzen, 1985). Towards the 1990s, several studies (Cameron and James, 1987; Krishna, 1991) have portrayed WTP as the total payment that customers would accept in exchange for a desired product or service, while more recently WTP has been viewed as the maximum amount of money that customers are willing to spend for a specific product or service (Homburg *et al.*, 2005).

As co-creation research expands, its relationship to WTP has become an important, while still often overlooked, subject of interest. For instance, Franke and Schreier (2008) tested WTP within self-designed product experiments and Schreier *et al.* (2012) conducted a survey to test whether customer participation in package designs affects customer WTP. Poetz and Schreier (2012) found that cocreation creates higher attention and benefits for the customer.

Customer engagement as a part of innovation has challenged traditional approaches and led to new processes in which customers integrate their resources (Nishikawa *et al.*, 2012). Overall, studies confirm the relationship between customer perceived value and payment decisions (Beneke *et al.*, 2013), with customers changing their purchase behaviour when able to participate in design processes (Schreier *et al.*, 2012).

However, one question remains, namely, how can organisations strike a right balance between engaging customers and utilising their resources? Gebauer *et al.* (2013) focused on potential drawbacks of co-creation, highlighting that without sufficient engagement between customers and service providers, value co-creation may lead to lower WTP.

Hypotheses development

In the hospitality context, several recent studies have drawn attention to understanding the relationship between hotel room equipment and WTP. For instance, Chen and Rothschild (2010) have identified the impact of various attributes on pricing decisions in Taipei hotels, concluding that amenities and facilities function as determinants of room rates. Wong and Kim (2012) identified floor levels and corresponding views as a major benchmark in room pricing decisions in the case of Hong Kong hotels. More recently, Masiero *et al.* (2015) empirically tested room feature preferences by adopting discrete choice modeling, identifying the major variables that influence pricing policies. While these studies share the commonality of examining hotel room features in relation to pricing, they fail to consider the impact of engaging customers to design their own rooms, while keeping the number and value of amenities and facilities unchanged.

In order to fill this current gap in knowledge, we draw upon the S-D logic's foundational premise (FP) and accept that "value is co-created by multiple actors" (FP6) (operant resources) and "optional amenities" (operand resources), which together facilitate the process of co-creation, and increase customers' WTP in turn, while the overall monetary value of the attributes remains unchanged. Thus, we hypothesise that if customers can co-create, they will be willing to pay more.

Hypothesis one: The degree of co-creation is positively associated with customer WTP

In the traditional service literature, it is widely accepted that customers purchase products based on their perceived value and that this value is determined by the service provider (Williams and Soutar, 2009). However, as the service paradigm has progressed, customers now desire to engage and participate in the product, service and experience creation process (Prahalad and Ramaswamy, 2004; Shaw *et al.*, 2011). As a result, service and hospitality strategies should be adapted to mirror the market's need for increasing CE.

The S-D logic views the customer as a resource integrator, who seeks to proactively engage with firms for a mutual experience and value co-creation. The foundational premise (FP7) suggests that value does not pre-exist in products and services. Instead, it is about 'value-in-use', which emerges as operant and operand resources are integrated (Wieland *et al.*, 2012), and customers and firms co-create through a reciprocal engagement process. Building upon these two statements, we hypothesise that the mechanism behind co-creation, that explains how value can emerge, is CE.

Hypothesis two A: Customer perceived engagement is positively associated with the degree of co-creation

In their study on value creation, Franke and Piller (2004) found that customers are willing to accept higher payments for self-designed products. Supporting this view, Franke and Schreier (2008) suggest that the more a product is unique and valuable, the more likely customers are willing to pay higher prices. At the same time, it is suggested that customers are more likely to be satisfied when they are offered the possibility to participate in design co-production processes (Randall *et al.*, 2007). These studies thus suggest that the more customers feel able to participate, the more they are willing to pay a premium price. Thus, we hypothesise that engaging customers is essential to foster WTP.

Hypothesis two B: Customer perceived engagement is positively associated with customer WTP

In an experience-centered marketplace, customers value high engagement and unique experiences, rather than accepting standardised services delivered by providers (Morgan *et al.*, 2010). The S-D logic suggests that a service is the fundamental basis of exchange (FP1), with products representing the distribution mechanisms for the basis of service provision (FP3). In this exchange process, actors, however, cannot deliver value, but need to participate in value co-creation (FP7), which requires the integration of resources in-use and context. These premises imply that there will be no positive effect between co-creation and WTP *per se*, as co-creation primarily enacts engagement. Thus, we hypothesise that customers' WTP is not directly affected by co-creation, as CE explains the underlying process. In other words, we propose that CE fully mediates the relationship between co-creation and WTP.

Hypothesis two C: Customer perceived engagement mediates the relationship between the degree of co-creation and WTP

The work of Grisseemann and Stokburger-Sauer (2012) suggests that customers with stronger loyalty appear to have a higher degree of sensitivity towards co-creation strategies. In other words, customers have heterogeneous feelings towards co-creation. Specifically, frequent customers might have a better understanding of the enhanced co-creation flexibility (Shaw *et al.*, 2011). Therefore, we hypothesise that while value could be created through the active engagement of each actor, it is likely that a customer's frequency of stay may influence both perceived engagement and WTP. In sum, the frequency of visiting a hotel should moderate the effectiveness of co-creation on perceived engagement and WTP.

Hypothesis three: The frequency of stay moderates the effect of co-creation on customer engagement. Specifically, the more customers visit a hotel, the more likely they are to be highly engaged and pay more.

Figure 1 presents the conceptual model.

[INSERT FIGURE 1 HERE]

Method

Recent studies have indicated the interrelation between co-creation and engagement during the buying process (Chathoth *et al.*, 2016; Vargo and Lusch, 2016). A stream of literature (e.g. Franke and Schreier, 2008; Randall *et al.*, 2007) also provided evidence of customers determining their WTP based on engagement. Clearly, there is a link between co-creation and customer WTP that was not previously untangled. Therefore, the research aim is to identify the relationship between co-creation and customer WTP in the Chinese context and examine whether CE mediates this effect.

With the goal of disclosing causality relations and isolating endogeneity and possible confounding effects of third variables (Fong *et al.*, 2016; Morosan *et al.*, 2014), the paper proposes an experimental design to explore the relationship between co-creation and customer WTP.

Design, participants and procedure

A scenario design experiment provides testing for H1, H2a, H2b, H2c, and H3. Prior to conducting the study, a pretest was performed to develop the experimental stimuli. Scenarios were presented in Chinese language and WTP was elicited in the local currency, Yuan. The Appendix reports the English translation of the scenarios. Building on Heo and Hyun (2015), who measured the impact of facilities on customers' pricing decision, this study, while keeping the level of facilities the same, assesses how co-designing a room influences the willingness to pay. Specifically, we take the view of components, which could be flexibly managed from the hotel side, and further select four items to develop experimental choices. These items namely are mini bar, hair dryer, bath amenities, bed mattress in different brands, but at equal value. The options held an equal value to avoid the presence of confounding factors when determining the impact of co-designing the room.

Participants were recruited through a leading Chinese online survey platform, named SoJump (www.sojump.com). This platform has found wide adoption in past studies focusing on China. For instance, Zhou *et al.* (2013) used SoJump to explore members of online brand communities in the Chinese context, while Lien *et al.* (2017) most recently used the platform to investigate service quality in WeChat services.

The sampling strategy was a stratified random sampling. To consider the observation valid, participants had to be of Chinese nationality. A total of 677 people participated in the online experiment over a four-day period. Following the mentioned sampling strategy, a cleaning

process was conducted to remove non-Chinese nationals. As a result, 448 out of 677 responses were collected in total, yielding a valid response rate of 66.1%.

The socio-demographics characteristics indicate a slight difference between the proportion of male and female, with 238 females (53.1%) and 210 males (46.9%). Approximately 39% (n = 173) of the respondents were between 21 and 29 years old, while a bigger proportion, over 42% (n = 190), were aged between 30 and 39. This is a fairly good representation of the Chinese population booking hotels online (Kim *et al.*, 2006). In terms of travel experience, around a quarter of the respondents (24.8%, n = 111) have stayed at hotels less than three times over the past 12 months, and 75.2% (n = 337) have stayed three times or more. The respondent profile is presented in table 2.

[INSERT TABLE 2 HERE]

Participants were first asked to view a hypothetical hotel in Shanghai city in two different specifications: (1) a picture of a hotel room with the room description and fixed options and (2) a picture of the same hotel room with the same services, but giving customers the flexibility to co-create their hotel stay experience. The design was within subjects, i.e., each participant saw both options. Scenarios were shown in random order to avoid learning effects. Subjects were given two minutes to view the scenarios. The webpage incorporated the standard features of an individual hotel page, such as the photo of a room and the description of the amenities. A screenshot of the two scenarios is presented in the Appendix. While the first scenario presented fixed option amenities, the second scenario with co-creation services empowered customers, as it allowed them to design their own experience. Specifically, both options offered the room with the same attributes, such as a king size bed and Wi-Fi. However, in the co-creation condition guests could choose different monetary equivalent specifications of the same attribute and the customer was explicitly invited to participate in “co-creating the room”. Customers could further choose the facilities of different brands, for instance, a shower gel of brand A or brand B, but eventually having only one brand as the final decision.

After reviewing the scenarios, participants were asked to respond to two blocks of questions. The first part of the survey focused on measuring customers’ attitude towards co-creation and the degree of engagement. Second, two open-ended questions elicited customer WTP:

*A standard room (without co-designed features) in a competing hotel of the same star rating in Shanghai costs 600 Yuan per night. Considering this, how much are you willing to pay per night for your **standard room**?*

*A standard room (without co-designed features) in a competing hotel of the same star rating in Shanghai costs 600 Yuan per night. Considering this, how much are you willing to pay per night for **the co-designed room**?*

The second part of the survey included socio-demographic information, i.e. gender, age, nationality, frequency of stay at hotels, and educational level. The rationale for this was to see whether the characteristics of the sample are dissimilar from the target population, and to test the impact of the proposed moderator, frequency of stay, in the relationship between co-creation and WTP.

Measures

The *degree of co-creation* was measured using a 5-item scale, adapted from the study of Grissemann and Stokburger-Sauer (2012) i.e., active involvement, using previous experience, adopting suggestions of own, satisfaction of change, and satisfaction of contribution. For the measurement of CE, the study used So *et al.*'s (2016) scale, with 4 items, namely "I feel excited about this room's co-creation service", "I will like to actively participate in this room's co-creation service", "I will focus myself if I am involved in this room co-design service", and "This room co-design service grabs my attention". These dimensions represent the four aspects of engagement *enthusiasm, attention, absorption, and interaction*. The above scales were all anchored in five points Likert scale, ranging from 1 = "strongly disagree" to 5 = "strongly agree."

In terms of identifying customers' WTP, we adopted the contingent valuation method (CVM) to measure the price participants are willing to pay for the room. Although WTP could be evaluated through other approaches, such as actual market transaction data, surveys, and Vickrey auctions, the CVM is more appropriate to test subjects' WTP in experiments, as it allows a direct elicitation of WTP on products or services (Mitchell and Carson, 1989). In particular, according to Kim *et al.* (2007), CVM is reliable in getting high quality WTP answers in the case of hypothetical situations.

Two items ensured that the standard versus co-created room manipulation was perceived as intended (i.e., varying in design options, but not in the value of the attributes). The first

item asked if the monetary value of the assets and services in the standard versus co-created room was the same (binary outcome: yes or no). The second item measured participants' different payment attitudes towards the standard vs. co-created room in a 5-point mean centered Likert scale.

Data Analysis and Results

Testing validity and reliability

An explorative plot of the residuals suggests that each variable is normally distributed. A variance inflation test (VIF) ensures that there are no multicollinearity issues between the investigated variables. All the estimated VIF were lower than 3, with tolerance values substantially greater than .2, suggesting no multicollinearity concerns for the analysis (Hair *et al.*, 1998).

To test the validity and reliability of the degree of co-creation and the CE, the five co-creation items and the four CE items underwent a dimension reduction process. The result of the parallel analysis (Keeling, 2000) for both constructs indicates that all measured items belong to the single factor solution. The analysis was repeated extracting factors with eigenvalues exceeding 1.0. More than 50% of total variance (50.97%) for the co-creation construct and 59.48% for the CE construct are explained by the single factor solution, confirming the parallel analysis estimation.

In terms of reliability, we identified the Cronbach's alpha for both factors. Results present substantial levels above 0.7 (Kline, 1999), indicating a good degree of internal consistency. Given this, we used a single mean score variable for the constructs. Both the construct measurement scales, the Cronbach's alpha for the internal consistency of each construct, and the final descriptive statistics are presented in table 3. The table includes also the descriptive statistics of the dependent variable of the study. As the online experiment tested WTP twice, both for the standard room (WTP_s) and for the co-created room (WTP_c), the dependent variable adopted in the estimations is the differential WTP between the co-created and the standard condition (WTP_c-WTP_s).

[INSERT TABLE 3 HERE]

Manipulation checks

Participants responded as intended to the item regarding the monetary value of the assets and services in the standard versus the co-created room, which was correctly identified as having

the same monetary value. A significantly higher value from the centered zero (mean = 0.63, $p < .001$) was observed for the second manipulation check regarding the payment attitudes towards the standard vs. co-created room.

Hypotheses tests

We adopted the moderated mediation model in the PROCESS routine (Hayes, 2013) to facilitate our analysis among models. Firstly, a paired-samples t-test was conducted to compare WTP_s and WTP_c . There is a significant difference ($t(448) = -17.62, p < .001$) in the WTP amount for the co-created room (mean = 565.58, SD = 220.80) with respect to the standard room (mean = 424.59, SD = 169.91).

The PROCESS routine (Hayes, 2013) facilitates the analysis of the mediation model testing H1, H2a, H2b and H2c and the moderated mediation model of H3. This approach applies an ordinary least squares regression-based path analytic framework to estimate the conditional indirect effects using 5000 bootstrap samples.

According to Baron and Kenny (1986), the procedure to establish mediating effects is in four steps. First, the relationship between independent and dependent variables has to be significant. Therefore, the dependent variable is regressed upon the independent variable (i.e., Degree of co-creation). Second, the level of the mediator has to depend on the level of the independent variable. As such, the mediator (i.e., CE) is regressed on its independent variable (i.e., Degree of co-creation), to fulfill the direct path assumption in the mediation model. In the third step, the dependent variable (i.e., $WTP_s - WTP_c$) is regressed on both the independent variable (i.e., Degree of co-creation) and the mediator variable (i.e., CE). This tests whether the level of relationship between mediator and outcome is significant. The final step is to observe whether the relationship between independent variable (i.e., Degree of co-creation) and dependent variable (i.e., $WTP_s - WTP_c$) is no longer significant after controlling for the impact of the mediator factor. The results of this mediating process are presented in table 4.

[INSERT TABLE 4 HERE]

The first step shows that there is a significant relation between the degree of co-creation and $WTP_s - WTP_c$ ($\beta = 61.46, p < .001$), supporting H1. Together, H2 proposes that CE mediates the relationship between the degree of co-creation and $WTP_s - WTP_c$. The second step result reveals that the degree of co-creation has a positive effect on CE ($\beta = .85, p < .001$), in line with H2a. After introducing the mediator (i.e., CE) into the model, CE is positively related to $WTP_s - WTP_c$ ($\beta = 52.80, p = .01$), supporting H2b. At this stage, the

effect of co-creation is no longer significant ($p = .47$). This means that CE fully mediates the relationship between the degree of co-creation and WTP_s - WTP_c , supporting also H2c.

The Sobel's (1982) test provides an insight into the effectiveness of the mediation model, evaluating the combined effect of paths a and b as presented in table 4 (Preacher and Kelly, 2011). The mediation effect is also explained as the difference between path c and path c' . As such, the significance of this measure was adopted as the parameter for testing the significance of the ab path. In terms of extracting the z score, ab ($\beta = 44.87$) was divided by the standard error of the indirect effect ($SE \beta = 17.46$). Comparing this ratio with the critical value of $z = 1.96$ (MacKinnon *et al.*, 2002), the test exceeded the threshold ($z = 2.57$, $p = .01$). A bootstrapping process shows that the values between the lower and the upper bound do not contain the zero, indicating that the indirect effect is significant. Therefore, including CE between the degree of co-creation and WTP_s - WTP_c mediates this relationship consistently for different levels of these variables. In summary, this means that H2a, H2b, and H2c are supported.

Moderated effects

In terms of the moderated mediation model, we fail to find a significant moderated effect of the interaction (co-creation x frequency of stay) on CE ($\beta = -.03$, $p = .33$), which corresponds to the theoretical Model 8 of the PROCESS routine (Hayes, 2013), the full estimation of which is not reported here for matters of conciseness. Although frequency of stay is positively associated with WTP_s - WTP_c ($\beta = 19.18$, $p = .03$), the moderated effect of the interaction (co-creation x frequency of stay) on WTP_s - WTP_c is not significant ($\beta = 7.41$, $p = .64$). Therefore, Hypothesis 3 is not supported.

Conclusion and Implications

Conclusions

Co-creation represents a concept that has received wide interest and adoption in current tourism and hospitality management. While organisations have set out to embrace co-creation as a mindset, answers around potential returns on investment are often less clear. It was with this premise in mind that this study wanted to interlink co-creation and customer willingness to pay to find out whether customers would actually pay more when co-creating a service with a firm.

The main purpose of this study was to assess the effect of co-creation on WTP, and investigate how CE interacts and mitigates the relationship between these two concepts. Drawing upon the theoretical framework of the S-D logic and value co-creation (Vargo and Lusch, 2016) we proposed that applying business-to-customer co-creation has a positive and direct effect on customers' WTP and that CE mediates the effect of co-creation on WTP. We further assessed whether the frequency of visiting a hotel influences the effect size of co-creation on CE and WTP. To test these hypotheses, we scrutinised the mediated model, and the moderated mediation model after introducing the frequency of stay into the equation.

The results showed that the degree of co-creation was positively associated with customers' WTP, suggesting that the higher the degree of co-creation customers perceived, the more they are willing to pay for a hotel room. We found that CE plays an important role in influencing both customer WTP and the degree of co-creation. Specifically, the relationship between the degree of co-creation and WTP can be further explained by the mediating effect of CE. These results have rich implications for the hospitality industry, as they quantify for the first time the premium price paid by the average customer when invited to co-create a room through a co-design initiative, *ceteris paribus*. In particular, the findings suggest a 33% (143.26/424.5) additional WTP for a co-created room with respect to a standard room without co-creating features. The study also highlights that enacting engagement is essential to reach a revenue boost. Given the amount of public and private investments on co-creation, defining the boundaries of the phenomenon presents a societal impact.

Theoretical contributions

While the S-D logic has been widely discussed and applied in service marketing and management research, the application of co-creation in the hospitality industry has mostly been of exploratory (Chathoth *et al.*, 2013) and conceptual (Payne *et al.*, 2008) nature. Only a few scholars (e.g. Grisseman and Stokburger-Sauer, 2012; Morosan and DeFranco, 2016; Prebensen *et al.*, 2013) have recently started to empirically test relative variables of co-creation in the tourism and hospitality domain. In responding to a call for advancing co-creation research in tourism, and the need for more quantitative evaluations of this concept by Chathoth *et al.* (2016), this study makes critical contributions by providing an empirical validation of how CE explains the relationship between co-creation and willingness to pay.

First, this paper expands the body of knowledge on the S-D logic, as it offers a first study to conceptualise the relationships between co-creation, CE and WTP. While recent studies focused on discovering the traits of co-creation (Mathis *et al.*, 2016), effects of co-creation on

staying intentions (Morosan and DeFranco, 2016), only a dearth of studies focused on the direct effect of co-creation on revenue increases. This study supported the propositions of Chathoth *et al.* (2016) that value is created through an input (i.e., CE). The experiential value of co-creation manifests itself on a higher order of CE, as it increased customers' WTP. Therefore, a primary contribution of this study lies in its identification of the direct links between co-creation and revenue management, and the strategic implications unfolding from this process.

Second, the study contributed to a better understanding of the consumer behaviour around co-creation in that it confirmed the mediating effects of CE within value co-creation. Furthermore, we identified that the relationship between the degree of co-creation and WTP does not differ with the frequency of guests visiting a hotel. This stands in contrast with the findings of Franke and Hader (2014) and Shaw *et al.* (2011). This could be explained by the assumption that numerous attributes may lead to different effects on co-creation (Yi and Gong, 2013), with the number of hotel stays not being able to solely explain significant differences in circumstances. Further research is encouraged to validate this factor alongside a comprehensive review of other possible influencing contextual variables.

Finally, this paper contributes to the Chinese body of knowledge, as one of the first studies to empirically examine the feasibility of the co-creation concept in the context of the Chinese hospitality industry. While previous work predominantly contributed to the advancement of co-creation discourses in Nordic and Western domains (Grissemann and Stokburger-Sauer, 2012; Prebensen *et al.*, 2013), this study marks an important step in introducing co-creation and widening its discussion to the Oriental, specifically, the Chinese context.

Managerial implications

This study offers several implications for hospitality practice and the wider service industry, in and beyond China. First, our findings let us conclude that applying value co-creation can significantly increase customers' willingness to pay a premium price for accommodation, implying potential increases in revenues for a hotel. Given that co-creation initiatives are not only increasingly accepted in Western consumption contexts, but are also achievable in China, service providers are advised to adopt a co-creation mindset that becomes integral to the firm's overall strategic agenda and underpins CE, marketing, revenue, sales and pricing decisions.

Second, we call hospitality practitioners' attention to the mediating role of CE in the integration of co-creation on WTP. CE can be seen as the driving mechanism of co-creation

and should thus be fostered in initiatives that put co-creation principles at the core. This could be achieved through activities, such as co-creating with customers for idea generation, co-developing and personalising hotel products, co-designing hotel rooms or co-creating immersive hospitality experiences *for* and *with* customers.

As customers are the central actor, resource integrator and ultimate value extractor in co-creation, caution needs to be taken when planning and designing co-creation initiatives. In short, hoteliers should offer co-creation solutions just to customers who are keen to be engaged. Specifically, a quick question during the booking process might help customers to self-select. For instance, business customers with standard preferences might prefer not to be involved in co-creation processes, while a leisure traveler might enjoy the possibility of pre-personalising a hotel room.

Finally, as Nishikawa *et al.* (2012) point out, involving customers in product decisions can lead to significantly better revenue results, but segmentation is needed between an average and high-end user. Similarly, we suggest that caution is needed when co-creating. Applying co-creation in a non-fertile customer environment would hinder the two-way exchange process with the business.

Limitations and future research

This study provided several critical insights and implications for co-creation in the Chinese hospitality context. Several limitations are reflected upon, which could open avenues for further research. First, the experimental design was a hypothetical scenario. Future work could validate the experiment in the field by launching a real-life ‘co-creating your room’ initiative in a hotel. While boosting revenues is certainly important, a limitation of the paper is that it did not explore the costs associated with applying co-creation to offer more flexibility to customers (e.g. planning, activity costs, setting up choices and personalising co-created rooms). Future research should evaluate potential trade-offs between benefits and costs arising from its operationalisation and calculate the net profit effects.

Second, this study investigated co-creation based on empirical data from China. While these results are generalisable to the Chinese population, the result may not be valid beyond the Chinese context, considering cultural differences and individual trajectories (Pera and Viglia, 2015) in attitudes and perceptions to CE and co-creation. Future studies could explore multi-national samples to test the impact of cultural differences around co-creation.

Further research could aid managers to better segment customers by different behaviours (Yi and Gong, 2013), identifying the co-creation that is most applicable and *valuable* to an

individual customer. With these suggestions, our paper advocates an agenda for research that draws attention to specific variables that break down the somewhat theoretical co-creation debates and provide a detailed knowledge of what factors shape, influence and mediate value co-creation in practice.

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Appendix

[INSERT IMAGE 1 HERE]

Table 1: Co-creation projects applied by hotels

Hotel brand	Project summary	Co-creation project initiative
<i>Klaus K</i>	Hotel lobby design	Participants were asked to submit their idea to Klaus K hotel in Helsinki; ideas could be provided in any format. Winner of the design will be awarded; Constructions on new designs were completed after optimisation. (source: Klaus K, 2012)
<i>Marriott</i>	Travel brilliantly	Marriott hotel used a website to invite customers to co-create ideas; the most innovative ideas were selected based on polls rankings and turn into reality in their hotels. (source: Marriott, 2016)
<i>Starwood</i>	Digital room key	Starwood guests of specific hotel brands can skip the check-in procedure by downloading the Starwood Preferred Group keyless mobile application, saving time and enjoying this service via different channels. (source: Brousell, 2015)
<i>Citizen M</i>	Society M	Citizen M provides meeting rooms according to customers' wants. Society M allows customers to select meeting rooms according to specific needs prior the booking. Room settings, e.g. lighting can be personalised based on mood. (source: Citizen M, 2016)
<i>Four Seasons</i>	Time capsule	The Four Seasons resort in Hawaii used a co-creation activity to celebrate their 25 th anniversary. Both customers and employees were asked to fill in comments, which were saved in a time capsule; these comments will be stored and reopened at the 50 th anniversary. All actors were involved in a unique two-way engagement. (source: Cardamenis, 2016)

Table 2: Respondents' socio demographic information (*n* = 448)

	Frequency	Percentage
<i>Gender</i>		
Male	210	46.9
Female	238	53.1
<i>Age</i>		
Below 20	7	1.6
21-29	173	38.6
30-39	190	42.4
40-49	54	12.0
50-59	20	4.5
60 or above	4	0.9
<i>Educational Level</i>		
High school or less	23	5.1
Bachelor's degree	346	77.2
Master's degree	50	11.2
Doctoral degree	6	1.4
Other	23	5.1
<i>Frequency of staying at a hotel (past 12 months)</i>		
< 3 times	111	24.8
3-5 times	185	41.3
6-8 times	91	20.3
More than 8 times	61	13.6

Table 3: Measurement scale of constructs and descriptive statistics

Variable	α	M	S.D.
<i>Degree of co-creation</i>	.754		
I spend a considerable amount of time arranging a trip		4.23	.73
I use my previous experience of hotel stays to arrange my room		4.14	.79
The arrangements of the room features are generally suggested by myself		4.05	.77
I would be satisfied if I had the chance to design the room features in terms of improving my stay		4.29	.72
I would be satisfied with the contribution I can provide to arrange my room		4.19	.72
<i>Customer engagement</i>	.771		
I feel excited about co-creating a room online		4.07	.81
I like to actively participate in making my reservation		4.03	.79
I will focus myself if I am involved in room co-design		4.27	.73
This room co-design service grabs my attention		4.18	.75
<i>Independent, mediator, and dependent variable</i>			
Degree of co-creation		4.18	.53
Customer engagement (CE)		4.14	.59
WTP _c -WTP _s		143.5	168.7

Note: Prices are reported here in Dollar (original currency was Yuan).

Table 4: Mediation test results

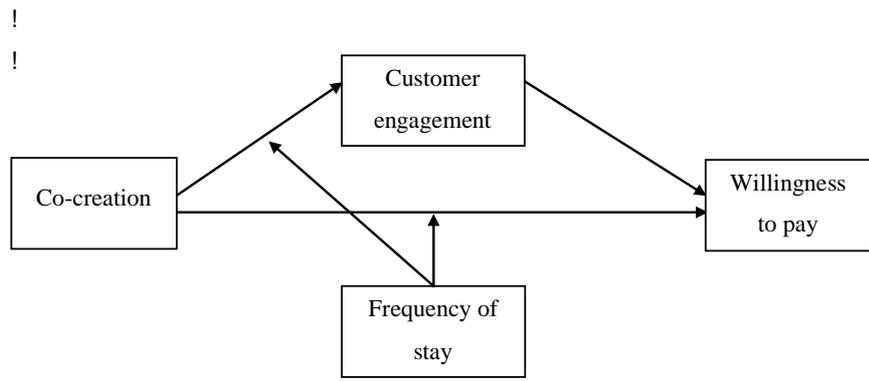
Path	β	SE β	R^2	t	p
<i>Step 1: Regress DV on IV</i>					
Path c: Co-creation \rightarrow WTP _s -WTP _c (H1)	61.46	14.86	.03	4.14	.000
<i>Step 2: Regress mediator on IV</i>					
Path a: Co-creation \rightarrow CE (H2a)	.85	.03	.58	24.83	.000

Step 3: DV regressed on IV controlling mediator and confirm path b, path c'

Path b: CE → WTP _s -WTP _c (H2b)	52.80	20.42	.05	2.59	.01
Path c': Co-creation → WTP _s -WTP _c (H2c)	16.59	22.78	.05	.73	.47

Step 4: Observe the relationship between IV and DV if weaker or nonsignificant

Note: The relationship between co-creation and WTP_s-WTP_c is no longer significant after customer engagement is introduced in the empirical model ($p < .001 \rightarrow p = .47$).



!

1

Standard Room

Our Rooms

Check-in Check-out 1 Adult Search



Standard Room

Our standard room has a King size bed, with free mini bar and wi-fi. Brand new...

[More Info](#)

Properties:

Accommodates: 2
Beds: 1 King(s)

Size: 40 sq m

More info:

Our standard room has a King size bed, with free mini bar and wi-fi. Brand new furnished bathroom, furnitures, and fruit basket awaits you.

Amenities:

Bath Amenities
 Hair Dryer
 Wi-Fi

Bed Matress
 Mini Bar

Co-Created Room

You can choose to book directly or click "start to design" for more room features

Check-in Check-out 1 Adult Search



Co-Created Room

Our Co-created room has a King size bed, with free mini bar and wi-fi. Brand...

You can co-create your room by personalizing room features with options of the same monetary value

[Start to Design](#)

Properties:

Accommodates: 2
Beds: 1 King(s)

Size: 40 sq m

More info:

Our Co-created room has a King size bed, with free mini bar and wi-fi. Brand new furnished bathroom, furnitures, and fruit basket awaits you.

Amenities:

Bath Amenities
 Hair Dryer
 Wi-Fi

Bed Matress
 Mini Bar

All the facilities remain the same in both conditions. The only difference is between the wording for offering options of co-creation and the link "start to design".