

# Reciprocal Effects of Cognitive, Affective, and Social Customer Experience on Customer Loyalty and Word-of-Mouth in Omnichannel Fashion Retailing

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Received May 8, 2024/Revised July 22, 2024/Accepted August 8, 2024

Although the cognitive dimension of customer experience (CX) affects the affective or social dimensions of CX and vice versa in consumers' thoughts and behavior, our understanding of this reciprocity is limited. The authors fill this gap by applying categorization theory rationales to analyze whether reciprocity exists among important CX dimensions in consumer shopping at omnichannel retailers and how it affects consumer loyalty versus word-of-mouth. They analyze longitudinal data from 528 consumer evaluations of leading fashion retailers in three waves via cross-lagged panel models. The results indicate that the cognitive CX dimension increases the affective and social dimensions and vice versa but to different extents. The reciprocal effects of the CX dimensions are different for consumer loyalty and word-of-mouth, and the results differ from those of a nonreciprocal study. These findings have direct implications for managers interested in understanding how the reciprocity of CX dimensions affects consumer behavior.

## 1. Introduction

Customer experience (CX), i.e., consumers' holistic, subjective, multidimensional mental responses to interactions with firms (e.g., Gahler et al. 2023), is an important source of firms' competitive advantages, especially for omnichannel retailers, who provide a seamless experience in the consumer journey through all CX dimensions (De Keyser et al. 2020). CX encompasses cognitive, affective, and social responses throughout the consumer journey that influence consumer behavior (Kuehnl et al. 2019; Lemon and Verhoef 2016). Fashion retailers, such as Zara (2023, p.5) or H&M (2023), strive for an overall CX, whereas others focus on individual CX dimensions (e.g., Nike 2023, p. 8, or Sephora 2023, p. 4, strive for a more cognitive or affective CX dimension). However, firms can do more, as individual CX dimensions are interrelated in consumers' minds and may reciprocally affect certain behavioral decisions regarding the retailer differently. We analyze such reciprocal effects of three major CX dimensions in consumer shopping at omnichannel retailers that likely affect each other in a loop: consumers' cognitive, affective, and social responses to problem solving, feelings, and social contacts in the consumer role (Gahler et al. 2023; Nagase and Kano 2017; Liu-Thompkins et al. 2022). We explore the reciprocal effects on two behavioral outcomes.

Scholars often studied CX as one construct, i.e., from an overall or joint view (see Table 1).<sup>[1]</sup> For example, Anshu et al. (2022) studied the effects of overall CX on repurchase intention and Bustamante and Rubio (2017) on satisfaction. Few studies examined CX dimensions, six cognitive vs. affective CX only, e.g., Gao et al. (2021a) on customer retention, Riaz et al. (2022) on satisfaction, Barari et al. (2020) and Rose et al. (2012) on satisfaction, Word-of-Mouth (WoM), and trust, and Tyrväinen et al. (2020) on WoM and repurchase intentions. Only three studies examined the effects of more CX dimensions: Roy et al. (2022) of affective, social and physical CX on consumer commitment and engagement in offline retailing, Bleier et al. (2019) of cognitive, affective, social and physical CX on purchase intention in online retailing, and Gahler et al. (2023) of even two additional dimen-



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sions (sensorial, symbolic) on attitudes, satisfaction, or WoM in omnichannel retailing. However, the insights are contradictory. For example, Rose et al. (2012) found strong effects of both CX dimensions on satisfaction but not on trust. Barari et al. (2020) showed stronger cognitive experience effects on WoM, and Tyrväinen et al. (2020) stronger affective effects. Bleier et al. (2019) found strong effects of the cognitive CX dimension that were missing in Roy et al. (2022) or Gahler et al. (2023). Notably, almost all studies studied the effects of CX dimensions as unconnected independent variables (only two in mediation models; Rose et al. 2012; Roy et al. 2022), no study reciprocally. In contrast, conceptual papers assume reciprocal relations of CX dimensions, such as cognitive, affective, and social dimensions, in omnichannel firms (e.g., De Keyser et al. 2020). For omnichannel firms, consumer mental links between CX dimensions are of specific interest because of the seamless experience offered (different from online/offline contexts, Roy et al. 2022). Reciprocity goes beyond unidirectional mediation models and accounts for links between CX dimensions that may emerge in all directions in a circular fashion and may change previous findings (Pekovic and Rolland 2020). Neglecting this relationship overlooks possible synergies or combined effects of the associated dimensions in consumers' minds. Consumers can reduce their mental load in cognitively complex omnichannel shopping by differentially considering the differently linked CX dimensions in certain decisions (e.g., Rahman et al. 2022). In such an omnichannel shopping journey, consumers are offered seamless transitions between perceptions of the CX dimensions that influence behaviors (De Keyser et al. 2020). Theory-based insights are valuable.

This study addresses such research gaps and inconsistent results by analyzing two research questions: What are the reciprocal relationships among the cognitive, affective, and social CX dimensions in consumer shopping at omnichannel firms? Does each CX dimension reciprocally affect consumer loyalty and WoM, and if so, how? This study offers two important research contributions.

We provide novel insights into the reciprocity of the cognitive, affective, and social CX dimensions. Scholars have called for studies to determine the interaction of these individual mental responses (De Keyser et al. 2020; Rahman et al. 2022). We know that these dimensions may form a factor (e.g., Brakus et al. 2009; Bustamante and Rubio 2017) or that overlapping relationships exist (e.g., affective on cognitive). However, knowledge about the reciprocity of the dominant CX dimensions in consumer shopping at omnichannel retailers is limited but important, as a seamless experience along the journey across all dimensions is crucial, especially in the omnichannel context (Lemon and Verhoef 2016). These insights enable managers to prioritize CX dimensions differently depending on their reciprocal role from the consumer perspective. We also contribute to the research by providing categorization theory-based rationales (Mervis and Rosch 1981). According to this theory, consumer process information in a hierarchical way; the knowledge about the retailer in general represents a basic category, and knowledge about CX dimensions represents lower-level category members. Consumers match their perceptions to corresponding category members (CX dimensions) to reduce their cognitive load and draw inferences between these category members to different extents.

We contribute to the literature by studying the reciprocal effects of CX dimensions and by responding to scholars who have encouraged such research (Gahler et al. 2023; Liu-Thompson et al. 2022). We know that various effects of CX dimensions on different outcomes emerge, but these effects have not been conceptualized reciprocally. We focus on loyalty and WoM for several reasons. Loyalty, as a consumer's preference for and attachment to a retailer for consistent purchases (e.g., Oliver 1999), represents an often studied goal of firms to retain long-term relationships with customers (Kuehnl et al. 2019; Stein and Ramaseshan 2019). WoM, as conversations among individuals (i.e., individuals relate information about or recommend a retailer to others, Swan and Oliver 1989; Gahler et al. 2023), is central in referral marketing but has been inconclusively linked to the affective or

	One behavioral outcome	More behavioral outcomes
<b>Overall CX (joint view)</b>	Anshu et al. (2022); Brakus et al. (2009); Cambra-Fierro et al. (2021); Gao et al. (2019), (2021b); Jara et al. (2018); Khan et al. (2020); Kuehnl et al. (2019); Kumar et al. (2014); Massi et al. (2023); Nguyen et al. (2022a), (2022b); Prentice et al. (2019); Quach et al. (2020).	Bustamante and Rubio (2017); Butt et al. (2023); Das et al. (2019); Mclean et al. (2018); Rahman et al. (2022); Roy (2018); Stein and Ramaseshan (2019)
<b>CX dimensions</b>	Non-reciprocal	Bleier et al. (2019); Ciuchita et al. (2019); Gao et al. (2021a) <sup>1</sup> ; Riaz et al. (2022)
	Reciprocal	Barari et al. (2020) <sup>1</sup> ; Gahler et al. (2023); Rose et al. (2012) <sup>1</sup> ; Roy et al. (2022); Tyrväinen et al. (2020) <sup>1</sup>
	—	<i>This study</i>

Notes: <sup>1</sup>Studies analyzing only cognitive/affective CX dimensions. *Italics* = Studies on omnichannel firms. For a detailed description of the literature see Web Appendix A.

Tab. 1: Literature Review (Effect Studies)

cognitive CX. For managers, knowledge of the reciprocal effects of CX dimensions on both outcomes allows activities to be prioritized in these CX dimensions to best support a firm's goals with respect to omnichannel shoppers (i.e., retaining them or strengthening references, Liu-Thompkins et al. 2022). Both outcomes are recommended for further study (Gahler et al. 2023; Rahman et al. 2022). Additionally, our categorization theory-based rationales contribute to the literature (Rahman et al. 2022). Consumers use category knowledge to draw inferences (from one CX dimension to another and back, in a loop) for judgments in decisions. They draw the strongest inferences by referring to certain category members (i.e., cognitive, affective, or social CX dimensions) that most affect their behavioral decisions.

## 2. Conceptualization and Theory

To address our research aims, we propose a framework conceptualizing the reciprocity of the cognitive, affective, and social CX dimensions and assume different extents of their relationships. We also evaluate the reciprocal total effects of the CX dimensions (sum of their direct and indirect effects) on consumer loyalty and WoM (see Figure 1).

The dimensions are related to CX in omnichannel environments, and consumers evaluate each dimension in terms of negative and positive mental responses (in their role as consumers, Gahler et al. 2023). Since reciprocity is our research focus, we choose three CX dimensions, which is reasonable due to model complexity as well. The cognitive and affective dimensions of CX are considered the most important and most studied and reflect classic dichotomy aspects of consumer behavior (Liu-Thompkins et al. 2022). In addition to the many studies on cognitive and affective CX dimensions, social drivers that adopt a more dyadic/multiparty view of CX are important and significant for consumer decisions (Liu-Thompkins et al. 2022; empirically more relevant than sensory/physical CX, Bleier et al. 2019; Roy et al. 2022). Focusing on these three dimensions of CX provides important information about the actual psychological processes by which retail elements influence customer loyalty. We conceptualize the *cognitive CX dimension* as consumers' mental responses to a firm regarding the learning, problem solving, or worth that underlies infor-

mation acquisition and processing (Liu-Thompkins et al. 2022; Nambisan and Watt 2011). This is important for shoppers at omnichannel firms because of their various information and cognitive challenges (Rahman et al. 2022). Firms such as Trader Joe's (2022) view this dimension as a core value for consumers, e.g., via information on offers for a considerable price. The *affective CX dimension* is conceptualized as the feeling or stronger emotion of joy and fun in response to interactions with a retailer (Liu-Thompkins et al. 2022; Nambisan and Watt 2011). Positive or negative feelings are important for consumer shopping in omnichannel contexts (Hsia et al. 2020). Sephora (2023, p.4) strives for an eventful and fun experience for its customers, whereas Starbucks (2022) focuses on the *social CX dimension*, aiming to create moments of connection and a personalized experience. This dimension represents consumers' responses to social contact with people (employees, shoppers) or brands during shopping interactions (i.e., their customer role, Gahler et al. 2023; Liu-Thompkins et al. 2022), resulting in feelings of friendliness or belonging.

*Reciprocity* means that one mental response, i.e., one CX dimension, may affect a second or third CX dimension, and a second or third can, in turn, affect the first in a loop (e.g., cognitive affective, affective social; Nagase and Kano 2017; Swoboda et al. 2013). Such reciprocal relationships are interdependent exchanges of different constructs that are essentially mutual (e.g., Swoboda and Winters 2021; Weindel and Swoboda 2016). Generally, reciprocity between CX dimensions can be initiated in any dimension depending on which dimension a consumer references when forming a mental response to an interaction with a retailer (Kwon and Lennon 2009); different dimensions can be important for different decisions (Gahler et al. 2023). Methodologically, cross-lagged longitudinal path models (CLPMs) are the most common methods for addressing reciprocal effects. Reciprocity is examined by testing cross-lagged relations, the effect of construct A on construct B after controlling for the previous effects of A (Usami et al. 2019). Reciprocal studies differ from nonreciprocal studies (e.g., regarding over- or underestimated offline or online channel image effects, Swoboda and Winters 2021).

We conceptualize distinct consumer decisions. *Loyal behavior* is a long-term decision with a behavioral compo-

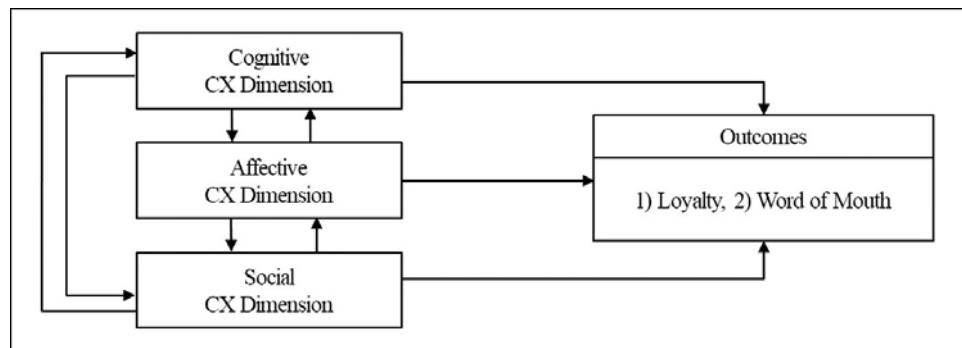


Fig. 1: Conceptual Framework

ment and an attitudinal component (Oliver 1999; Watson et al. 2015). It reflects the behavioral intention or actual action of repeated patronage and advocacy, while the latter reflects the preference for a retailer over alternatives (Liu-Thompkins et al. 2022; Watson et al. 2015). Loyalty is based on the positive evaluation of a retailer resulting from a previous purchase experience that is stored in a consumer's mind and is influenced by triggers and habits (Brakus et al. 2009). *WoM* is a short-term decision reflecting the discussion or sharing of retailer-related content (e.g., mere mention of recommendations, Berger 2014). It is usually not planned, as many conversations are rather spontaneous and take place soon after a CX event, albeit beyond the customer role (Berger 2014; Gahler et al. 2023).

## 2.1. Categorization Theory

The literature on CX dimensions adopts different approaches: SOR frameworks that assume stimuli effects on consumers' CX and responses can hardly explain reciprocity (Gao et al. 2021a; Rose et al. 2012) and goal setting and striving theories or information processing sequences (Barari et al. 2020; Bleier et al. 2019). We contribute to the field by using categorization theory, which posits that consumers categorize every contact with a retailer in a hierarchical structure in their memory. This cognitive theory provides a stringent explanation for reciprocal effects and fits our study design.

The theory suggests that people are more inclined to use a categorical mode of thinking when the information environment is demanding (Epitropaki and Martin 2005). Accordingly, people structure knowledge by categorizing environments and objects for efficient information processing and compare their perceptions with existing basic categories or lower-level category members and associated attributes stored in their memory (Keaveney and Hunt 1992; Mervis and Rosch 1981). Perceptions of unfamiliar objects evolve into novel, basic categories and category members; those of familiar objects match a basic category or category member knowledge. Thereby knowledge is transferred among members, and reciprocal inferences are drawn (Mervis and Rosch 1981). Additionally, people rely on their most familiar and representative category member to draw the strongest inferences (Mervis and Rosch 1981). Category knowledge and inferences are used for judgments in people's decisions, i.e., they affect their behavior (Epitropaki and Martin 2005; Keaveney and Hunt 1992; Loken 2006).

To explain the interdependencies of CX perceptions in consumers' minds and their impact on consumer behavior, we argue that in our context, categories represent retailers and CX dimensions represent category members (with specific associated attributes, such as a worthwhile cognitive CX or an enjoyable affective CX, Bleier et al. 2019; Rahman et al. 2022). Theory suggests that consumers addressing a CX dimension categorize it as related to a retailer and transmit their evaluation across CX di-

mensions, likely in a reciprocal manner (Grewal et al. 2017; Rahman et al. 2022). They draw inferences about CX dimensions to the most knowledgeable and familiar dimension (i.e., Liu-Thompkins et al. 2022). Moreover, perceived CX attributes, such as worthwhileness, not only match the cognitive CX dimension but are also transferred to other CX dimensions, resulting in reciprocal inferences (e.g., enjoyable shopping matches the affective CX dimension but is also transferred to the cognitive and social CX dimensions Rahman et al. 2022; Roy 2018). Hence, consumers use category-based inferences of the cognitive, affective, and social CX dimensions for judgments in decision situations but to different extents (Liu-Thompkins et al. 2022; Loken 2006).

Next, we provide the rationales for our hypotheses regarding the reciprocity of CX dimensions and then for those concerning the reciprocal effects on loyalty and WoM.

## 2.2. Hypothesis Development

We assume reciprocity of CX dimensions, i.e., a circular relationship among the CX dimensions. The first hypothesis provides theoretical rationales for the existence of such relationships and for the assumption of a dominant role of the cognitive CX dimension in such reciprocal relationships.

*First*, consumers compare environments and objects against categories stored in memory and categorize perceived CX dimensions into a corresponding (basic) retailer category (Epitropaki and Martin 2005; Rahman et al. 2022). They draw reciprocal category inferences, e.g., *conveying cognitive to affective and social CX dimensions in a loop*, to assess the first dimension. The same occurs among consumers who convey the affective or social CX dimensions. However, information on CX dimensions with a high category fit can be more easily processed. Successful categorization also stimulates positive or negative feelings, resulting in an evaluation (Loken 2006; Verhagen et al. 2019). Since the cognitive CX dimension is the most frequently processed and familiar dimension (Liu-Thompkins et al. 2022), we assume that it evokes the strongest reciprocal inferences. Consumers who confront a more unfamiliar category member (e.g., an unappealing affective experience) rely more on familiar category members (Liu-Thompkins et al. 2022; Loken 2006). We assume that cognitive experience dominates these reciprocal relationships across all dimensions.

*Second*, the perceived attributes of an environment or object are linked with different CX dimensions (Mervis and Rosch 1981). For example, the attributes associated with cognitive category members can be shared with the affective or social CX dimensions in memory and vice versa (Loken 2006). A friendly employee is strongly associated with the social CX dimension but may be shared with the affective CX dimension through an entertaining character (Pekovic and Rolland 2020). These mecha-

nisms underline the reciprocity of CX dimensions. With respect to strength, the most frequent process attributes of long-term decisions, for example, are likely and strongly shared with the cognitive CX dimension. Owing to the resulting highest knowledgeability with respect to reciprocal reasoning, a dominance in memory is assumed. Studies have shown that omnichannel CX has a stronger effect on long-term consumer behavior than on short-term consumer behavior and have argued about its cognitive nature (Rahman et al. 2022). However, the affective CX dimension, for example, is probably easier to process, as the information learned from an emotional state is more easily retrieved (Rose et al. 2012). However, we argue that omnichannel retailers are primarily valued cognitively (Gao et al. 2021a), which carries over more to the affective and social CX dimensions than vice versa.

We hypothesize the following:

*H1: Reciprocal effects exist between (a) the cognitive and affective CX dimensions, (b) the cognitive and social CX dimensions, and (c) the affective and social CX dimensions, and (d) the cognitive CX dimension dominates.*

While studies on CX dimensions mostly consider CX dimensions to be unconnected variables, we posit their reciprocity and different total effects regarding distinct consumer decisions (e.g., referring to Liu-Thompkins et al. 2022). We assume that the reciprocal inferences of each dimension toward the other CX dimensions are used for consumer decisions (Kwon and Lennon 2009) and consider the sum of both the direct effects of each CX dimension (influenced through reciprocal inferences) and their indirect effects (as transferred knowledge from CX dimensions to others can lead to judgments in decisions via the latter dimensions).

With respect to a consumer's *long-term decision to be loyal*, categorization theory allows us to theorize about the reciprocal effects of all CX dimensions on loyalty. Their indirect effects are discussed next. Furthermore, we offer justifications for the likelihood that the cognitive CX dimension will be the reciprocally dominant loyalty driver.

Regarding the *cognitive CX dimension*, knowledge is transferred to the affective and social CX dimensions and vice versa, from which reciprocal inferences are drawn to evaluate loyalty. These evaluations differ for long-term decisions such as loyalty compared with more short-term decisions such as WoM. Increasing expertise implies a more accurate categorization of evaluations (Fiske 1982; Riaz et al. 2022). Scholars argue that in long-term relationships, the cognitive CX dimension becomes more significant as consumers gain more information, especially in the omnichannel context (Pekovic and Rolland 2020). Constantly provided, helpful, valuable information that corresponds to evaluations of the cognitive category is particularly relevant (Rose et al. 2012).

A categorization of the *affective CX dimension* fosters both knowledge transfer to other CX dimensions and reciprocal inferences in a loop (Mervis and Rosch 1981; Rahman et al. 2022). Emotions affect the retrieval of useful information from memory (Verhagen et al. 2019). The content learned in a particular affective state is best retrieved when a person is in a similar affective state (Rose et al. 2012). Retailers such as Nordstrom stimulate emotional experiences to provide consumers with a stronger sense of such a purchase. Moreover, a positive evaluation of a categorized affective experience may directly affect long-term decisions (Ou and Verhoef 2017). Positive emotions directly influence loyalty, as those evaluations can buffer disappointing purchases (Roy 2018).

Similarly, categorizing the *social CX dimension* leads to knowledge transfer to other CX dimensions (also, its loyalty link can be mediated, Liu-Thompkins et al. 2022; Rahman et al. 2022). This knowledge transfer results in reciprocal inferences drawn from other dimensions to a social experience in a loop. The social aspects of shopping suggest that personal interactions with employees, for example, likely contribute to cognitive value (Stein and Ramaseshan 2019). Moreover, direct effects on loyalty are likely, as shoppers who see themselves as members of a retailer's community are more loyal (while studies also question this, Koller et al. 2011).

The strongest total effect on loyalty is posited for cognitive CX, as people rely on their strongest reciprocal inferences for judgments. On the basis of increasing information and resources in long-term decisions, studies suggest that behavior is determined by a cognitive rather than an affective category, thereby attributing an overriding role to the cognitive experience (Pekovic and Rolland 2020). Emotions, for example, affect loyalty in addition to cognitive information (Ou and Verhoef 2017). Familiarity with the cognitive dimension allows us to draw strong reciprocal inferences through affective and social experiences (Liu-Thompkins et al. 2022). Additionally, consumers mostly remain loyal to those omnichannel retailers they deem most worthwhile and that offer them the greatest value (embraces by cognitive experience, Bleier et al. 2019; Koller et al. 2011). Without a strong cognitive anchor, firms must engage their customers every day.

We propose the following:

*H2: Loyalty is positively affected by the total effect of reciprocally linked (a) cognitive CX, (b) affective CX, and (c) social CX dimensions, and the (d) cognitive CX dimension has the strongest effect.*

Consumer WoM is a *short-term, rather spontaneous decision* and is important when consumers shop at omnichannel retailers (Rahman et al. 2022). Categorization theory also facilitates theorizing about the positive total effect of reciprocally linked CX dimensions on WoM, which we assume for all dimensions. We also provide ra-

tionales for the possibly dominant role of the affective CX dimension.

The cognitive CX dimension, as an information-oriented response, can be processed in the short term and provides reciprocal inferences through affective and social responses in a loop (Bleier et al. 2019; Kranzbühler et al. 2018). In most short-term (vs. long-term) decisions, categories are created more often, and, for example, reciprocal inferences emerge spontaneously to achieve situational goals (Fiske et al. 1987). Moreover, shoppers are likely to feel encouraged to tell others about a retailer following a helpful cognitive experience (Barari et al. 2020).

Category knowledge is reciprocally transferred from the affective CX dimension to the cognitive dimension and vice versa. A unsuccessful purchase can be portrayed as worthwhile through fun or joy, whereby affective responses are retrieved to balance emotional arousal (Rose et al. 2012; Tyrväinen et al. 2020). A direct effect is assumed, as consumers prefer to share their positive feelings about an experience at an omnichannel retailer with others (Tyrväinen et al. 2020). Furthermore, the influence of affective experience on WoM is strong in successful buying situations, and consumers feel encouraged to share affective experiences with friends (Gahler et al. 2023; Roy 2018).

For the social CX dimension, inferences to the other CX dimensions and effects on WoM are also assumed. Responses concerning shoppers' social interactions may be transferred to emotions in a loop as a result of a pleasurable experience, which reciprocally affects individuals' WoM toward friends (Fuentes-Blasco et al. 2017; Roy et al. 2022). Shoppers who feel that they belong to a retail community have no issues actively supporting and recommending it (Roy et al. 2022). Retailers such as Lululemon desire to add consumers to their community to achieve WoM (Forbes 2019), even if firms only have a limited influence on social CX.

In short-term decisions, the emotional elements in a journey constitute a core of CX (Roy 2018). Consumers are often irrational, emotional beings who desire pleasurable experiences. We assume the reciprocity of CX dimensions but follow arguments suggesting that the emotional drivers of WoM dominate; these are spontaneously used to balance emotional arousal (Tyrväinen et al. 2020). Gahler et al. (2023) argue that affective experience is relevant primarily for WoM in combination with cognitive and social CX. Moreover, affective experience is both more important for and a more accurate predictor of WoM (Barari et al. 2020), as situational emotions lead to situational results (Hsia et al. 2020).

We hypothesize the following:

*H3: WoM is positively affected by the total effect of reciprocally linked (a) cognitive CX, (b) affective CX, and (c) social CX dimensions, and the (d) affective CX dimension has the strongest effect.*

### 3. Empirical Study

#### 3.1. Sample

For the empirical study, fashion omnichannel firms were chosen for several reasons. The fashion sector has high online sales shares and is one of the largest retail sectors (up to 35 % of online sales are estimated for 2025 in Germany or the U.S., Planet Retail,2021). In Germany, this sector is the third-largest retail sector, with a high share of online sales (24.1 % according to the retail association, HDE/IFH 2022\_ENREF\_32). It comprises many omnichannel firms whose systematic selection allows us to avoid individually selected or firm-specific insights. Moreover, this sector is not highly concentrated. More than 25 firms account for 45 % of sales, and the omnichannel context is important for the consumer journey (while one dominant electronic retailer accounts for 38 % of sale). The leading retailers have CX as their primary goal (H&M 2023; Zara 2023, p.5) when targeting consumers with typical purchase periods of <40 days (Hult et al. 2019)\_ENREF\_58. These are not representative of the majority of brick-and-mortar stores in the fashion sector, which are often still family-owned, but they are omnichannel, face the challenges of CX reciprocity, and avoid single-company results.

We considered the requirements of longitudinal modeling in the sampling procedures (see Web Appendix B) and conducted several pretests. First, we identified the fifteen top-selling retailers, as these retailers are likely to be frequented for purchases. We then selected eleven firms with integrated omnichannel structures (Planet Retail 2021; ensuring integrated information, etc., Oh et al. 2012). Second, we selected the eight most frequented firms on the basis of purchase experience data collected in a pretest (N=50, at respondents' homes, on the basis of quota sampling, as in the main study). We excluded two firms because of their broad assortment beyond fashion articles, and we accounted for construct equivalence by making semantic adjustments (e.g., due to translated/back-translated scales). Third, we conducted another pretest to ensure that we captured consumers' regular online and offline purchase experiences (using face-to-face interviews and a quota sample according to gender and age, N = 180). This test allowed us to maintain the preselected retailers and test the scales for the CX dimension by Nambisan and Watt (2011) and Gahler et al. (2023) in our context, reflecting their reliability and validity.[2] The six selected firms leverage the focal omnichannel context.

Our main study was based on quota sampling following the national distribution of gender and age for 600 individuals (based on official data on online shopping experience and restricted to the age of 55 years; see Table 2). We recruited 750 regular omnichannel fashion shoppers from an existing consumer panel. Following the quotas in the initial screening phase,  $t_0$ , contact was established by phone and e-mail and continued until 620 individuals

	Realized quota (%)			Planned quota (%)		
	Male	Female	Total	Male	Female	Total
Age 18-30	16.8	16.8	33.6	16.6	16.6	33.3
Age 31-43	17.4	16.5	33.9	16.6	16.6	33.3
Age 44-55	15.9	16.6	32.5	16.6	16.6	33.3
Total	50.1	49.9	528	50.0	50.0	576

Tab. 2: Sample

agreed to participate in the three waves of the survey (due to power considerations, Wang and Rhemtulla 2021). While providing general information about the survey, we asked them about their previous buying experiences and their sociodemographic characteristics, among other things. Each participant had to have previous online and offline shopping experience with at least one of the selected retailers. To reduce possible biases, such as top-of-mind selection, in alteration, the first or second retailer mentioned by each respondent who met our preselection was randomly selected for evaluation in all three waves. The surveys were conducted 4–5 months apart over a period of 10–11 months via standardized questionnaires at the respondents' homes by trained interviewers (to reduce nonresponse bias and increase data quality compared with web surveys). We used a low-priced coupon lottery as an incentive (McGovern et al. 2018). Prior to each wave, the respondents again had to have made online and offline purchases from their selected retailer to ensure that they had relevant access. While all individuals initially met our requirements, 23 and then 34 individuals were eliminated before the subsequent waves (563 respondents remain; the elimination did not lead to any distortion of the quota groups and thus to any over- or underrepresentation of age and gender). To ensure the stability of the within-person variance for each respondent, the mean values of a self-assessment construct were used. After eleven outliers and 24 Mahalanobis distance-based outliers were eliminated, 528 observations remained in each wave (compared with our plan, the 44–55 (31–43) age group was slightly underrepresented (overrepresented)). We used robust maximum likelihood estimators for hypothesis testing because our data were not normally distributed (Maydeu-Olivares 2017).

### 3.2. Measurement

Referring to the literature, we used Likert-type scales (ranging from 7 = strongly agree to 1 = strongly disagree; see Table 3) and measured all the constructs in each of the three waves.

The CX dimensions were (finally) measured according to Nambisan and Watt (2011), Stein and Ramaseshan (2019), and Gahler et al. (2023). The cognitive CX dimension was measured with the following items: How helpful, informative/instructive, useful, and worthwhile were the insights of this CX with [retailer]? The affective CX dimension included items on enjoyable feelings, emotional happiness, entertainment, the mood of the CX,

the social CX dimension of friendly connectiveness, and communal and personal CX with [retailer].

Consumer loyalty was measured with three items (Brakus et al. 2009; Oliver 1999): I consider myself loyal to [retailer]. [Retailer] would be my first choice. I will not buy elsewhere if [retailer] is available to me. I intend to continue to shop at [retailer]. WoM was captured by two items (Gahler et al. 2023; Fuentes-Blasco et al. 2017; Swan and Oliver 1989): I recommend [retailer] to my family/friends. If my family/friends ask my advice, I tell them to go to [retailer].

We used covariates because loyalty and WoM may be influenced by gender, age (0/1 = male/female, Hult et al. 2019) and internet expertise, as experienced consumers may place less value on CX (we question the respective extents, Swoboda and Winters 2021).

Measurement reliability was ensured at each of the time points, as was convergent and construct validity (see Table 3). We ensured discriminant validity and satisfactory fit values (Hair et al. 2018, p. 93; see Tables 4–5).

Common method variance (CMV) was ensured with an appropriate questionnaire design (at all points in time) and with single-factor and marker variable tests (using the three item constructs of self-efficacy; see Web Appendix C).

### 3.3. Method

To ensure comparability over time, we test for measurement invariance (Van de Schoot et al. 2012). We found a good fit and partial metric invariance (see Web Appendix F).

We tested for endogeneity using instrumental variables (IVs) to reveal biases among the omitted variables (Antonakis et al. 2014). Perceived store usefulness (three items), hedonic shopping motivation (two items), and social influence (three items) were measured in the screening phase (Gao et al. 2019; Han et al. 2020; Stein and Ramaseshan 2019). These IVs are theoretically suitable for the CX dimensions (useful store aspects such as information, products, prices are drivers of the cognitive CX dimension; hedonic shopping motivation refers to behavior related to fun, amusement; social aspects of CX refer to the influence of other consumers and social identities in consumers' minds (Gao et al. 2021a; Tyrväinen et al. 2020). F tests revealed that these IVs were strong predictors (see Web Appendix D, Hair et al. 2018, p. 390). Due to the Hausman (1978)-Test the exogeneity of the inde-

Construct	MV/Std	FL	KMO	ItTC	$\alpha$
<b>Time point one</b>					
<b>Cognitive CX Dimension</b>					
How helpful was this experience (with [retailer])?	5.10/1.01	.802	.817	.746	.887
How informative was this experience (with [retailer])?	4.94/1.13	.768		.713	
How useful was the learning from this experience (with [retailer])?	5.22/1.07	.895		.818	
How worthwhile were the insights from this experience (with [retailer])?	5.18/1.19	.794		.733	
<b>Affective CX Dimension</b>					
How much enjoyment did you feel during this experience (with [retailer])?	4.96/1.09	.776	.689	.691	.844
How happy was this experience (with [retailer])?	5.36/1.10	.766		.588	
How entertaining was this experience (with [retailer])?	4.18/1.39	.761		.698	
Did this experience (with [retailer]) put you in a fun mood?	4.28/1.46	.833		.752	
<b>Social CX Dimension</b>					
How friendly and connected was this experience (with [retailer])?	4.91/1.17	.719	.676	.540	.770
How communal was this experience (with [retailer])?	3.73/1.44	.721		.613	
How personal was the relationship experience (with [retailer])?	3.96/1.42	.848		.672	
<b>Loyalty</b>					
I consider myself loyal to [retailer].	4.46/1.58	.847	.804	.768	.868
[Retailer] would be my first choice.	4.24/1.72	.916		.820	
I will not buy elsewhere if [retailer] is available to me.	5.27/1.28	.719		.659	
I intend to continue to shop with [retailer].	3.54/1.77	.782		.641	
<b>WoM</b>					
I recommend [retailer] to my family/friends.	5.29/1.33	.937	.500	.879	.936
If my family/friends ask my advice, I tell them to go to this [retailer].	5.14/1.39	.937		.879	
<b>Time point two</b>					
<b>Cognitive CX Dimension</b>					
How helpful was this experience (with [retailer])?	4.94/1.12	.825	.822	.774	.902
How informative/learnfull was this experience (with [retailer])?	4.82/1.16	.779		.735	
How useful was this experience (with [retailer])?	5.03/1.12	.918		.847	
How worthwhile were the insights in this experience (with [retailer])?	5.02/1.18	.818		.763	
<b>Affective CX Dimension</b>					
How enjoyable did you feel during this experience (with [retailer])?	4.88/1.18	.823	.755	.767	.900
How emotional happy was this experience (with [retailer])?	5.17/1.20	.790		.735	
How entertaining was this experience (with [retailer])?	4.13/1.38	.842		.793	
Did this experience (with [retailer]) put you in a mood of fun?	4.16/1.47	.873		.816	
<b>Social CX Dimension</b>					
How friendly, connected was this experience (with [retailer])?	4.81/1.18	.787	.705	.629	.835
How communal was this experience (with [retailer])?	3.91/1.39	.832		.729	
How personal was the relationship experience (with [retailer])?	3.97/1.41	.865		.747	
<b>Loyalty</b>					
I consider myself loyal to [retailer].	4.52/1.56	.883	.806	.815	.885
[Retailer] would be my first choice.	4.33/1.59	.932		.845	
I will not buy elsewhere if [retailer] is available to me	5.19/1.21	.809		.659	
I intend to continue to shop with [retailer].	3.75/1.76	.831		.693	
<b>WoM</b>					
I recommend [retailer] to my family/friends.	5.12/1.35	.961	.500	.924	.960
If my family/friends ask my advice, I tell them to go to this [retailer].	5.03/1.41	.961		.924	

Tab. 3: Reliability and Validity (Explorative)

		Time point three				
<b>Cognitive CX Dimension</b>						
How helpful was this experience (with [retailer])?		5.07/1.02	.879	.834	.833	.921
How informative/learnfull was this experience (with [retailer])?		4.88/1.12	.811		.773	
How useful was this experience (with [retailer])?		5.11/1.07	.907		.855	
How worthwhile were the insights in this experience (with [retailer])?		5.09/1.08	.854		.807	
<b>Affective CX Dimension</b>						
How enjoyable did you feel during this experience (with [retailer])?		4.94/1.14	.873	.773	.820	.908
How emotional happy was this experience (with [retailer])?		5.15/1.15	.854		.711	
How entertaining was this experience (with [retailer])?		4.45/1.31	.865		.814	
Did this experience (with [retailer]) put you in a mood of fun?		4.47/1.34	.885		.830	
<b>Social CX Dimension</b>						
How friendly, connected was this experience (with [retailer])?		4.82/1.20	.793	.699	.659	.873
How communal was this experience (with [retailer])?		4.08/1.39	.906		.813	
How personal was the relationship experience (with [retailer])?		4.13/1.39	.914		.818	
<b>Loyalty</b>						
I consider myself loyal to [retailer].		4.55/1.53	.909	.817	.835	.891
[Retailer] would be my first choice.		4.35/1.56	.926		.851	
I will not buy elsewhere if [retailer] is available to me		5.09/1.25	.797		.655	
I intend to continue to shop with [retailer].		3.81/1.74	.752		.712	
<b>WoM</b>						
I recommend [retailer] to my family/friends.		5.13/1.34	.962	.500	.926	.962
If my family/friends ask my advice, I tell them to go to this [retailer].		5.02/1.36	.962		.926	

Notes:  $\alpha$  = Cronbach's Alpha  $\geq .7$ ; FL = Exploratory Factor Loadings; ItTC = Item to Total Correlation; KMO = Kaiser Meyer Olkin-criterion; MV = Mean value; Std. = Standard Deviation.

Tab. 3: (continued)

Construct	Item	Time points		One		Two		Three	
		CR	$\lambda$	CR	$\lambda$	CR	$\lambda$	CR	$\lambda$
Cognitive CX Dimension	CCX1		.816		.816		.814		.864
	CCX2	.905	.765	.905	.763	.891	.790	.890	.806
	CCX3		.875		.874		.901	.900	.900
Affective CX Dimension	CCX4		.801		.802		.834	.836	.877
	ACX1		.721		.742		.763	.773	.785
	ACX2	.844	.674	.842	.675	.876	.744	.748	.762
Social CX Dimension	ACX3		.802		.774		.862	.874	.895
	ACX4		.851		.823		.851	.884	.924
	SCX1		.698		.712		.753	.759	.778
Loyalty	SCX2	.762	.649	.761	.634	.774	.769	.771	.803
	SCX3		.798		.787		.863	.861	.898
	LOY1		.851				.877		.891
WoM	LOY2	.873	.875			.890	.912		.907
	LOY3		.722				.747		.703
	LOY4		.716				.742		.736
WoM	WoM1			.867	.948			.909	.961
	WoM2				.928			.959	

## Confirmatory model fits:

Times point, one (Loyalty): CFI .893, RMSEA .096, SCF 1.12, SRMR .067, TLI .865,  $\chi^2(86) = 523.349$ . Times point, two: CFI .912, RMSEA .102, SCF 1.07, SRMR .054, TLI .893,  $\chi^2(86) = 544.331$ . Times point, three: CFI .924, RMSEA .098, SCF 1.15, SRMR .062, TLI .907,  $\chi^2(86) = 520.245$ . Time points, one (WoM): CFI .886, RMSEA .110, SCF 1.16, SRMR .066, TLI .856,  $\chi^2(61) = 462.256$ . Time points, two: CFI .923, RMSEA .105, SCF 1.09, SRMR .051, TLI .902,  $\chi^2(61) = 448.632$ . Time points, three: CFI .930, RMSEA .106, SCF 1.17, SRMR .062, TLI .907,  $\chi^2(61) = 429.423$ .

Notes:  $\lambda$  = Standardized factor loadings ( $\geq .5$ ); CR = Composite reliability ( $\geq .6$ ).

Tab. 4: Reliability and Validity (Confirmatory)

Constructs	Time points				One				Two				Three			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1 Cognitive CX	<b>.768</b>					<b>.739</b>							<b>.790</b>			
2 Affective CX	.403	<b>.692</b>				.483	<b>.737</b>						.571	<b>.779</b>		
3 Social CX	.283	.541	<b>.604</b>			.359	.529	<b>.620</b>					.432	.598	<b>.689</b>	
4 Loyalty	.292	.203	.282	<b>.607</b>		.338	.332	.278	<b>.638</b>		.319	.387	.264		<b>.634</b>	
1 Cognitive CX	<b>.769</b>					<b>.740</b>							<b>.790</b>			
2 Affective CX	.406	<b>.682</b>				.484	<b>.739</b>						.574	<b>.780</b>		
3 Social CX	.283	.542	<b>.603</b>			.359	.529	<b>.617</b>					.432	.599	<b>.664</b>	
4 WoM	.281	.278	.213	<b>.822</b>		.318	.331	.239	<b>.875</b>		.316	.380	.272		<b>.885</b>	

Notes: Bold = Average Variance Extracted.(Fornell/Larcker  $\geq .5$ ); Italics = Squared correlations.

Tab. 5: Discriminant Validity

pendent variables is supported (the consistent model did not differ significantly from the efficient models).

We performed cross-lagged structural equation modeling (SEM) using Mplus 8 (because the CLPM is most commonly used for testing reciprocity). This approach is based on two assumptions (a variable  $X_t$  can be predicted by  $X_{t-1}$ , and  $X_t$  is also cross-lagged by  $Y_{t-1}$  or  $Z_{t-1}$  and vice versa) and facilitates the study of reciprocal effects (e.g., Swoboda et al. 2021; Zyphur et al. 2019; see Web Appendix E). All goodness-of-fit values were satisfactory (Model Loyalty: CFI. 858, RMSEA. 067, SCF .88, SRMR. 084, TLI. 850,  $\chi^2(1325) = 4488.808$ ; Model WoM: CFI .860, RMSEA. 073, SCF .87, SRMR .079, TLI .851;  $\chi^2(1026) = 3903.926$ ). We also conducted several stability checks.

### 3.4. Results

The results obtained via standardized coefficients and t-difference tests are presented in Table 6.

In support of H1a-b, the cognitive CX dimension reciprocally interacts with the affective and social CX dimensions in both models (e.g., in Model 1 for the first two waves  $\beta_{1-2} = .124$ ,  $p < .001$ ,  $\beta_{1-2} = .068$ ,  $p < .001$  and  $\beta_{1-2} = .116$ ,  $p < .001$ ,  $\beta_{1-2} = .071$ ,  $p < .001$ ). Additionally, H1c is supported, as the affective and social CX dimensions interact with one another in both models (e.g., for the first two waves in Model 1,  $\beta_{1-2} = .120$ ,  $p < .001$ ,  $\beta_{1-2} = .189$ ,  $p < .001$ , and in Model 2,  $\beta_{1-2} = .136$ ,  $p < .001$ ,  $\beta_{2-3} = .198$ ,  $p < .001$ ). Most importantly, the cognitive CX dimension more strongly affects the affective and social CX dimensions than vice versa in both models, as the difference tests support H1d (e.g., for the second and third waves in Model 1,  $t_{2-3} = 2.439$ ,  $p < .05$ ,  $t_{2-3} = 2.073$ ,  $p < .05$ , and in Model 2,  $t_{2-3} = 2.471$ ,  $p < .05$ ,  $t_{2-3} = 2.145$ ,  $p < .05$ ).

With respect to loyalty, the total reciprocal effects of the cognitive and affective CX dimensions on loyalty are significant ( $\beta = .133$ ,  $p < .001$  and  $\beta = .075$ ,  $p < .05$ ), in support of H1a-b, whereas the social CX dimension does

not significantly affect loyalty, rejecting H2c ( $\beta = .050$ , ns). However, the cognitive CX dimension has the strongest effect (compared with the affective dimension  $t_{C-ACX} = 4.768$ ,  $p < .01$  and the social dimension  $t_{S-CCX} = 9.584$ ,  $p < .01$ ), which supports H1d. Moreover, the affective CX dimension is stronger than the social CX dimension is ( $t_{A-SCX} = 2.055$ ,  $p < .05$ ). We discuss this later.

Regarding WoM, the total effects of the affective and cognitive CX dimensions and social CX on WoM are significant, whereas the effect of the social CX dimension is insignificant ( $\beta = .077$ ,  $p < .05$ ,  $\beta = .132$ ,  $p < .001$ ,  $\beta = .047$ , ns), supporting H3a-b and rejecting H3c. As hypothesized in H3d, the effects of the affective CX dimension are stronger than those of the cognitive and social CX dimensions are ( $t_{C-ACX} = 6.621$ ,  $p < .01$  and  $t_{A-SCX} = 10.384$ ,  $p < .01$ ). Moreover, the cognitive CX dimension is stronger than the social CX dimension ( $t_{S-CCX} = 2.572$ ,  $p < .01$ ).

### 3.5. Stability Checks

Robustness checks strengthened our observations.

First, a randomly split half-sample test showed identical results (see Web Appendix G).

Second, we test the reciprocal effect in models that omit CX dimensions to determine whether the results are stable (for all further tests, see Web Appendix H). The models with the cognitive and affective CX dimensions show differences (weaker differences for loyalty  $\beta = .143$ ,  $p < .001$  vs.  $\beta = .097$ ,  $p < .01$ ,  $t = 3.147$ ,  $p < .01$ ; insignificance of cognitive CX on WoM  $\beta = .068$ , ns vs.  $\beta = .184$ ,  $p < .001$ ,  $t = 7.141$ ,  $p < .01$ ). The models with cognitive and social CX dimensions show significant results for the latter and a dominance of the cognitive CX dimension for WoM (loyalty  $\beta = .151$ ,  $p < .001$  vs.  $\beta = .074$ ,  $p < .05$ ,  $t = 5.874$ ,  $p < .01$ ; WoM  $\beta = .124$ ,  $p < .001$  vs.  $\beta = .085$ ,  $p < .05$ ,  $t = 2.497$ ,  $p < .01$ ). The models with the affective and social CX dimensions show significant results for affective CX and insignificant results for social CX in both decisions. We also test

	Model 1: Loyalty		Model 2: WoM	
	$\beta/p$	Difference tests	$\beta/p$	Difference tests
<b>Direct effects</b>				
Cognitive CX (1)→Affective CX (2)	.124***	t = 2.556*	.135***	t = 2.619*
Affective CX (1)→Cognitive CX (2)	.068***		.070***	
Cognitive CX (1)→Social CX (2)	.116***	t = 2.250*	.127***	t = 2.382*
Social CX (1)→Cognitive CX (2)	.071***		.074***	
Affective CX (1)→Social CX (2)	.120**	t = 3.356**	.136**	t = 3.081**
Social CX (1)→Affective CX (2)	.186***		.198***	
Cognitive CX (1)→Dependend Variable (2)	.096**		.052†.079	
Affective CX (1)→Dependend Variable (2)	.059†.079		.128***	
Social CX (1)→Dependend Variable (2)	.046ns		.054ns	
Cognitive CX (1)→Cognitive CX (2)	.551***		.546***	
Affective CX (1)→Affective CX (2)	.421***		.389***	
Social CX (1)→Social CX (2)	.412***		.389***	
Dependend Variable (1)→Dependend Variable (2)	.633***		.562***	
Cognitive CX (2)→Affective CX (3)	.135***	t = 2.439*	.147***	t = 2.471*
Affective CX (2)→Cognitive CX (3)	.076***		.080***	
Cognitive CX (2)→Social CX (3)	.119***	t = 2.073*	.130***	t = 2.145*
Social CX (2)→Cognitive CX (3)	.081***		.084***	
Affective CX (2)→Social CX (3)	.165***	t = 3.246**	.182***	t = 3.127**
Social CX (2)→Affective CX (3)	.134***		.145***	
Cognitive CX (2)→Dependend Variable (3)	.109**		.058†.078	
Affective CX (2)→Dependend Variable (3)	.067†.078		.147***	
Social CX (2)→Dependend Variable (3)	-.004ns		-.049ns	
Cognitive CX (2)→Cognitive CX (3)	.603***		.596***	
Affective CX (2)→Affective CX (3)	.466***		.441***	
Social CX (2)→Social CX (3)	.436***		.414***	
Dependend Variable (2)→Dependend Variable (3)	.674***		.604***	
R <sup>2</sup> Dependend Variable (3)	.601***		.494***	
<b>Indirect Effects</b>				
Cognitive CX (1)→Cognitive CX (2)→Dependend Variable (3)	.060**		.032†.085	
Cognitive CX (1)→Affective CX (2)→Dependend Variable (3)	.008†.091		.020**	
Cognitive CX (1)→Social CX (2)→Dependend Variable (3)	.000ns		-.006ns	
Cognitive CX (1)→Dependend Var. (2)→Dependend Variable (3)	.065**		.031†.072	
Affective CX (1)→Affective CX (2)→Dependend Variable (3)	.028†.085		.057**	
Affective CX (1)→Cognitive CX (2)→Dependend Variable (3)	.007**		.004†.098	
Affective CX (1)→Social CX (2)→Dependend Variable (3)	.000ns		-.007ns	
Affective CX (1)→Dependend Var. (2)→Dependend Variable (3)	.040†.076		.077***	
Social CX (1)→Social CX (2)→Dependend Variable (3)	-.002ns		-.019ns	
Social CX (1)→Cognitive CX (2)→Dependend Variable (3)	.008**		.004†.099	
Social CX (1)→Affective CX (2)→Dependend Variable (3)	.013ns		.029**	
Social CX (1)→Dependend Var. (2)→Dependend Variable (3)	.031ns		.033ns	
<b>Total effects</b>				
Cognitive CX (1)→Dependend Variable (3)	.133***	tC-ACX = 4.768**	.077*	tC-ACX = 6.621**
Affective CX (1)→Dependend Variable (3)	.075*	tA-SCX = 2.055*	.132***	tA-SCX = 10.384*
Social CX (1)→Dependend Variable (3)	.050ns	tS-CCX = 9.584**	.047ns	tS-CCX = 2.572**

Notes: (1–3) = Time points, ns = not significant; †p < .10; \*p < .05; \*\*p < .01; \*\*\*p < .001.

Tab. 6: Results

**Covariates**

Gender (1)→Dependend Variable (1)	-.003ns	-.004ns
Gender (2)→Dependend Variable (2)	-.003ns	-.004ns
Gender (3)→Dependend Variable (3)	-.011ns	-.015ns
Age (1)→Dependend Variable (1)	.018ns	.025ns
Age (2)→Dependend Variable (2)	.018ns	.024ns
Age (3)→Dependend Variable (3)	.019ns	.025ns
Internet expertise (1)→Dependend Variable (1)	.016ns	.008ns
Internet expertise (2)→Dependend Variable (2)	.015ns	.008ns
Internet expertise (3)→Dependend Variable (3)	.015ns	.007ns

*Structural model fits:*Model Loyalty: CFI .858, RMSEA .067, SCF .88, SRMR .084, TLI .850,  $\chi^2(1325) = 4488.808$ .Model WoM: CFI .860, RMSEA .073, SCF .87, SRMR .079, TLI .851;  $\chi^2(1026) = 3903.926$ .*Notes:* (1–3) = Time points, ns = not significant; † $p < .10$ ; \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

Tab. 6: (continued)

the effects of the overall CX without gaining further insights. The results are charged if single dimensions are omitted.

Third, we test the nonreciprocal effect, i.e., treat the cognitive, affective, and social CX dimensions as unconnected, independent variables. We conduct a second cross-sectional study by referring to the same omnichannel firms using the same measurements and methods for different respondent data ( $n = 386$ ). For *loyalty*, the cognitive, affective, and social CX dimensions are significant; moreover, the cognitive and affective CX dimensions have equally strong total effects, whereas the social CX dimension is significantly weaker. For *WoM*, the affective CX dimension remained the strongest dimension, but minor significant effects were also found for the social CX dimension. Omitting reciprocity changed the insights. We discuss this below.

## 4. Discussion

Scholars have recommended that research should move beyond an overall view of CX or of CX dimensions as unconnected, independent variables (e.g., Rahman et al. 2022). We have acted on these recommendations, providing two contributions to the literature: we look at the reciprocity of major CX dimensions, and we explore the effects of reciprocally linked CX dimensions on two different behavioral outcomes. This is important in retailing because the cognitive, affective, and social mental responses linked to consumers' memories may be useful in some decisions but not in others. Below, we carefully delineate implications for theory and practice.

### 4.1. Contribution to Theory

With respect to *research question one*, this study revealed that reciprocal relationships exist among the three major CX dimensions and that the cognitive dimension is the most important. These insights extend the usual views on CX dimensions and expand our theoretical

knowledge. Consumers categorize CX dimensions into a retailer category and reciprocally transfer knowledge among them, as indicated for these three dimensions. Consumers structure their knowledge on different hierarchical levels. The perception of a retailer at the superordinate level is divided in the consumer's mind, whereby each dimension can be perceived separately and matched with the expectations of the retailer and transmitted to the knowledge about the other dimensions. The cognitive CX dimension most strongly affects the other dimensions in all loyalty and WoM models in this study (e.g., clarifying earlier assumptions, Rose et al. 2012). The reciprocal links of the affective and social CX dimensions change at both points in time, which future research may address (Liu-Thompson et al. 2022). Further analysis of our theoretical mechanisms is critical, i.e., reciprocity through drawn inferences among the CX dimensions, as category members, and through matches of perceived attributes with further category members (Loken 2006; Mervis and Rosch 1981; Rahman et al. 2022). Interestingly, these findings lead to the question of what omnichannel retailers should do, e.g., addressing the dominant cognitive CX dimension or the respective attributes of this dimension (De Keyser et al. 2020). Such analysis would shed further light on the mechanisms behind the role of the cognitive and other CX dimensions for a specific seamless experience through the consumer journey in omnichannel retailing.

Regarding *research question two*, the results on the reciprocal effects of the CX dimensions support our theoretical rationale, i.e., the cognitive, affective, and social CX dimensions differently affect different behavioral outcomes. We highlight two contributions to the literature.

First, we extend previous studies, most of which have conceptualized two, seldom more CX dimensions as unconnected independent variables, and respond to respective calls for CX as a multidimensional construct of linked dimensions (e.g., Lemon and Verhoef 2016). We provide novel theoretical rationales for the reciprocal ef-

fects of three CX dimensions and underline the importance of their shared, overlapping mechanisms (for two dimensions in second stability checks). The results support our rationale that the cognitive CX dimension reciprocally most strongly affects *consumer loyalty* and that the affective CX dimension reciprocally most strongly affects *consumer WoM*. This may clarify inconclusive insights into cognitive and affective experiences (Barari et al. 2020; Tyrväinen et al. 2020) and extend the mixed results for overall CX concerning loyalty vs. WoM (Rahman et al. 2022; Roy 2018). The theoretical contributions are obvious.

- *Loyalty decisions* are characterized by long-term evaluations among category members, and we provide theoretical rationales in which evaluations are mainly based on expertise among category members (Fiske 1982). Individuals rely strongly on extant information and values to draw inferences when making judgments (Bleier et al. 2019). The affective CX dimension has a reciprocally weaker effect on loyalty; the social CX dimension shows weaker inferences to category members and affects loyalty only indirectly.
- *Consumer WoM*, a short-term, spontaneous decision, is characterized by rather ad hoc category inferences that show different effects from the CX dimensions (Berger 2014; Fiske et al. 1987). We have provided respective theoretical rationales and shown the strongest effects of the affective CX dimension, which is strongly affected by cognitive experience. As mentioned, this contributes to inconclusive insights (Barari et al. 2020; Tyrväinen et al. 2020). The cognitive CX dimension has a weaker total effect, whereas the social CX dimension has only an indirect effect.

Second, reciprocity may alter extant insights, as nonreciprocal studies may overestimate or underestimate the effects of CX dimensions. Our second stability check underlines the danger of ensuring the validity of the results if the cognitive CX dimension is not reciprocally conceptualized or is omitted (e.g., Roy et al. 2022). Our third stability check on the nonreciprocal effect provides new insights. For *loyalty*, the total effects of the cognitive and affective CX dimensions are equally strong, and those of the social CX dimension are significant. For *WoM*, affective experience remains the strongest dimension, but there are also significant effects of social experience. Nonreciprocal studies may not sufficiently account for the inferences among category members (Swoboda and Winters 2021) or the shared attributes of the CX dimensions. Studies that are unable to conceptualize reciprocal effects may address any possible omitted overlapping or combined effects of CX dimensions that are shown in reciprocal analysis. Future research may reciprocally study the role of more than three CX dimensions in omnichannel retailing or only online retailing, which the model complexity and current statistical limitations made impossible for us to address in this study.

## 4.2. Practical Relevance

For managers, we underline the importance of reciprocity and the different effects of major CX dimensions on the coordination of subjective consumer responses when shopping at omnichannel retailers. Unnoticed reciprocity may lead to misinterpretations of market analysis, limited conclusions, or even ineffective activities. Managers can benefit from understanding the interdependent effects of the CX dimensions in a circular relationship that affects shoppers' responses and likely business performance, especially in an omnichannel context that is mentally complex for consumers (Pekovic and Rolland 2020; Rahman et al. 2022).

Our results on the reciprocity of the cognitive, affective, and social CX dimensions are relevant for retailers striving for overall CX, such as Zara or H&M, and those striving for the cognitive and affective CX dimensions, such as Nike and Sephora. This provides a deeper understanding of what CX dimensions should be prioritized to increase a seamless experience. All the dimensions are reciprocally linked, but the cognitive CX dimension largely determines the affective and social dimensions and occupies a central position because it benefits less from the latter two dimensions. The affective and social CX dimensions are mutually dependent.

Moreover, our results show that the CX dimensions differentially impact two outcomes that are important for cognitive and affective experiences. Here, the cognitive CX dimension reciprocally affects the affective and social dimensions the most. More importantly, prioritizing the strongest effect supports a firm's obvious long-term or short-term goals, i.e., the cognitive or affective CX dimensions, to retain consumers or to increase referral marketing. Managers should therefore link their own consumer goals with the reciprocal effects of the CX dimensions from a consumer's perspective.

## 5. Limitations and Further Research

This study is not without limitations. Here, we highlight three of them.

Although we have carefully collected *data*, broader data will allow additional implications, for example, for other service industries, smaller firms, differently preselected omnichannel firms, or specific contexts such as cross-national e-commerce (Swoboda and Müller 2022). Our longitudinal design has improved external validity, but research may emphasize internal validity.

With respect to the *measures*, enhancing loyalty via objective data is promising but difficult to realize in three waves (Brakus et al. 2009) and involves examining behavioral outcomes that are more closely related to transactional behavior, such as repurchase intention. Scholars may study four or six CX dimensions in the future, which we were unable to do due to the limitations men-

tioned (Gahler et al. 2023; Rahman et al. 2022), and the absence of negative emotions in our measurement is a limitation. Research can further explore consumer groups beyond experienced individuals, such as hedonic or first-time consumers (Roy 2018). We know little about whether or how in CLPM substantive consequences for parameter estimates of (within-person) reciprocal effects emerge (Usami et al. 2019).

Our *theorizing* followed cognitive theory, but it would be interesting to explain reciprocal effects with alternative theoretical foundations. The drivers of the reciprocal links among CX dimensions could be modeled (e.g., touchpoints or marketing instruments, Stein and Rama-  
seshan 2019), and the effects of CX dimensions along the consumer journey could be modeled. The latter is attractive for research, as only one study addresses different stages by suggesting prioritizing CX, for which consumers are sensitive to website speed, but not conceptualizing or measuring CX at the stages Gallino et al. (2023). Evaluating moderators, such as motives or prior shopping experiences, is always attractive for marketers (Massi et al. 2023).

## Notes

- [1] A systematic literature review was performed in more than 21 journals following Harzing's recent journal quality list and focused on studies published in 2000 or later with respective cross-citations. The keywords used were cognitive or affective or social CX dimensions, CX effects, design, management, etc. (see Web Appendix A for detailed insights into the studies; available at <https://shorturl.at/TRoYI>).
- [2] A literature review was used to select measurements. For various reasons, the methods of Nambisan and Watt (2011) and Stein and Rama-  
seshan (2019) were chosen for a pretest of the CX dimensions. One item for each of the cognitive and affective CX dimensions ("relevance, pleasure") was excluded because of unsatisfactory factor loadings (identical to Nambisan and Watt 2011); two social CX dimensions were also excluded, which Nambisan and Watt (2011) also excluded in their final measure. The contents of our scales largely correspond to those of Gahler et al. (2023); only the cognitive item "curiosity" is missing.

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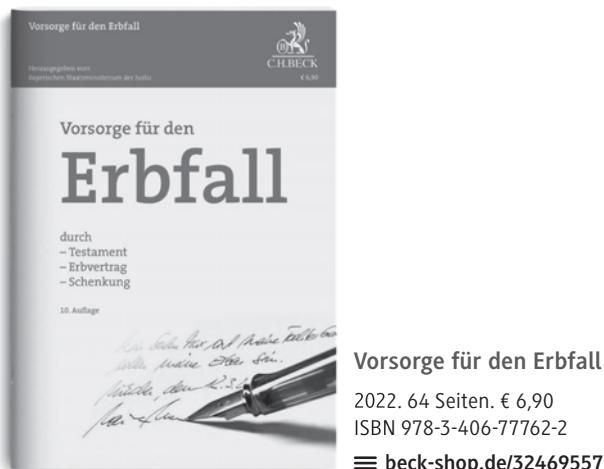
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### Keywords

Customer experience dimensions, Loyalty, Omnichannel, Reciprocity, Word-of-mouth