sustainability

MDPI

Article

Business Model Design and Customer Loyalty: The Mediating Role of Customer Citizenship Behavior

Baoliang Hu [1], Wei Huang [1], Shuai Yan [1,*], Guang Liu [1] and Tao Zhang [2]

[1] School of Management, Hangzhou Dianzi University, Hangzhou 310018, China; bhu@hdu.edu.cn (B.H.); weihuang@hdu.edu.cn (W.H.); dhulg@hdu.edu.cn (G.L.)

[2] Faculty of International Tourism and Management, City University of Macau, Macau 999078, China; tzhang@cityu.mo

* Correspondence: yanshuai@hdu.edu.cn

Received: 31 July 2020; Accepted: 26 August 2020; Published: 29 August 2020

Abstract: An increasing number of scholars and practitioners are advocating for the exploration of the demand-side consequences of business model (BM) design from the customer's perceptual perspective. Consistent with this view, this paper discusses how BM design can achieve customer loyalty through the mediating role of customer citizenship behavior. Therefore, this paper puts forward a series of hypotheses regarding relationships among BM design, customer citizenship behavior, and customer loyalty and further tests these hypotheses through hierarchical regression analysis from data collected from Chinese customers. The results show that both efficiency-centered and novelty-centered BM designs are the antecedents of customer citizenship behavior and customer loyalty. The results also show that efficiency-centered and novelty-centered BM designs can directly affect customer loyalty, and indirectly affect customer loyalty through the mediating role of customer citizenship behavior. Our findings contribute to research on the relationship between BM design and customer loyalty, and research on the demand-side consequences of BM design. Our findings also contribute to research on the link between BM design and marketing, and research on BM design for corporate sustainability. Our findings have management implications for practitioners as well.

Keywords: business model; business model design; customer loyalty; customer citizenship behavior

1. Introduction

The environment is becoming more and more dynamic and uncertain, which makes it a strategic task for every enterprise to adapt to the increasingly turbulent environment and achieve sustained performance. Appropriate business model (BM) design is considered to be essential for enterprises to cope with environmental challenges and achieve sustained performance [1–3], because it orchestrates and connects possibly interlinked boundary-spanning activity systems and organizational configurations [4,5]. Thus, improving enterprise performance through BM design has become an important issue for scholars and practitioners [6–8]. It is generally advocated that BM design should be implemented through a series of value activities and heterogeneous resources within an enterprise, from which its effect on enterprise performance can be obtained [9–11]. However, inconsistent results have emerged. For example, Brettel et al. show that efficiency-centered BM design improves enterprise performance while Migol et al. show that it does not [12,13]; Zott and Amit argue that novelty-centered BM design improves enterprise performance while Balboni et al. argue that it does not [4,14].

Recently, scholars have begun to consider these inconsistent results and have reminded enterprises that it may not be appropriate to focus on achieving a direct effect of BM design on their performance [15,16], as value creation for customers is central to enhancing enterprise performance through BM design [17–19]. In addition, it is difficult for enterprises to integrate customers into the

process of enhancing performance through BM design when they emphasize the direct effect of BM design on their performance [20–23]. Therefore, there has been a shift in the research on BM design's consequences from the influence of BM design on enterprise-side consequences (e.g., enterprise performance and competitive advantage) to its influence on demand-side consequences (e.g., customer satisfaction and customer loyalty) [15,24]. For example, Clauss et al. explore the impact of BM innovation on customer satisfaction [15], and Spieth et al. explore the impact of BM innovation on brand loyalty [16]. Following these studies, this paper focuses on the influence of BM design on customer loyalty, as customer loyalty results in positive enterprise performance [25,26], the establishment of imitation barriers, and the increase of customer stickiness [27,28], thus facilitating corporate sustainability. Although some studies on the influence of BM design on customer loyalty have been conducted, gaps in these studies remain.

First, the current literature mainly focuses on the impact of novelty-centered BM design on customer loyalty while rarely discussing the impact of efficiency-centered BM design on customer loyalty. Efficiency-centered BM design is also considered an important form of BM design among scholars and practitioners [4,29,30].

Second, the current literature mainly focuses on the direct impacts of BM design on customer loyalty and rarely discusses its indirect impacts on customer loyalty. The direct impact research confirms the positive effect of BM design on customer loyalty [16,31], but it is limited in understandings of how BM design improves customer loyalty, as it does not offer multiple paths through which BM design affects customer loyalty.

This paper aims to fill these gaps. First, the paper explores the impact of efficiency-centered and novelty-centered BM designs on customer loyalty simultaneously, as they are the most important forms of BM design for enterprises. Second, this paper studies the impact of BM designs on customer loyalty through the mediating role of customer citizenship behavior. As customer citizenship behavior is an important dimension of customer value co-creation [32–34], the combination of BM design with customer citizenship behavior can well meet the requirements of BM design as an important form of value creation for customers. In addition, customer citizenship behavior is also an important antecedent of customer loyalty [33,35].

Following the literature on BM design's demand-side consequences, which employs an outside-in perspective and in turn investigates BM design from the customer's perceptual perspective [15,24], this paper explores how BM design affects customer loyalty through customer citizenship behavior from the customer's perceptual perspective to more accurately explore impacts of BM design on customer loyalty and to more accurately understand customers' integration into the process of improving customer loyalty.

The rest of the paper is organized as follows. The following section provides a literature review and puts forward our research hypotheses. The third part presents our research methods. The fourth section describes the processes and results of hypothesis verification. The fifth part summarizes research findings, theoretical contributions, management implications, and research prospects.

2. Literature Review and Hypothesis Development

2.1. Business Model Design

In recent years, BMs have attracted considerable attention from scholars and practitioners. A BM is not only an activity system designed by an enterprise to create, deliver, and obtain value to secure business opportunities [11] but also an organizational configuration used by an enterprise to distinguish itself from competitors and create competitive advantage [36]. Therefore, it is a key tool and core factor for commercializing technology, ensuring successful entrepreneurship, improving enterprise performance, and facilitating corporate sustainability [2,18]. Although scholars have not reached a consensus on how a BM should be defined, they generally agree that a BM is used to create value for customers and thus help enterprises obtain income from customers [18,37].

BM design orchestrates and connects the elements of a BM [1,38] and is used to describe the holistic gestalt of a firm's BM and facilitate the conceptualization and measurement of the BM [4,5]. This paper focuses on efficiency-centered and novelty-centered BM designs because they are designs that correspond to business strategies [4,5] and are widely used in the literature on BM design's consequences [3,13,14]. Efficiency-centered BM design emphasizes improving efficiency through existing transaction content, structures, governance, and the existing activity system, while novelty-centered BM design emphasizes realizing innovation through new transaction content, structures, governance, and a new activity system [5,11]. They are not mutually exclusive and may be present in any given BM [4,5].

BMs are characterized as customer relevant and market centric [24]. Consequently, enterprises must pay attention not only to their own value capture but also to value creation for customers [24]. Therefore, scholars advocate investigating BM design from the customer's perceptual perspective to integrate customers into value creation [23,24]. Both efficiency-centered and novelty-centered BM designs are easily investigated from the customer's perceptual perspective, as they are based on transactional links between a firm and its exchange partners and with customers in particular [4,5].

2.2. Business Model Design and Customer Loyalty

For enterprises, customer loyalty is essential to achieving a competitive advantage and sustained performance [25,39,40]. Customer loyalty refers to a commitment to repurchase a preferred product or service [33]. It refers to both customer behaviors and attitudes, as loyal customers often purchase from the same enterprise as much as possible and recommend the products or services of enterprises to other customers [33,41,42].

Efficiency-centered BM design emphasizes the enhancement of transaction transparency, reliability, and accuracy [5,11]. First, improving the transparency of transactions reduces the opportunism of enterprises [4] and thus enhances customer trust [43], which in turn achieves customer support and loyalty [44]. Second, improving the reliability of transactions reduces transaction uncertainty and risks for customers and thus stimulates customer loyalty [4,45]. Third, improving the accuracy of transactions reduces transaction errors and costs [4], which in turn improves customer satisfaction and promotes customer loyalty. Therefore, we make the following hypothesis.

Hypothesis 1a (H1a). *Efficiency-centered BM design positively affects customer loyalty.*

The essence of novelty-centered BM design is to design and adopt a new transaction, such as new transaction content and mechanisms [4,5,11]. First, designing and adopting new transaction content (i.e., a new product or service) is a very important value proposition for customers [11]. It meets customers' needs for novelty and leads to customers to prefer and depend on enterprises, thus increasing customer loyalty [46]. Moreover, the continuous design and adoption of new transaction content can secure customers' approval and trust in an enterprise's capabilities, which also enhance customer loyalty [47]. Second, the design and adoption of a new transaction mechanism will meet the needs of customers and increase their switching costs [11], leading to customer loyalty. Therefore, we propose the following hypothesis.

Hypothesis 1b (H1b). *Novelty-centered BM design positively affects customer loyalty.*

2.3. Business Model Design and Customer Citizenship Behavior

Customer citizenship behavior is defined as "helpful, constructive gestures exhibited by customers that are valued or appreciated by the firm, but not related directly to enforceable or explicit requirements of the individual's role" [48] (p. 461). Customer citizenship behavior is not necessary for successful value creation, but it can contribute to enhanced value for firms, the customers themselves, and other customers [49,50]. It is also considered to help enterprises achieve sustained performance because it is

negatively related to customer's turnover intention [51]. Customer citizenship behaviors are extra-role behaviors and include the following actions: feedback (providing information to the firm); advocacy (recommending the firm to others); helping (assisting other customers); and tolerance (a willingness to be patient in cases of service failure) [34].

Efficiency-centered BM design focuses on reducing transaction costs, such as search and contract costs [4,5,12], which in turn leads to customer citizenship behavior. Lower search costs help customers evaluate enterprises' value propositions through information collection [12], which triggers customer citizenship behaviors such as feedback, advocacy, and helping. The lower contract costs will make customers feel that the enterprise is low in opportunism, responsible, and credible [12]. Accordingly, customers are willing to provide more feedback to help enterprises improve and will also offer enterprises more advocacy and tolerance. Therefore, we propose the following hypothesis.

Hypothesis 2a (H2a). *Efficiency-centered BM design positively affects customer citizenship behavior.*

Novelty-centered BM design focuses on linking transaction participants in new ways and connecting previously unconnected parties [4,5], which will strengthen customer citizenship behavior. Linking transaction participants in new ways and connecting previously unconnected parties creates value for customers [4,5], which in turn will increase customers' perceived value and thus promote customer citizenship behaviors, including advocacy, feedback, helping, and tolerance [52]. Moreover, these strategies result in customers having a positive image of a firm, which in turn will lead them to engage in voluntary behaviors, such as providing feedback, helping other customers, and making recommendations [35]. Therefore, we make the following hypothesis.

Hypothesis 2b (H2b). *Novelty-centered BM design positively affects customer citizenship behavior.*

2.4. Customer Citizenship Behavior and Customer Loyalty

Customer citizenship behavior improves not only enterprise performance but also customer loyalty [52,53]. First, customer citizenship behavior adds value to customers by increasing their sense of belonging and being useful [49], encouraging customers' positive repurchase intentions and in turn customer loyalty [54]. Second, customer citizenship behavior can strengthen the long-term relationship between an enterprise and its customers [53], as customers who exhibit citizenship behavior will consider their relationship with an enterprise to be important and make efforts to maintain this relationship [35]. Third, customers who engage in citizenship behavior will tend to show loyalty behaviors, especially when products or services provided by an enterprise can meet their needs [49]. Finally, customer citizenship behavior may serve as a kind of switching barrier and in turn maintain customer loyalty [33,55]. Therefore, we propose the following hypothesis.

Hypothesis 3 (H3). *Customer citizenship behavior positively affects customer loyalty.*

2.5. The Mediating Role of Customer Citizenship Behavior

Both efficiency-centered and novelty-centered BM designs can create value for customers [3–5,13,14]. As a result, customers benefit and thus identify with them and in turn engage in extra-role behaviors, including customer citizenship behaviors such as giving feedback, recommending a brand, and helping one another [54]. These citizenship behaviors may improve enterprises' products or services, evoke other customers' gratitude, and have positive effects on repurchase intentions and behaviors [54]. In summary, customers exhibiting strong BM design identification will engage in customer citizenship behavior that in turn leads to their increased loyalty. Therefore, we make the following hypotheses.

Hypothesis 4a (H4a). *Customer citizenship behavior plays a mediating role in the influence of efficiency-centered BM design on customer loyalty.*

Hypothesis 4b (H4b). *Customer citizenship behavior plays a mediating role in the influence of novelty-centered BM design on customer loyalty.*

We summarize our research hypotheses and conceptual model in Figure 1.

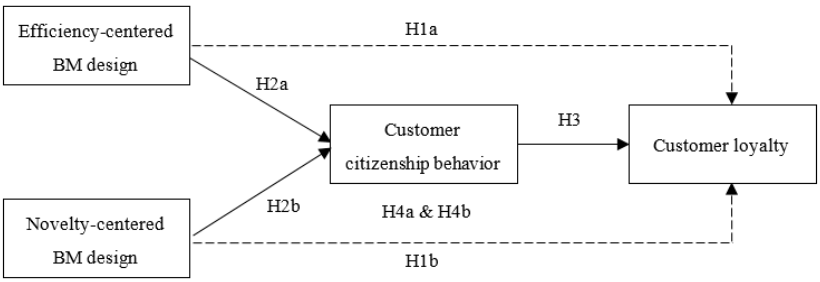

Figure 1. Conceptual model. Notes: H1a and H1b focus on the influence of business model (BM) design on customer loyalty; H4a and H4b focus on the mediating role of customer citizenship behavior.

3. Research Method

3.1. Sampling and Data Collection

A questionnaire was used to collect data for this study. Previously, the literature on BM design's demand-side consequences suggests collecting data from the customer's perceptual perspective in order to more accurately measure and understand the impacts of BM design on demand-side consequences [15,24]. Following the literature, we administered a questionnaire on customers.

Our main challenge in data collection was to ensure that customers perceived BM design correctly. We adopted the following strategies to address this challenge. First, BM design constructs developed by Zott and Amit were adopted because they are based on transactional links between a firm and its customers and thus are easily perceived by customers [4,5]. Second, we distributed our questionnaire to customers of Didi, Ctrip, Pinduoduo, Taobao, Jingdong, Meituan, Tiktok, WeChat, and Alipay, as these BMs have been deeply integrated into customers' lives and are thus easily perceived by customers in China. Third, we included a question in the questionnaire on whether the respondents were familiar with the above BMs to help us select customers who could perceive the above BMs.

The initial questionnaire was written in English because the items we chose were from English literature. According to Brislin, the questionnaire was translated into Chinese and then back translated into English [56]. We carefully compared the Chinese version with the original English version, and then improved the translation. We did these steps repeatedly and ensured translation quality.

The survey was conducted in 2019. Three scholars were invited to evaluate our scale, and 20 customers were invited for pretesting. A total of 411 questionnaires were distributed, and 362 were returned. Of these returned questionnaires, 22 were excluded because the respondents did not meet our requirements, 12 were excluded due to incomplete data, and 8 were excluded due to strong data regularity (e.g., respondents evaluated most items with the same score). In total, 320 valid questionnaires were obtained. Table 1 shows that a diverse sample was constructed in terms of gender, age, education level, and monthly income.

Table 1. Characteristics of participating customers.

Characteristics	Frequency	Percentage
Gender		
Male	179	55.9%
Female	141	44.1%
Age (years)		
25 or younger	106	33.1%
26–30	146	45.6%
31–35	41	12.8%
Over 35	27	8.4%
Education level		
High school and below	19	5.9%
University/college	255	79.7%
Graduate or above	46	14.4%
Monthly income (RMB)		
5000 and below	62	19.4%
5000–10,000	202	63.1%
Over 10,000	56	17.5%

3.2. Variables and Measures

To improve content validity, the measurement items used were taken or adapted from scales provided in the previous literature.

As discussed above, BM design is conceptualized as two types: efficiency-centered and novelty-centered designs. Items for these designs were selected from Zott and Amit [4,5]. Our interviews with customers for pretesting showed that they tended to evaluate efficiency-centered BM design in terms of simple transactions, low error transactions, and low cost transactions; they tended to evaluate novelty-centered BM design in terms of new value propositions, new incentives, and new links. Therefore, we selected items including the above indicators from Zott and Amit [4,5]. Finally, six items from Zott and Amit were used to measure BM design, as shown in Table 2 [4,5].

Table 2. Reliability and validity.

Constructs and Items	Loading
Efficiency-centered design (Cronbach's α = 0.923, CR = 0.923, AVE = 0.7998)	
1. Transactions are simple from the customer's point of view.	0.897
2. The business model enables a low number of errors in the execution of transactions.	0.889
3. Costs for customers in the business model are reduced.	0.897
Novelty-centered design (Cronbach's α = 0.915, CR = 0.916, AVE = 0.7837)	
1. The business model offers new combinations of products, services, and information.	0.925
2. Incentives offered to customers in transactions are novel.	0.900
3. The business model links customers to transactions in novel ways.	0.828
Customer citizenship behavior (Cronbach's α = 0.910, CR = 0.911, AVE = 0.6311)	
1. When I receive good service from the business model, I comment about it.	0.746
2. I said positive things about the business model and the employee to others.	0.824
3. I encouraged friends and relatives to use the business model.	0.842
4. I help other customers if they seem to have problems.	0.807
5. I give advice to other customers.	0.802
6. If the business model makes a mistake during service delivery, I would be willing to be patient.	0.740
Customer loyalty (Cronbach's α = 0.901, CR = 0.917, AVE = 0.7879)	
1. I am a loyal customer of this business model.	0.910
2. I intend to remain a customer of this business model.	0.770
3. This business model is my first choice when I travel between cities.	0.971

Yi and Gong develop a scale of customer citizenship behavior and demonstrated its strong performance [34]. Following the previous literature [33,57], items adapted from Yi and Gong were used

to measure customer citizenship behavior in terms of feedback, advocacy, helping, and tolerance [34]. Our interviews with customers for pretesting suggest that some items should be excluded because they were very close in descriptions (e.g., the item "I recommended the business model and the employee to others" is very close to the item "I encouraged friends and relatives to use the business model"). Finally, six items adapted from Yi and Gong were included in the questionnaire, as shown in Table 2 [34].

Customer loyalty includes attitudinal and behavioral loyalty [33,58]. As it is difficult to distinguish between attitudinal loyalty and customer citizenship behavior [33], customer loyalty in this study exclusively refers to behavioral loyalty. Three items from Chang and Yeh were used to measure customer loyalty, as shown in Table 2 [58].

Following the literature on BM design's demand-side consequences [15,16], the customers' demographic characteristics (i.e., gender, age, education level, and monthly income) were used as control variables.

In their original measurements, scholars used different types of Likert scales including 4-point scale for BM design [4], 7-point scale for customer citizenship behavior [34], and 5-point for customer loyalty [58]. However, almost all the participants for pretesting suggested that we should adopt a unified Likert scale for all variables because they found it difficult to adapt to different Likert scales. Furthermore, they suggested that we should use a 7-point scale because they could effectively distinguish the degree of each variable by it. We adopted their suggestion and used a 7-point Likert type scale (1 = strongly disagree to 7 = strongly agree) in this study.

4. Analysis and Results

4.1. Non-Response and Common Method Bias

We compared answers on customer loyalty given by early and late respondents to examine non-response bias [59]. The first 25 respondents were defined as early responders and the last 25 respondents were defined as late responders. The results show no significant difference between these respondents. Therefore, non-response bias was not deemed a problem for this study. A Harman's single-factor test was conducted to examine common method bias [60]. Efficiency-centered BM design, novelty-centered BM design, customer citizenship behavior, and customer loyalty were combined in an exploratory factor analysis. The results show that four factors account for 79.463% of the total variation. The first factor accounts for 27.071% of the total variation. Therefore, common method bias was not a problem in this study.

4.2. Reliability and Validity

Cronbach's α and CR were calculated to test reliability, as shown in Table 2. The results show that these values exceed the threshold of 0.7, indicating that the measure meets reliability requirements. A confirmatory factor analysis of efficiency-centered BM design, novelty-centered BM design, customer citizenship behavior, and customer loyalty was conducted to test validity. The model fit indices are as follows: χ^2/df = 2.725, RMSEA = 0.074, IFI = 0.964, GFI = 0.911, CFI = 0.964, NFI = 0.944, TLI = 0.955, and RFI = 0.930, meeting model fit requirements [61]. In addition, all factor loadings are greater than the critical value of 0.5, as shown in Table 2, indicating that these items should be retained [61]. Average variance extracted (AVE) values were calculated and found to exceed the critical value of 0.5, as shown in Table 2, indicating that convergent validity meets requirements [62]. Furthermore, the square root of AVE values were found to exceed the correlation coefficients, as shown in Table 3, indicating that discriminant validity requirements were met [62].

Table 3. Correlations between variables.

	1	2	3	4	5	6	7	8
1. Gender	n.a.							
2. Age	−0.065	n.a.						
3. Income	−0.125 *	0.665 ***	n.a.					
4. Education	0.115 *	−0.051	−0.044	n.a.				
5. Efficiency	0.098	0.088	0.076	0.230 ***	0.894			
6. Novelty	0.128 *	0.042	0.051	0.277 ***	0.588 ***	0.885		
7. Citizenship	0.014	0.107	0.113 *	0.146 **	0.707 ***	0.600 ***	0.794	
8. Loyalty	0.073	0.026	0.008	0.195 ***	0.557 ***	0.547 ***	0.603 ***	0.888
Mean	1.440	2.980	3.410	2.080	5.158	5.155	5.039	5.124
SD	0.497	1.052	1.322	0.443	1.763	1.584	1.549	1.676

Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; the numbers on the diagonal show the square root of average variance extracted (AVE); "n.a." means not applicable.

4.3. Hypothesis Testing

We used hierarchical regression analysis to test the hypotheses. In line with Baron and Kenny, the following steps were followed [63].

Four models were established to test H1a and H1b. Model 1 was used to examine the influence of control variables on customer loyalty. Model 2 adds efficiency-centered BM design. The results of Model 2 show that efficiency-centered BM design has a significant and positive impact on customer loyalty ($\Delta R^2 = 0.273$, $\beta = 0.542$, $p < 0.001$), as shown in Table 4, supporting H1a. Model 3, including novelty-centered BM design, shows that this design has a significant and positive impact on customer loyalty ($\Delta R^2 = 0.260$, $\beta = 0.535$, $p < 0.001$), as shown in Table 4, supporting H1b. Model 4, which includes both efficiency-centered and novelty-centered BM designs, also supports H1a and H1b, as shown in Table 4.

Table 4. The influence of BM design on customer loyalty and customer citizenship behavior.

	Dependent Variables							
	Customer Loyalty				Customer Citizenship Behavior			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Gender	0.054	0.009	−0.003	−0.011	0.011	−0.048	−0.054	−0.066
Age	0.042	0.003	0.031	0.009	0.063	0.012	0.051	0.018
Income	−0.005	−0.031	−0.038	−0.043	0.079	0.045	0.041	0.034
Education	0.191 **	0.068	0.047	0.020	0.151 **	−0.010	−0.012	−0.053
Efficiency		0.542 ***		0.360 ***		0.710 ***		0.545 ***
Novelty			0.535 ***	0.333 ***			0.606 ***	0.300 ***
F	3.484 **	28.969 ***	27.195 ***	32.721 ***	3.109 *	64.429 ***	37.161 ***	67.247 ***
R^2	0.042	0.316	0.302	0.385	0.038	0.506	0.372	0.563
Adjusted R^2	0.030	0.305	0.291	0.374	0.026	0.499	0.362	0.555
ΔR^2	0.042	0.273	0.260	0.343	0.038	0.468	0.334	0.525

Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

We established four models to test H2a and H2b. We used Model 5 to examine the influence of control variables on customer citizenship behavior. Model 6, including efficiency-centered BM design, indicates that this design has a significant and positive impact on customer citizenship behavior ($\Delta R^2 = 0.468$, $\beta = 0.710$, $p < 0.001$), as shown in Table 4, supporting H2a. Model 7 includes novelty-centered BM design. Its results indicate that novelty-centered BM design has a significant and positive impact on customer citizenship behavior ($\Delta R^2 = 0.334$, $\beta = 0.606$, $p < 0.001$), as shown in Table 4, supporting H2b. Model 8 includes both efficiency-centered and novelty-centered BM designs. Its results also confirm H2a and H2b, as shown in Table 4.

Unlike Model 1, Model 9 includes customer citizenship behavior to test H3. The results suggest that customer citizenship behavior has a significant and positive impact on customer loyalty ($\Delta R^2 = 0.338$, $\beta = 0.592$, $p < 0.001$), as shown in Table 5, verifying H3.

Table 5. The mediating role of customer citizenship behavior.

	Dependent Variable			
	Customer Loyalty			
	Model 9	**Model 10**	**Model 11**	**Model 12**
Gender	0.047	0.029	0.020	0.011
Age	0.005	−0.002	0.009	0.003
Income	−0.052	−0.050	−0.056	−0.055
Education	0.102 *	0.073	0.053	0.038
Efficiency		0.237 ***		0.173 **
Novelty			0.269 ***	0.231 ***
Citizenship behavior	0.592 ***	0.430 ***	0.439 ***	0.342 ***
F	38.504 ***	35.787 ***	38.244 ***	34.520 ***
R^2	0.380	0.407	0.423	0.436
Adjusted R^2	0.370	0.396	0.412	0.424
ΔR^2	0.338	0.091	0.121	0.051

Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Models 10 to 12 were established to test H4a and H4b. Compared to Models 2 and 10, when customer citizenship behavior is added to Model 10, the standard regression coefficient of efficiency-centered BM design decreases from 0.542 ($p < 0.001$) in Model 2 to 0.237 ($p < 0.001$) in Model 10, as shown in Tables 4 and 5, suggesting that customer citizenship behavior partially mediates the impact of efficiency-centered BM design on customer loyalty. Therefore, H4a is supported. Compared to Models 3 and 11, when customer citizenship behavior is added to Model 11, the standard regression coefficient of novelty-centered BM design decreases from 0.535 ($p < 0.001$) in Model 3 to 0.269 ($p < 0.001$) in Model 11, as shown in Tables 4 and 5, suggesting that customer citizenship behavior partially mediates the impact of novelty-centered BM design on customer loyalty. Hence, H4b is supported. The results of Model 12 also verify H4a and H4b, as shown in Table 5.

This study also used the bootstrap approach of Preacher and Hayes to test the mediating role of customer citizenship behavior [64]. The number of bootstrap samples was defined as 5000, and the confidence intervals were defined as 95%. The results suggest that customer citizenship behavior plays a mediating role in the impact of efficiency-centered BM design on customer loyalty, as the indirect effect of efficiency-centered BM design on customer loyalty is 0.2901 and its confidence interval is (0.1892, 0.3792) not including 0. Furthermore, efficiency-centered BM design has a direct impact on customer loyalty, as the confidence interval of the direct effect of efficiency-centered BM design is (0.1075, 0.3432) not including 0. As a result, these results also verify H4a and further indicate that customer citizenship behavior partially mediates the impact of efficiency-centered BM design on customer loyalty. Our results also suggest that customer citizenship behavior plays a mediating role in the impact of novelty-centered BM design on customer loyalty, as the indirect effect of novelty-centered BM design on customer loyalty is 0.2814 and its confidence interval is (0.2014, 0.3586) not including 0. Furthermore, novelty-centered BM design has a direct impact on customer loyalty, as the confidence interval of the direct effect of novelty-centered BM design is (0.1686, 0.4008) not including 0. Therefore, our results also verify H4b and further indicate that customer citizenship behavior partially mediates the impact of novelty-centered BM design on customer loyalty.

5. Discussion and Conclusions

We proposed hypotheses on the relationships among BM design, customer citizenship behavior, and customer loyalty and tested them through hierarchical regression analysis. We made the following main findings.

First, this study shows that efficiency-centered BM design can enhance customer loyalty similar to novelty-centered BM design. This finding is consistent with past arguments that the core function of BM design is to create value for customers or that BM design is customer-centered [65–67]. It is precisely because BM design emphasizes creating value for customers that customers will repay their loyalty, and enterprises thus obtain sustained performance. Accordingly, enterprises should use both efficiency-centered and novelty-centered BM designs to enhance customer loyalty.

Second, this study shows that both efficiency-centered and novelty-centered BM designs are the antecedents of customer citizenship behavior. This finding is consistent with the views of social exchange theory [57,68]. According to social exchange theory, in the process of creating value for customers through BM design, various tangible or intangible resources such as information and services are used for interactions with customers and thus trigger the process of social exchange, providing benefits to customers. Accordingly, customers will engage in citizenship behaviors such as feedback, advocacy, helping, and tolerance because they have perceived the value created by the enterprise.

Third, this study shows that efficiency-centered and novelty-centered BM designs can both directly and indirectly affect customer loyalty. We find that these designs partly affect customer loyalty through the mediating role of customer citizenship behavior, suggesting that such designs have not only direct but also indirect effects on customer loyalty. This finding highlights different ways for enterprises to enhance customer loyalty through BM design. Accordingly, enterprises can enhance customer loyalty through BM design both directly and indirectly.

This study makes the following theoretical contributions. First, the study contributes to research on the relationship between BM design and customer loyalty by demonstrating the influence of efficiency-centered BM design on customer loyalty. The previous literature mainly discusses the impact of novelty-centered BM design on customer loyalty [16]. Unlike past work, this study explores the impact of efficiency-centered BM design on customer loyalty as well, as this design is also an important type of BM design. The results show that both efficiency-centered and novelty-centered BM designs affect customer loyalty and thus are antecedents of customer loyalty. Second, this study contributes to research on the relationship between BM design and customer loyalty by exploring the mediating role of customer citizenship behavior. The results show that efficiency-centered and novelty-centered BM designs partly influence customer loyalty through the mediating role of customer citizenship behavior. Thirdly, this study contributes to the research on BM design's demand-side consequences by operationalizing BM design from the customer's perceptual perspective. Research on BM design's demand-side consequences advocates investigating the impact of BM design from the customer's perceptual perspective, but does not operationalize BM design from this perspective [21]. This study operationalizes the BM design constructs of Zott and Amit (i.e., efficiency-centered and novelty-centered BM designs) from the customer's perceptual perspective and shows that they can be easily perceived by customers and have good reliability and validity [4,5]. Fourth, this study contributes to research on the link between BM design and marketing by illustrating the interfacing role of customer citizenship behavior. While previous work calls to link BM design with marketing, it is unclear on how this should be implemented [16,69,70]. This study suggests that customer citizenship behavior plays an interfacing role, as it mediates the influence of BM design on customer loyalty. On one hand, this finding provides an understanding of how BM design realizes its marketing goals (i.e., customer loyalty). On the other hand, this finding demonstrates how BM design enhances customer loyalty and thus serves as a marketing tool. At last, this study contributes to the research on BM design for corporate sustainability. Previous studies have confirmed that appropriate BM design is helpful for corporate sustainability, but have not shown how it facilitates corporate sustainability [2]. Considering the importance of customer citizenship behavior and customer loyalty on corporate sustainability, this study links

BM design with them and thus provides a strategy for obtaining corporate sustainability through BM design.

This study has the following management implications. First, enterprises should pay attention to their customers' evaluations of their BM designs. Enterprises should frequently invite their customers to evaluate their efficiency-centered and novelty-centered BM designs and thus identify and solve problems with their BM designs to integrate customers into their value creation. Second, enterprises should consider the effects of BM design on customer loyalty. Enterprises should change their views that BM design does always directly affect enterprise performance and instead recognize that BM design may indirectly affect enterprise performance. Considering the positive effect of BM design on customer loyalty and the positive effect of customer loyalty on enterprise performance, enterprises can achieve customer loyalty through BM design and in turn improve their performance. Third, enterprises should view customer loyalty as the marketing goal of their BM designs. For the sake of being accepted by the market, responding to competition, and improving performance, enterprises should take customer loyalty as the marketing goal of their BM designs. To achieve this goal, enterprises can use efficiency-centered and novelty-centered BM designs to directly enhance customer loyalty and can also use them to indirectly enhance customer loyalty through customer citizenship behavior. Fourth, enterprises can use BM design as a marketing tool. To achieve marketing goals such as customer loyalty, enterprises can strengthen their efficiency-centered and novelty-centered BM designs and improve customer loyalty through these BM designs. At last, enterprises should take BM design as an important means to address corporate sustainability. Enterprises can not only facilitate corporate sustainability through BM design directly, but also can link BM design with customer citizenship behavior and customer loyalty to facilitate corporate sustainability.

This study presents some limitations. First, it does not explore the contingency effect of BM design on customer citizenship behavior or that of customer citizenship behavior on customer loyalty. Future research should try to introduce moderating variables into our research model to more fully measure how BM design affects customer loyalty through customer citizenship behavior. In addition, our survey was carried out in China, which may lead to the findings of this study being only applicable to China and not to be international. Future work should conduct an international survey whose participants include customers in different countries, such as European and American countries, Asian countries, and African countries, to facilitate the formation of widely applicable findings.

Author Contributions: Conceptualization, B.H., W.H. and S.Y.; methodology, W.H.; software, S.Y.; validation, B.H. and S.Y.; formal analysis, B.H. and W.H.; investigation, W.H., G.L. and T.Z.; resources, B.H., W.H. and S.Y.; data curation, W.H., G.L. and T.Z.; writing—original draft preparation, B.H. and W.H.; writing—review and editing, B.H., W.H. and S.Y.; visualization, T.Z.; supervision, B.H.; project administration, B.H. and S.Y.; funding acquisition, B.H. All authors have read and agreed to the published version of the manuscript.

Funding: This work was funded by the Major Humanities and Social Science Projects for Colleges and Universities in Zhejiang Province, China [grant number 2016GH007].

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Pati, R.K.; Nandakumar, M.K.; Ghobadian, A.; Ireland, R.D.; O'Regan, N. Business model design–performance relationship under external and internal contingencies: Evidence from SMEs in an emerging economy. *Long Range Plann.* **2018**, *51*, 750–769. [CrossRef]
2. Pedersen, E.R.G.; Gwozdz, W.; Hvass, K.K. Exploring the relationship between business model innovation, corporate sustainability, and organisational values within the fashion industry. *J. Bus. Ethics.* **2018**, *149*, 267–284. [CrossRef]
3. Wei, Z.; Song, X.; Wang, D. Manufacturing flexibility, business model design, and firm performance. *Int. J. Prod. Econ.* **2017**, *193*, 87–97. [CrossRef]
4. Zott, C.; Amit, R. Business model design and the performance of entrepreneurial firms. *Organ. Sci.* **2007**, *18*, 181–199. [CrossRef]

5. Zott, C.; Amit, R. The fit between product market strategy and business model: Implications for firm performance. *Strateg. Manag. J.* **2008**, *29*, 1–26. [CrossRef]
6. Desyllas, P.; Sako, M. Profiting from business model innovation: Evidence from Pay-As-You-Drive auto insurance. *Res. Policy* **2013**, *42*, 101–116. [CrossRef]
7. Giesen, E.; Berman, S.J.; Bell, R.; Blitz, A. Three ways to successfully innovate your business model. *Strategy Leadersh.* **2007**, *35*, 27–33. [CrossRef]
8. Karimi, J.; Walter, Z. Corporate entrepreneurship, disruptive business model innovation adoption, and its performance: The case of the newspaper industry. *Long Range Plann.* **2016**, *49*, 342–360. [CrossRef]
9. Heider, A.; Gerken, M.; van Dinther, N.; Hülsbeck, M. Business model innovation through dynamic capabilities in SMEs—Evidence from the German Mittelstand. *J. Bus. Res.* **2020**. [CrossRef]
10. Sosna, M.; Trevinyo-Rodríguez, R.N.; Velamuri, S.R. Business model innovation through trial-and-error learning: The Naturhouse case. *Long Range Plann.* **2010**, *43*, 383–407. [CrossRef]
11. Zott, C.; Amit, R. Business model design: An activity system perspective. *Long Range Plann.* **2010**, *43*, 216–226. [CrossRef]
12. Brettel, M.; Strese, S.; Flatten, T.C. Improving the performance of business models with relationship marketing efforts—An entrepreneurial perspective. *Eur. Manag. J.* **2012**, *30*, 85–98. [CrossRef]
13. Migol, O.T.; Tretyak, O.; Holm, A.B. Business model design themes, value propositions and firm performance. *J. Bus. Models* **2018**, *6*, 54–58. [CrossRef]
14. Balboni, B.; Bortoluzzi, G.; Pugliese, R.; Tracogna, A. Business model evolution, contextual ambidexterity and the growth performance of high-tech start-ups. *J. Bus. Res.* **2019**, *99*, 115–124. [CrossRef]
15. Clauss, T.; Kesting, T.; Naskrent, J. A rolling stone gathers no moss: The effect of customers' perceived business model innovativeness on customer value co-creation behavior and customer satisfaction in the service sector. *RD Manag.* **2019**, *49*, 180–203. [CrossRef]
16. Spieth, P.; Roeth, T.; Meissner, S. Reinventing a business model in industrial networks: Implications for customers' brand perceptions. *Ind. Market. Manag.* **2019**, *83*, 275–287. [CrossRef]
17. Magretta, J. Why business models matter. *Harv. Bus. Rev.* **2002**, *80*, 86–92, 133.
18. Teece, D.J. Business models, business strategy and innovation. *Long Range Plann.* **2010**, *43*, 172–194. [CrossRef]
19. Wirtz, B.W.; Pistoia, A.; Ullrich, S.; Göttel, V. Business models: Origin, development and future research perspectives. *Long Range Plann.* **2016**, *49*, 36–54. [CrossRef]
20. Aversa, P.; Haefliger, S.; Hueller, F.; Reza, D.C. Customer complementarity in the digital space: Exploring Amazon's business model diversification. *Long Range Plann.* **2020**. [CrossRef]
21. Keiningham, T.; Aksoy, L.; Bruce, H.L.; Cadet, F.; Clennell, N.; Hodgkinson, I.R.; Kearney, T. Customer experience driven business model innovation. *J. Bus. Res.* **2020**, *116*, 431–440. [CrossRef]
22. Frankenberger, K.; Weiblen, T.; Gassmann, O. Network configuration, customer centricity, and performance of open business models: A solution provider perspective. *Ind. Market. Manag.* **2013**, *42*, 671–682. [CrossRef]
23. Visnjic, I.; Wiengarten, F.; Neely, A. Only the brave: Product innovation, service business model innovation, and their impact on performance. *J. Prod. Innovat. Manag.* **2016**, *33*, 36–52. [CrossRef]
24. Priem, R.L.; Wenzel, M.; Koch, J. Demand-side strategy and business models: Putting value creation for consumers center stage. *Long Range Plann.* **2018**, *51*, 22–31. [CrossRef]
25. Spiteri, J.M.; Dion, P.A. Customer value, overall satisfaction, end-user loyalty, and market performance in detail intensive industries. *Ind. Market. Manag.* **2004**, *33*, 675–687. [CrossRef]
26. Srinivasana, S.S.; Andersona, R.; Ponnavolub, K. Customer loyalty in e-commerce: An exploration of its antecedents and consequences. *J. Retail.* **2002**, *78*, 41–50. [CrossRef]
27. Chen, S.C. Customer value and customer loyalty: Is competition a missing link? *J. Retail. Consum. Serv.* **2015**, *22*, 107–116. [CrossRef]
28. Nastasoiu, A.; Vandenbosch, M. Competing with loyalty: How to design successful customer loyalty reward programs. *Bus. Horiz.* **2019**, *62*, 207–214. [CrossRef]
29. Hu, B.; Chen, W. Business model ambidexterity and technological innovation performance: Evidence from China. *Technol. Anal. Strateg. Manag.* **2016**, *28*, 583–600. [CrossRef]
30. Wei, Z.; Yang, D.; Sun, B.; Gu, M. The fit between technological innovation and business model design for firm growth: Evidence from China. *RD Manag.* **2014**, *44*, 288–305. [CrossRef]
31. Ballestar, M.T.; Grau-Carles, P.; Sainz, J. Customer segmentation in e-commerce: Applications to the cashback business model. *J. Bus. Res.* **2018**, *88*, 407–414. [CrossRef]

32. Kim, K.A.; Byon, K.K. A mechanism of mutually beneficial relationships between employees and consumers: A dyadic analysis of employee–consumer interaction. *Sport Manag. Rev.* **2018**, *21*, 582–595. [CrossRef]
33. Cossío-Silva, F.; Revilla-Camacho, M.; Vega-Vázquez, M.; Palacios-Florencio, B. Value co-creation and customer loyalty. *J. Bus. Res.* **2016**, *69*, 1621–1625. [CrossRef]
34. Yi, Y.; Gong, T. Customer value co-creation behavior: Scale development and validation. *J. Bus. Res.* **2013**, *66*, 1279–1284. [CrossRef]
35. Kim, M.; Yin, X.; Lee, G. The effect of CSR on corporate image, customer citizenship behaviors, and customers' long-term relationship orientation. *Int. J. Hosp. Manag.* **2020**, *88*, 102520. [CrossRef]
36. George, G.; Bock, A.J. The business model in practice and its implications for entrepreneurship research. *Entrepr. Theory Pract.* **2011**, *35*, 83–111. [CrossRef]
37. Baden-Fuller, C.; Haefliger, S. Business models and technological innovation. *Long Range Plann.* **2013**, *46*, 419–426. [CrossRef]
38. Amit, R.; Zott, C. Value creation in E-business. *Strateg. Manag. J.* **2001**, *22*, 493–520. [CrossRef]
39. Chen, C.F.; Wang, J.P. Customer participation, value co-creation and customer loyalty—A case of airline online check-in system. *Comput. Hum. Behav.* **2016**, *62*, 346–352. [CrossRef]
40. Lam, S.Y.; Shankar, V.; Erramilli, M.K.; Murthy, B. Customer value, satisfaction, loyalty, and switching costs: An illustration from a business-to-business service context. *J. Acad. Market. Sci.* **2004**, *32*, 293–311. [CrossRef]
41. Omar, N.A.; Alam, S.S.; Aziz, N.A.; Nazri, M.A. Retail loyalty programs in Malaysia: The relationship of equity, value, satisfaction, trust, and loyalty among cardholders. *J. Bus. Econ. Manag.* **2011**, *12*, 332–352. [CrossRef]
42. Scridon, M.A. Does emotional value play a role in the relationship between risk and loyalty? *Market. Inf. Dec. J.* **2019**, *2*, 35–42. [CrossRef]
43. Morgan, R.M.; Hunt, S.D. The commitment-trust theory of relationship marketing. *J. Mark.* **1994**, *58*, 20–38. [CrossRef]
44. Paparoidamisa, N.G.; Katsikeasb, C.S.; Chumpitazc, R. The role of supplier performance in building customer trust and loyalty: A cross-country examination. *Ind. Market. Manag.* **2019**, *78*, 183–197. [CrossRef]
45. Ramakrishnan, R. An empirical analysis on the influence of risk on relationships between handling of product returns and customer loyalty in E-commerce. *Int. J. Prod. Econ.* **2011**, *130*, 255–261. [CrossRef]
46. Osterwalder, A.; Pigneur, Y. *Business Model Generation*; Wiley: Hobroken, NJ, USA, 2010.
47. Čater, T.; Čater, B. Product and relationship quality influence on customer commitment and loyalty in B2B manufacturing relationships. *Ind. Market. Manag.* **2010**, *39*, 1321–1333. [CrossRef]
48. Gruen, T.W. The outcome set of relationship marketing in consumer markets. *Int. Bus. Rev.* **1995**, *4*, 447–469. [CrossRef]
49. Assiouras, I.; Skourtis, G.; Giannopoulos, A.; Buhalis, D.; Koniordos, M. Value co-creation and customer citizenship behavior. *Ann. Tour. Res.* **2019**, *78*, 102742. [CrossRef]
50. Groth, M. Customers as good soldiers: Examining citizenship behaviors in internet service deliveries. *J. Manag.* **2005**, *31*, 7–27. [CrossRef]
51. Revilla-Camacho, M.Á.; Vega-Vázquez, M.; Cossío-Silva, F.J. Customer participation and citizenship behavior effects on turnover intention. *J. Bus. Res.* **2015**, *68*, 1607–1611. [CrossRef]
52. Woo, M. Assessing customer citizenship behaviors in the airline industry: Investigation of service quality and value. *J. Air. Transp. Manag.* **2019**, *76*, 40–47. [CrossRef]
53. Yi, Y.; Nataraajan, R.; Gong, T. Customer participation and citizenship behavioral influences on employee performance, satisfaction, commitment, and turnover intention. *J. Bus. Res.* **2011**, *64*, 87–95. [CrossRef]
54. Mandl, L.; Hogreve, J. Buffering effects of brand community identification in service failures: The role of customer citizenship behaviors. *J. Bus. Res.* **2020**, *107*, 130–137. [CrossRef]
55. Kim, K.A.; Byon, K.K.; Choi, H.D. A conceptual analysis of switching costs: Implications for fitness centers. *Sustainability* **2020**, *12*, 3891. [CrossRef]
56. Brislin, R.W. Back-translation for cross-cultural research. *J. Cross. Cult. Psychol.* **1970**, *1*, 185–216. [CrossRef]
57. Delpechitre, D.; Beeler-Connelly, L.L.; Chaker, N.N. Customer value co-creation behavior: A dyadic exploration of the influence of salesperson emotional intelligence on customer participation and citizenship behavior. *J. Bus. Res.* **2018**, *92*, 9–24. [CrossRef]
58. Chang, Y.H.; Yeh, C.H. Corporate social responsibility and customer loyalty in intercity bus services. *Transp. Policy* **2017**, *59*, 38–45. [CrossRef]

59. Armstrong, J.S.; Overton, T.S. Estimating nonresponse bias in mail surveys. *J. Market. Res.* **1977**, *14*, 396–402. [CrossRef]
60. Podsakoff, P.M.; Mackenzie, S.B.; Lee, J.Y.; Podsakoff, N.P. Common method biases in behavioral research: A critical review of the literature and recommended remedies. *J. Appl. Psychol.* **2003**, *88*, 879–903. [CrossRef]
61. Hinkin, T.R. A review of scale development practices in the study of organizations. *J. Manag.* **1995**, *21*, 967–988. [CrossRef]
62. Fornell, C.; Larcker, D.F. Evaluating structural equation models with unobservable variables and measurement error. *J. Market. Res.* **1981**, *24*, 337–346. [CrossRef]
63. Baron, R.M.; Kenny, D.A. The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *J. Pers. Soc. Psychol.* **1986**, *51*, 1173–1182. [CrossRef] [PubMed]
64. Preacher, K.J.; Hayes, A.F. SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behav. Res. Methods Instrum. Comput.* **2004**, *36*, 717–731. [CrossRef] [PubMed]
65. Massa, L.; Tucci, C.L.; Afuah, A. A critical assessment of business model research. *Acad. Manag. Ann.* **2017**, *11*, 73–104. [CrossRef]
66. Spieth, P.; Schneckenberg, D.; Ricart, J.E. Business model innovation—State of the art and future challenges for the field. *RD Manag.* **2014**, *44*, 237–247. [CrossRef]
67. Zott, C.; Amit, R. The business model: A theoretically anchored robust construct for strategic analysis. *Strateg. Organ.* **2013**, *11*, 403–411. [CrossRef]
68. Cropanzano, R.; Marie, M.S. Social exchange theory: An interdisciplinary review. *J. Manag.* **2005**, *31*, 874–900. [CrossRef]
69. Coombes, P.H.; Nicholson, J.D. Business models and their relationship with marketing: A systematic literature review. *Ind. Market. Manag.* **2013**, *42*, 655–656. [CrossRef]
70. Ehret, M.; Kashyap, V.; Wirtz, J. Business models: Impact on business markets and opportunities for marketing research. *Ind. Market. Manag.* **2013**, *42*, 649–655. [CrossRef]