

Proactive and Collaborative Strategies to Boost Customer-Brand Engagement and Experience: A Complexity Theory Approach

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ABSTRACT

The online grocery industry's swift expansion and intense competition underscore the urgency to tackle sustainable business and cost issues while adapting to consumer trends requires higher prices for continued profit. Utilizing complexity theory, the present study aims to explore the impact of proactive and collaborative strategies on customer-brand engagement and experience, ultimately fostering an increased willingness to pay a premium. Accordingly, the results ($n=406$) show that proactive customer orientation and value co-creation significantly increase the customer experience and foster higher levels of customer-brand engagement, ultimately increasing willingness to pay more. Notably, the mediation analysis reveals that customer-brand engagement serves as a mediating factor in the relationship between customer experience and the willingness to pay more. This study contributes to the online grocery shopping literature by integrating proactive and collaborative strategies and investigates customer experience and engagement through the lens of complexity theory.

KEYWORDS

Collaborative strategies; complexity theory; online grocery shopping; online shopping; proactive strategies

Introduction

The rise of online grocery shopping has transformed the way people obtain essential items, offering unprecedented convenience and flexibility (Clarke 2017; Scholdra et al. 2022). This transformation has led to rapid growth (Magableh 2021) and increased competition (Gatta et al. 2021; IGD 2021). A McKinsey report states that the online grocery market was valued at USD 285.70 billion in 2021 (Aull et al. 2021) and is expected to grow at a 25.3% compound annual growth rate (CAGR) from 2022 to 2030 due to

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changing consumer habits and E-commerce advancements (Puthiyamadam 2018). Despite the convenience of online grocery shopping, sustainable business is a significant concern in the digital landscape (Suryawanshi et al. 2021). While traditional stores remain prominent, the operational complexities of maintaining online grocery platforms, including website maintenance, inventory management, and delivery logistics, incur substantial costs (Bonnet and Etcheverry 2021; Rigby 2014). This raises the argument for applying a price premium to ensure the viability and continued growth of these online ventures.

In the competitive sector of online grocery shopping, companies are increasingly seeking ways to distinguish themselves, with a particular emphasis on enhancing the customer experience (CX) (Homburg, Jozić, and Kuehnl 2017) and fostering greater customer-brand engagement (Algharabat et al. 2018). Substantial empirical evidence suggests that these efforts yield positive consequences, including heightened customer loyalty (Tsao, Hsieh, and Lin 2016), improved brand preference (Duh and Pwaka 2023), and, ultimately, enhanced revenue growth (Meyer and Schwager 2007). However, it is essential to acknowledge that these relationships are inherently multifaceted and complex, contrasting with the linear models (Bhattacharya, Srivastava, and Verma 2018; Rose et al. 2012; Singh and Söderlund 2020). In this case, changes to a system's input do not result in proportional changes in its output, which infers that small inputs can lead to large outputs or vice versa (Sammot-Bonnici 2015). Hence, a critical area of inquiry is an exploration of how companies can effectively command a price premium by strategically leveraging customer experience via customer-brand engagement within the online shopping environment.

Accordingly, proactive and collaborative approaches stand as critical factors among the strategies that influence customers' willingness to pay more (Blocker et al. 2011; Brodie et al. 2011; Homburg, Jozić, and Kuehnl 2017). Proactive strategy, exemplified by proactive customer orientation, places high importance on anticipating and fulfilling customer needs, effectively conferring a competitive edge and fostering enduring customer relationships (Blocker et al. 2011; Raub and Liao 2012). On the other hand, collaborative strategy, represented by value co-creation, involves active engagement with customers, harnessing their unique perspectives, knowledge, and expertise to conjure innovative solutions that closely align with their expectations (Andreu, Sánchez, and Mele 2010; Desmarchelier, Djellal, and Gallouj 2020; Grönroos 2012).

Despite the growing interest in enhancing the profitability of online grocery shopping and the ramifications of proactive and collaborative strategies, several research gaps demand attention. While existing research has examined their individual effects on customer outcomes, there is a lack of

empirical exploration of how they jointly impact customer experience, customer-brand engagement, and the willingness to pay more (Blocker et al. 2011; T. Zhang et al. 2020). Additionally, while customer experience is recognized as a significant driver of customer intentions (Ma et al. 2022; Tsao, Hsieh, and Lin 2016), there is a noticeable scarcity of empirical studies investigating the complex relationship between collaborative strategies and customer experience (Bhattacharya, Srivastava, and Verma 2018; Khan et al. 2020).

Additionally, while prior investigations have scrutinized how customer-brand engagement affects business outcomes such as brand loyalty and word-of-mouth recommendations, the nexus between collaborative strategies and customer-brand engagement remains an intriguing terrain ripe for exploration (Rasool, Shah, and Islam 2020). Lastly, there exists a dearth of research elucidating how customer experience in the online shopping environment paves the way for a willingness to pay more, mediated by customer-brand engagement (Ferreira and Zambaldi 2019; Jami Pour et al. 2021). These research gaps underscore the need for further examination and empirical validation of the interplay between proactive and collaborative strategies and their comprehensive impact on customer behavior and organizational outcomes.

Utilizing a complexity theory approach, this research seeks to contribute to the understanding of relationships among proactive customer orientation, value co-creation, customer experience, customer-brand engagement, and willingness to pay more. We examine how proactive customer orientation and value co-creation synergize to improve customer experience and engagement. Furthermore, our study explores how enhanced customer experiences drive customers' willingness to pay more, with brand engagement playing a mediating role. The primary aim is to provide valuable insights for businesses on effectively utilizing proactive and collaborative strategies to enhance customer experiences, foster engagement, and command premium prices.

Literature review

Online grocery shopping and complexity theory

The rise of E-commerce has altered consumers' buying habits, including online grocery shopping, which has been further propelled by the COVID-19 pandemic (Ecola, Lu, and Rohr 2020). One of the significant advantages of online grocery shopping is avoiding the drawbacks of traditional supermarket visits, which allows busy individuals time-saving potential (Scholdra et al. 2022). Online shopping offers greater variety, attractive deals, and the avoidance of impulse buying and pushy salespeople (Clarke 2017). Prior

research primarily focuses on the adoption of online grocery shopping and reveals that ease of use (Driediger and Bhatiasevi 2019), trust (Asti, Handayani, and Azzahro 2021), and positive emotions (Ma et al. 2022) enhance purchase intentions. However, companies must consider a price premium due to the technical and delivery expenses associated with grocery shopping (Bonnet and Etcheverry 2021; Rigby 2014), which makes a thorough investigation of this phenomenon crucial.

To achieve premium pricing in online grocery shopping, understanding the complex process of customer experience is crucial (Bhattacharya, Srivastava, and Verma 2018; Rose et al. 2012; Singh and Söderlund 2020). Complexity theory provides a framework to navigate this field, highlighting dynamic and interconnected elements (Anderson 1999; Urry 2005), allowing identification of crucial touchpoints and pain points during the customer journey (Lemon and Verhoef 2016; Varnali 2018; Zimmermann and Auinger 2020).

Applying a complexity theory lens necessitates recognizing reality as a multifaceted system, comprising numerous interacting components (Varnali 2018). Concepts such as increasing returns elucidate how investments yield disproportionately higher returns as inputs escalate (Anderson 1999). Similarly, self-organizing systems exhibit spontaneous pattern formation and adaptive capabilities, supporting the emergence of novel properties (Sammut-Bonnici 2015). Continuous adaptation underscores the system's ability to evolve in response to environmental changes, a vital attribute facilitating survival and growth (Urry 2005). Sensitivity to initial conditions, epitomized by the "butterfly effect," highlights the significance of minute variations in system states (Sammut-Bonnici 2015). Complex systems, characterized by their autopoietic nature and path-dependent behaviors (Sammut-Bonnici 2015; Urry 2005; Varnali 2018), emphasize the interplay between proactivity, collaboration, and the dynamic nature of customer journeys. Drawing from this theoretical framework, complexity theory finds application in understanding and enhancing customer experiences (Butt et al. 2023; Holz et al. 2024; Wilson-Nash, Goode, and Currie 2020).

When we apply the tenets of complexity theory to the concept of customer experience (P. L. Wu et al. 2014), effectively interacting with customers necessitates engagement across multiple touchpoints throughout the journey, typically encompassing four stages: first contact, familiarization, interaction, and retention/advocacy (Halvorsrud, Kvale, and Følstad 2016). These stages and touchpoints are interconnected and susceptible to minor fluctuations, thereby demanding a holistic approach (Grewal and Roggeveen 2020; Hoyer et al. 2020). This research employs complexity theory to examine the customer experience journey in the context of online grocery shopping, where proactive services and value creation foster engagement and positive experiences, ultimately leading to a willingness to pay a premium.

Proactive and collaborative strategies

Proactive Customer Orientation (PCO) is a strategic approach that anticipates and meets customer needs, going beyond explicit requests by identifying latent needs from customer behavior and past interactions (Raub and Liao 2012). PCO enhances communication by tailoring solutions and gaining deeper insights into customer preferences (Bergami, Morandin, and Bagozzi 2021; Delana, Savva, and Tezcan 2020). Similarly, value co-creation (VC) involves collaborative value generation between consumers and businesses through engagement in product and service creation or delivery. In online grocery shopping, this strategy involves activities like consumer feedback, loyalty programs, and sharing recipes (Andreu, Sánchez, and Mele 2010; Ebberts, Leenders, and Augustijn 2021). VC positively impacts consumer-brand relationships, enhancing satisfaction (Hsieh and Chang 2016). Together, these strategic approaches, PCO and VC, play a crucial role in enhancing customer experience and engagement, fostering fruitful relationships in the online grocery shopping landscape.

Customer experience, proactive customer orientation and value co-creation

Customer experience encompasses how customers react to a company's products and services during dynamic interactions across various interfaces (Shin et al. 2017), making it vital in competitive markets (Homburg, Jozić, and Kuehn 2017; Izogo and Jayawardhena 2018). Previous research has linked online shopping experiences to outcomes such as customer satisfaction, loyalty, and repurchase intention (Bernard 2011; Tsao, Hsieh, and Lin 2016), generally evoking positive emotions (Ma et al. 2022). However, individuals with limited experience may perceive online shopping as risky due to privacy and credit card concerns, emphasizing the importance of building trust and implementing security measures (Duh and Pwaka 2023).

The present study explores customer experience constructs in two key dimensions: hedonic and novelty (Jami Pour et al. 2021). The hedonic dimension focuses on sensory, emotional, and fantastical aspects, providing pleasure and emotional connection during the shopping process (Bilro, Loureiro, and Guerreiro 2018). The novelty dimension involves the psychological sensation of newness, creating excitement and curiosity during novel shopping experiences (Kim, Brent Ritchie, and McCormick 2010). Accordingly, interaction and participative experiences enhance customer experience, fostering enduring relationships (X. Wu, Zhang, and Shi 2022). Furthermore, embracing a proactive customer-oriented approach allows businesses to deliver personalized and effective services, enhancing satisfaction and fostering loyalty (Al-Nabhani, Wilson, and McLean 2021). Based on the above, we hypothesize:

H1_a: Proactive customer orientation is positively related to customer experience.

H1_b: Value co-creation is positively related to customer experience.

Customer-brand engagement proactive customer orientation and value co-creation

Customer Brand Engagement (CBE) encompasses consumers' cognitive, emotional, and behavioral responses to brand interactions, influencing consumer behavior (Algharabat et al. 2018; Hepola, Karjaluoto, and Hintikka 2017). In the context of online grocery shopping, CBE represents the level of interaction and emotional connection between customers and the grocery brand, which is vital for cultivating a loyal customer base in competitive E-commerce. CBE has three dimensions: emotional, cognitive, and social (Xi and Hamari 2020). The emotional dimension relates to positive affective states and experiences derived from customer interactions with the brand. The cognitive dimension involves brand-related thoughts and active processing during interactions. The social dimension emphasizes the importance of social interactions and community formation around the brand.

By understanding and nurturing these dimensions, online grocery retailers can establish deep connections with customers, driving loyalty and enhancing business performance in the competitive online marketplace. The study of CBE antecedents, including consumers' co-creation activities, further contributes to this understanding (Hollebeek 2018; Leckie, Nyadzayo, and Johnson 2016). Consequently, proactive customer orientation is expected to have a positive impact on customer-brand engagement (Verhoef et al. 2009). When companies anticipate and provide proactive services, customers are more likely to engage with the brand, leading to stronger relationships. Moreover, co-creation activities lead to higher levels of customer-brand engagement (CBE), as customers feel immersed in the brand and exhibit commitment (Carlson et al. 2018; Hsieh and Chang 2016). Therefore, we hypothesize:

H2_a: Proactive customer orientation is positively related to customer-brand engagement.

H2_b: Value co-creation is positively related to customer-brand engagement.

Customer-brand engagement and customer experience

Customer experience (CE) encompasses customer perceptions and responses to brand, product, or service interactions (Kumar and Kaushik 2020), serving as a means for customers to engage physically, mentally,

socially, and emotionally with products or services (Prentice, Wang, and Loureiro 2019). Accordingly, customer-brand engagement arises from interactive experiences with a brand, a perspective supported by Disse and Olsson (2023), emphasizing interactive experiences as value determinants in relationship marketing. Empirical research, such as Mohd- Mohd-Ramly and Omar (2017), has linked CE to customer-brand engagement in an online shopping context. Based on this, we propose:

H3: Customer experience is positively related to customer engagement.

Willingness to pay more, customer-brand engagement and customer experience

The ability of sellers to charge premium prices for high-quality products, deviating from competitive pricing norms, signifies their value proposition (Hwang et al. 2021). Compared to material acquisitions, experiential purchases are associated with increased satisfaction and overall well-being (B. Zhang et al. 2018). Research consistently shows a positive relationship between customer-brand engagement and the willingness to pay higher prices; individuals with higher engagement in online grocery shopping are more likely to invest in premium offerings, recognizing the value of superior products and services (Loketkrawee and Bhatiasavi 2018).

Moreover, customers who have had positive online shopping experiences tend to allocate more spending to the retailer (Saha, Zhuang, and Li 2020), and those who encountered superior online grocery shopping experiences show a greater inclination to accept higher prices (Dwivedi, Nayeem, and Murshed 2018). Fulfilling experiences with a brand leads to a willingness to pay a premium in future transactions (Clarkson, Janiszewski, and Cinelli 2013; Hwang and Kim 2019), but further investigation is needed to fully understand the impact of customer-brand engagement and customer experience on the willingness to pay more in online grocery shopping. Based on the literature as mentioned above, we posit:

H4_a: Customer experience is positively related to willingness to pay more.

H4_b: Customer-brand engagement is positively related to willingness to pay more.

Mediating role of customer-brand engagement

Expanding our investigation beyond direct effects, this study also delves into the mediating role of customer-brand engagement—a construct that has garnered attention in prior literature across various contexts. The concept of customer-brand engagement as a mediating factor has been examined in diverse settings, ranging from social media (Ferreira and Zambaldi

2019) to the sphere of green brands (Leckie, Rayne, and Johnson 2021). Notably, Jami Pour et al. (2021) discerned that customer-brand engagement acts as a mediating force between gamification and customer experience in the online shopping domain, elucidating its intermediary role in shaping customer perceptions and interactions. Additionally, Khan, Rahman, and Fatma (2016) have shed light on the intricate web of relationships, where customer-brand engagement partially mediates the effects on brand satisfaction and brand loyalty, with the online brand experience serving as a bridge in this connection. Drawing from these insights, our hypothesis is formulated as follows:

H5: Customer-brand engagement mediates the relationship between customer experience and willingness to pay more.

The present study's research model is shown in Figure 1.

Research methods

Data collection and sample

Data collection for this study was facilitated through an online survey, distributed by students employed as data collectors in exchange for extra credit (Boyle and Schmierbach 2003). This method has demonstrated efficacy in consumer research contexts (e.g. Persaud and Schillo 2017; Ünal, Buğra Bağcı, and Taşçıoğlu 2024; Unal and Tascioglu 2022). These student collaborators were instructed to circulate the survey among non-student adults within their vicinity, such as family members or relatives, thereby ensuring a sample that extends beyond the conventional student-only demographic (e.g. Shobeiri, Mazaheri, and Laroche 2018), and consequently providing a more comprehensive demographic profile.

Our sample included 406 participants, after excluding 12 responses due to inadequate responses. The sample exhibited a balanced gender

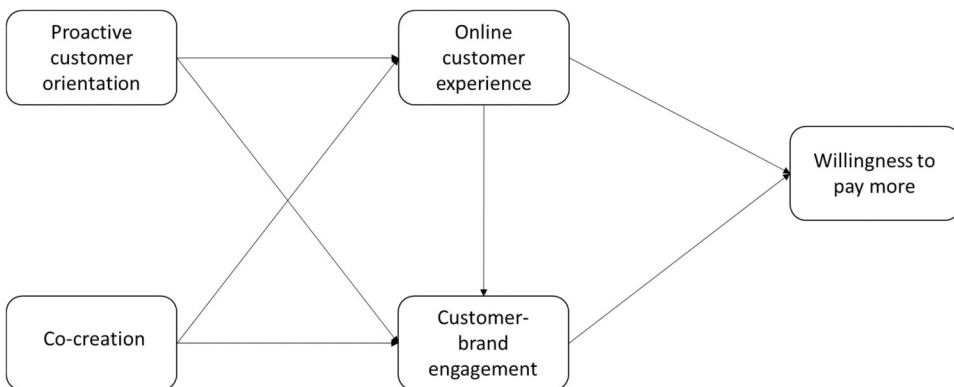


Figure 1. Conceptual model of the present study.

distribution, with 41% females and 59% males. Various age groups were proportionally represented, with the largest (46%) falling within the 30–49 years old category. Educational backgrounds included 48% with a bachelor's degree, 20% with a graduate degree, 17% with a high school diploma, 9% with an associate degree, and 6% with a primary school diploma. The majority of participants (40%) stated that their monthly household income ranged from 13,501 to 30,000 Turkish liras. [Table 1](#) provides detailed demographic information about the sample ($n = 406$).

Measurements

The questionnaire used in this study was divided into two sections. The first section was the survey's focal point, measuring the key variables under investigation. The subsequent section included demographic questions, specifically addressing age, gender, education, and household income. All the questionnaire items were sourced from prior research within the existing literature to ensure the reliability and validity of our measurements. All items in this study were graded on a five-point Likert scale ranging from *strongly agree* to *strongly disagree*. [Table 2](#) provides a detailed breakdown of the items' respective sources and corresponding loadings.

Data analysis

Structural Equation Modeling (SEM) is the primary analytical tool used in this study. Confirmatory factor analysis (CFA) was initially used to assess the degree of agreement between the collected data and our theoretically proposed model. (Hair et al. [2021](#)). The model fit indices provided compelling evidence, indicating a perfect fit between the data and our proposed model ($\chi^2 = 1234.203$, $df = 517$, $\chi^2/df = 2.388$, $CFI = 0.915$, $IFI = 0.916$, $RMSEA = 0.059$, $p < .000$). Following that, we tested the constructs' reliability and validity. Composite reliability (CR) values for each construct surpassed the recommended threshold of 0.7 (Hair et al. [2021](#)). We calculated the Average Variance Extracted (AVE) values for convergent validity, which exceeded the cutoff value of 0.5 (Fornell and Larcker [1981](#)). Then, we employed HTMT analysis (Heterotrait-Monotrait) to assess discriminant validity with all values comfortably below the 0.85 threshold (Henseler,

Table 1. Descriptive statistics ($n = 406$).

Household income		Level of education		Age		Gender	
0–7500 TL	63	Primary school	15	18–29	188	Male	233
7501–13,500 TL	106	High school	62	30–49	195	Female	173
13,501 TL–20,000 TL	116	Associate degree	41	Over 50	23		
20,001 TL–30,000 TL	55	Bachelor's degree	218				
Over 30,000 TL	66	Graduate degree	70				

Table 2. Measurement items.

Construct	Item	λ
Proactive service orientation (Blocker et al. 2011)	This retail brand excels at anticipating changes in what we need before we even ask.	0.747
	This retail brand seems to spend time studying changes in the business environment so they can exercise better foresight about our future needs.	0.785
	This retail brand successfully anticipates changes in our needs	0.760
	This retail brand presents new solutions to us that we actually need but did not think to ask about.	0.680
	This retail brand is always looking for clues that might reveal changes in what we value beyond what we currently ask of them.	0.680
	This retail brand presents new ideas to us that help us keep pace with the changing environment.	0.740
	I often suggest how this retail brand can improve its products and services.	0.738
Value co-creation (Cheung et al. 2021)	I often express my personal needs to this retail brand.	0.766
	I often find solutions to my problems together with this retail brand.	0.756
	I can be actively involved when this retail brand develops new products	0.775
	This retail brand encourages consumers to create solutions together.	0.772
	Using this retail brand get me to think about it.	0.599
Customer-brand engagement (Cheung et al. 2021)	I think about this retail brand a lot when I am using it.	0.613
	Using this retail brand stimulates my interest to learn more about this retail brand.	0.648
	I feel very positive when I use this retail brand.	0.822
	Using this retail brand makes me happy.	0.845
	I feel good when I use this retail brand.	0.805
	I am proud to use this retail brand.	0.774
	I spend a lot of time using this retail brand compared with other brands.	0.692
	Whenever I am using smartphones, I usually use this retail brand.	0.704
	I use this retail brand the most.	0.700
	I feel enjoyment when purchasing from online grocery retail products.	0.745
Customer experience (Bilro, Loureiro, and Guerreiro 2018)	I excite about having a new experience.	0.780
	I feel trouble-free experience when purchasing from online grocery retailers.	0.712
	I feel cheerful purchase experience when using online grocery retailers.	0.804
	I feel related when purchasing from online grocery retailers.	0.736
	Purchasing from online grocery retailers is something different from the offline purchasing experience.	0.683
	Purchasing from online grocery retailers is a unique experience.	0.719
	I experience something new when purchasing from online grocery retailers.	0.738
	Purchasing from online grocery retailers increases my knowledge.	0.701
	Online grocery retailers offer a variety of products.	0.729
	I am willing to pay a higher price for this retail brand than for other retail brands.	0.839
Willingness to pay more (Sarkar et al. 2021)	I am willing to pay a premium over competing brands to be able to visit this retail brand again.	0.870
	I am willing to pay a lot more to shop at this retail brand than shopping at other retail brands.	0.852

Ringle, and Sarstedt 2015). Finally, we checked for common method bias via Harman's single-factor test. We confirmed that single factor accounts for only 39.2% of the total variance explained, which is much less than the 50% threshold (MacKenzie and Podsakoff 2012). The validity of the measurement model was thus assured, as presented in Table 3.

Results

Structural model results

The structural model in this study was analyzed by employing the maximum likelihood estimation method, facilitating the examination of its constituent components. Concurrently, path analysis was conducted in conjunction with an assessment of fit indices in accordance with established best practices (Doll, Xia, and Torkzadeh 1994; Hair et al. 2021). The resulting fit indices collectively indicate that the structural model demonstrates a commendable fit with the observed data. Notably, the values stand as follows: $\chi^2 = 1117.618$, $df = 516$, $\chi^2/df = 2.166$, $GFI = 0.854$, $CFI = 0.929$, $IFI = 0.929$, $TLI = 0.923$, $RMSEA = 0.054$, and $p < .000$. The results underscore the fit of the model's structure and its aptitude for explaining the relationships under investigation.

Delving into the specific hypotheses, the results reveal several significant associations within the structural model. Proactive customer orientation exerts a statistically significant and positive impact on customer experience ($H1_a$: $\beta = 0.384$, $p < .001$), while value co-creation similarly exhibits a substantial influence on customer experience ($H1_b$: $\beta = 0.306$, $p < .001$). Moreover, proactive customer orientation significantly and positively impacts customer-brand engagement ($H2_a$: $\beta = 0.290$, $p < .001$), as does value co-creation ($H2_b$: $\beta = 0.155$, $p < .001$). Customer experience, in turn, wields a notable and positive influence on customer-brand engagement ($H1_b$: $\beta = 0.343$, $p < .001$).

Furthermore, the analysis unearths the substantial impact of customer experience on customers' willingness to pay more, lending robust support to $H4_a$ ($\beta = 0.217$, $p < .05$). Additionally, customer-brand engagement emerges as a potent determinant of customers' willingness to pay more,

Table 3. Reliability and validity analysis.

Construct	CR	AVE	HTMT				
			I	II	III	IV	V
(I) Proactive customer orientation	.87	.53	■				
(II) Value co-creation	.87	.58	.62	■			
(III) Customer-brand engagement	.91	.52	.73	.69	■		
(IV) Customer experience	.92	.54	.60	.60	.77	■	
(V) Willingness to pay more	.89	.72	.50	.52	.54	.51	■

firmly corroborating H4_b ($\beta = 0.700$, $p < .001$). Table 4 provides comprehensive details on the structural model results and fit indices.

Beyond investigating direct effects, this study delved into the analysis of indirect effects, specifically examining the mediating role of customer-brand engagement in the relationship between customer experience and customers' willingness to pay more. The findings illuminate a significant and positive mediating effect of customer-brand engagement, providing affirmation of hypothesis 5 (H5: $\beta = 0.240$, $p < .001$). These results signify that customer-brand engagement serves as an intermediary link in the chain, connecting customer experience to the propensity of customers to invest more in a given product or service, contributing valuable insights into the underlying mechanisms at play. Table 5 shows the mediation analysis in detail.

Discussion

The current study aimed to investigate how proactive service orientation and value co-creation affect customer experience and customer-brand engagement, revealing how to obtain a price premium from customers. We adopted a complexity theory perspective to examine the intricate nature of the customer journey, recognizing that it involves collaboration and the management of customer pain points (Anderson 1999; Urry 2005; Varnali 2018). The results showed that proactive service orientation and value co-creation foster a better customer experience and higher customer-brand engagement (Blocker et al. 2011; Delana, Savva, and Tezcan 2020), which leads to a higher willingness to pay more. Furthermore, it demonstrated that customer-brand engagement mediates customer experience and willingness to pay more. In line with the prior research (Blocker et al. 2011; Delana, Savva, and Tezcan 2020), companies anticipating and responding to customer needs create a virtuous cycle that results in a price premium. Furthermore, the present study investigates the complexities of value co-creation within the framework of complexity theory. It demonstrates that

Table 4. Structural model results.

Hypothesis	Path	β	t	Support
H1 _a	PCO $\rightarrow$ CE	0.384***	5.725	Yes
H1 _b	VC $\rightarrow$ CE	0.306***	5.701	Yes
H2 _a	PCO $\rightarrow$ CBE	0.290***	6.075	Yes
H2 _b	VC $\rightarrow$ CBE	0.155***	4.371	Yes
H3	CE $\rightarrow$ CBE	0.343***	7.273	Yes
H4 _a	CE $\rightarrow$ WTP	0.217**	2.053	Yes
H4 _b	CBE $\rightarrow$ WTP	0.700***	4.992	Yes
$\chi^2 = 1117.618$, df = 516, $\chi^2/\text{df} = 2.166$, GFI = 0.854, CFI = 0.929, IFI = 0.929, TLI = 0.923, RMSEA = 0.054, $p < .000$				

Note: PCO: proactive service orientation; VC: value co-creation; CE: customer experience; CBE: customer-brand engagement; WTP: willingness to pay more.

*** $p < .001$. ** $p < .05$.

value co-creation not only improves customer experiences but also fosters engagement consistently with the prior research (Cheung et al. 2021; Chua et al. 2022). This finding underscores the role of value co-creation as a catalyst within the complex system, yielding positive outcomes for both customers and organizations.

Theoretical implications

The present study represents a significant theoretical progress on online grocery shopping and customer experience literature by employing a complexity lens. In the online grocery shopping context, this theory serves as a practical framework to interpret the dynamic and interactive nature of customer experience (Anderson 1999; Urry 2005; Varnali 2018). This study contributes to complexity theory by emphasizing the significance of proactive service orientation in shaping customer experiences and encouraging engagement. Complexity theory provides a valuable framework that enables us to pinpoint critical touchpoints and pain points within the customer journey (Anderson 1999; Urry 2005; Varnali 2018). Researchers gain a better understanding of the mechanisms that drive customer willingness to pay premiums as a result of the findings, while practitioners can use the insights from this study to develop strategies for commanding premium prices in the marketplace.

Moreover, this research contributes to complexity theory by elucidating the downstream effects of customer experience and customer-brand engagement on customers' willingness to pay more, which can be viewed as emergent properties of a complex system (Clarkson, Janiszewski, and Cinelli 2013; Dwivedi, Nayeem, and Murshed 2018). Organizations gain invaluable insights into the underlying dynamics of customer behavior by comprehensively understanding the interconnectedness of customer experience, customer-brand engagement, and willingness to pay more, allowing them to make strategic decisions that align harmoniously within the complex ecosystem in which they operate. Lastly, this study advances our understanding of the mediating mechanisms in the context of online grocery shopping. The role of customer-brand engagement in mediating the relationship between customer experience and willingness to pay more is especially noteworthy, as it reveals the pathways by which positive customer experiences translate into greater acceptance of premium pricing

Table 5. Mediation analysis.

Hypothesis	Path	β	LLCI	ULCI	Mediation
H5	CE $\rightarrow$ CBE $\rightarrow$ WTP	.240***	.156	.359	Yes

CE: customer experience; CBE: customer-brand engagement; WTP: willingness to pay more.

*** $p < .001$.

(Ferreira and Zambaldi 2019; Jami Pour et al. 2021; Leckie, Rayne, and Johnson 2021).

Managerial implications

The results derived from the present study provide useful insights for practitioners who want to strengthen customer strategies, such as company executives, marketing managers, and policymakers. This study suggests that managers adopt a proactive service orientation, consistently anticipating customer needs, addressing issues before they escalate, and exceeding expectations. This approach enhances customer experiences, fosters brand engagement, and ensures long-lasting relationships (Carlson et al. 2018; Duh and Pwaka 2023). Marketing managers should prioritize value co-creation with customers, involving them in product or service development, seeking feedback, and offering customization options. This approach increases the level of customer experience, leads to stronger brand engagement, and enables premium pricing (Al-Nabhani, Wilson, and McLean 2021; Verhoef et al. 2009). Nurturing customer engagement through personalized interactions, responsive service, and loyalty programs can yield substantial returns in terms of customer loyalty and willingness to pay a premium.

Establishing robust feedback mechanisms, including tools such as surveys, focus groups, and online reviews, is essential to facilitate these strategies effectively. Actively soliciting and promptly responding to customer feedback not only demonstrates a commitment to proactive service but also underscores the value placed on customer opinions in the co-creation process. Additionally, investments in training and development programs for employees, particularly those in customer-facing roles, are recommended. Equipping them with the skills to anticipate customer needs, address issues effectively, and provide personalized service can be a game-changer.

Managers and policymakers should understand the complexity of customer relationships and the complexities of customer experiences and engagement. This understanding allows for more informed decision-making and strategy formulation. Companies should invest in customer journey mapping to understand various touchpoints and interactions, identify pain points, and identify opportunities for proactive service, leading to tailored enhancements in customer experience. In summary, the research emphasizes the importance of investing in enhancing customer experiences for company managers, as positive experiences boost customer satisfaction and drive premium pricing, especially in competitive industries with changing customer preferences. The findings aim to guide managers and

policymakers in creating customer-centric strategies to improve customer experiences, brand engagement, and customer willingness to pay more.

Future research avenues

The current study provides valuable insights into the complex relationships among proactive service orientation, value co-creation, customer experience, customer-brand engagement, and willingness to pay more. However, future research offers promising opportunities to deepen our understanding further. One possible avenue for future research involves investigating moderating factors that may influence these relationships. Depending on factors such as industry, culture, and customer segmentation, proactive service orientation and value co-creation may have varying effects on customer experience and brand engagement. Examining these moderating factors can help us gain a better understanding.

The current research examined the role of customer-brand engagement in mediating the relationship between customer experience and willingness to pay more. Alternative mediators such as customer empowerment, digitalization, brand trust, or brand equity could be studied in future studies to see how they affect customer outcomes and causal relationships. In addition, the current study used cross-sectional data to capture relationships at a specific point in time. Longitudinal studies could be carried out to gain a better understanding of these relationships. A longitudinal perspective would provide valuable insights into the dynamic and sustainable nature of these relationships by tracking the evolution of proactive service orientation and value co-creation in relation to customer experience, customer-brand engagement, and willingness to pay more over time.

Last but not least, employing a mixed-method research approach can aid in improving our findings. For example, in-depth interviews and focus groups can reveal subjective perspectives and lived experiences about proactive service orientation, value co-creation, and customer outcomes, revealing the depth and nuances of customer experiences. Multilevel studies and experiments, for example, can provide statistical evidence for the relationships under investigation, allowing us to better understand these dynamics. To summarize, while the current study offers valuable insights, future research has the potential to unravel the complexities of proactive service orientation, value co-creation, customer experience, customer-brand engagement, and willingness to pay more. Scholars can further our understanding of customer-centric strategies by looking into moderating factors and alternative mediating mechanisms, adopting longitudinal perspectives, and embracing mixed-method research.

Acknowledgments

This study is a part of the doctoral thesis titled “Exploring Service Innovation of Suppliers with Different Relational and Performance Variables within the Context of Emerging Economies” conducted by RBB within the scope of Istanbul Sabahattin Zaim University Graduate Education Institute Business Administration PhD program. The authors extend their gratitude to TÜBİTAK for its 2211-A PhD scholarship program.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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