

The CX Scale: Towards a Holistic Measurement of Customer Experiences along the Customer Journey

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Introduction

While providing superior customer experiences along the customer journey has become a strategic priority for practitioners and researchers alike (MSI 2016), surprisingly little is known how to actually measure the customer experience (CX). This lack of empirical knowledge about the CX construct is mirrored in companies' continuing struggle to manage CX along the customer journey (Bain & Company 2015).

Today's customers interact with different experience providers (e.g., brand, personnel, other customers) through various touchpoints (e.g., advertisement, online shop, store) during all customer journey stages (i.e., pre-purchase, purchase, post-purchase). This holistic character illustrates the inherent complexity of the experience construct. In fact, capturing the holistic character of the CX construct represents the key challenge for the measurement of CX along the customer journey (Lemon & Verhoef, 2016).

Even though existing research conceptually acknowledges CX as a subjective, co-created, and holistic construct that covers multiple dimensions (e.g., De Keyser, Lemon, Klaus, & Keiningham, 2015; Lemon & Verhoef, 2016; Schmitt, 2011), empirical work is scarce and fragmented. Existing studies specifically neglect the holistic concept and focus on specific parts of the experience instead. This, for example, includes research on brands (e.g., Brakus, Schmitt, & Zarantonello, 2009), online environments (e.g., Novak, Hoffman, & Yung, 2000), or services (e.g., Verleye, 2015). As these scales focus on one specific part of the experience, they cannot be applied to different experience providers and different stages of the customer journey. Thus, existing measures do not satisfy researchers and companies need for a holistic measure of CX.

We address this shortcoming by developing a scale that holistically measures CX throughout the entire customer journey. Specifically, we answer the research question: How to measure CX throughout the customer journey as a multi-dimensional construct, while accounting for all customer journey elements (i.e., experience providers, touchpoints, journey stages)? Thereby, our research directly responds to calls for more research on customer experiences in general and for research that provides a holistic measurement of the CX construct in particular (MSI, 2016; Lemon & Verhoef, 2016).

Our contribution is threefold. First, we provide a profound conceptualization of the multifaceted CX construct by unveiling six distinct dimensions: affective, cognitive, sensorial, physical, relational, and symbolic. Our conceptualization of CX dimensions can be used to categorize and reconcile the currently fragmented research on customer experiences.

Second, we develop a scale that holistically measures CX throughout the entire customer journey and advances existing research that focuses only on specific parts of the experience. Specifically, our scale lives up to the complexity of the CX construct in today's customer journey environment and provides a profound measure for further research in this growing research stream.

Third, as we account for the different elements of the customer journey, our scale can be used (i) to measure overall experiences as well as (ii) to aggregate single CXs to an overall CX measure by the use of customer-specific weights. Thus, our research directly contributes to the development of robust key performance metrics for overall and individual experiences.

In summary, we provide a conceptualization and a holistic measurement of CX that accounts for the distinct customer journey elements (i.e., experience providers,

touchpoints, journey stages). Specifically, our CX scale enables companies to include CX as a key metric in their marketing dashboards.

Customer experience concept

CX is the subjective, co-created, and holistic perception of at least one experience provider and touchpoint during the pre-purchase, purchase, and post-purchase stages (De Keyser et al., 2015, Lemon & Verhoef, 2016; Schmitt, 2011). A touchpoint (e.g., advertisement, online shop, store) is a physical or virtual medium through which a customer and at least one experience provider (e.g., brand, personnel, other customers) interact.

We conducted a comprehensive literature review of CX and related literature and identified six relevant dimensions: affective (i.e., emotions, feelings, moods, and sentiments), cognitive (i.e., thoughts, ideas, decisions, insights, and problem solving), sensorial (i.e., sight, hearing, touch, taste, and smell), physical (i.e., body movements and behavior), relational (i.e., social relationships and joint activities) and symbolic (i.e., affirmation and expression of personality). Our literature review also revealed that some single experiences and CX dimensions tend to be more salient than others in a given situation (Ariely, 1998; Schouten, McAlexander, & Koenig, 2007). For example, the sensorial experience of an in-store purchase can be more salient than a television ad.

Scale development and validation

To develop the CX scale, we follow established scale development procedures (e.g., Churchill, 1979). Table 1 provides an overview of the steps, studies, and objectives.

INSERT TABLE 1 ABOUT HERE

Item generation and selection of items

To generate an initial set of items for the CX scale, we first reviewed research papers, business books, and practitioner reports. Second, we asked 29 students (55% female) to write down and describe a self-selected customer journey (study 1). Third, we interviewed 21 customers (57% female) about their last customer journey (study 2). To reduce the item pool, we conducted an item screening (study 3) with 18 marketing and psychology experts (67% female) and an item sorting (study 4) with 162 customers (59% female). This resulted in 72 face- and content-valid items.

Scale purification and validation

Based on the reduced pool of 72 items, 1,348 customers (52% female) evaluated a single CX with one experience provider (brand, personnel, or other customers) in one specific customer journey stage (pre-purchase, purchase, or post-purchase) in a retailing context (i.e., clothing). Additionally, study participants were asked to evaluate their CX either as eventful or uneventful and to complete items from related marketing constructs (i.e., flow, satisfaction, and word-of-mouth). We used a seven-point Likert scale for all items, anchored by 1 = “strongly disagree” and 7 = “strongly agree” (study 5).

Based on the results of study 5, we deleted 16 items due to low representativeness for their respective CX dimension (i.e., corrected item-total correlations < .60).

Subsequently, we conducted iterative confirmatory factor analyses (CFA) based on a

six-dimensional conceptualization of CX.¹ In a first step, we specified a six-factorial confirmatory model with all 56 items. The model fit indices of this initial model missed acceptable thresholds (CFI = .90; TLI = .89; RMSEA = .055; SRMR = .059). We refined the scale by deleting 15 items with low indicator reliabilities (< .50) and performed a second CFA with the remaining 41 items. To further improve the model fit, we inspected the modification indices, resulting in the deletion of 8 items that were involved in more than 15 significant modification indices (> 3.84; Arnold & Reynolds, 2003). The remaining 33 items revealed good model fit (CFA = .96; TLI = .96; RMSEA = .046; SRMR = .039). As a 33-item scale is too extensive for practical use, we selected the 3 items for each CX dimension that captured the dimensions' essence best. The CFA of the resulting 18-item scale revealed very good model fit (CFI = .99; TLI = .98; RMSEA = .033; SRMR = .035) and clearly outperformed the 33-item scale ($\Delta AIC = 65,518.99$; $\Delta BIC = 65,675.18$). All items had substantial and significant loadings on their designated factors. Cronbach's alpha, average variance extracted (AVE), and composite reliability (CR) were above recommended thresholds (Fornell & Larcker, 1981), providing evidence for convergent validity (see Table 2).

INSERT TABLE 2 ABOUT HERE

To assess the scale's dimensionality, we first tested that the squared correlation for every pair of factors was smaller than each factor's AVE (Fornell & Larcker, 1981). Second, we tested that the six-factor model has the lowest AIC and BIC compared to

¹ To find empirical support for our conceptualization, we also conducted an exploratory factor analysis (EFA) with the 56 items. The EFA revealed six factors with eigenvalues greater than 1 in line with our conceptualization.

alternative models. The results provided support for our six-dimensional conceptualization of CX.²

To further assess the content validity of the CX scale, we performed a known group comparison (Churchill, 1979). As expected, customers with eventful experiences scored significantly higher on all subscales than those who described their experience as uneventful.

To provide evidence for the nomological validity of our CX scale, we expect CX to be linked to flow, satisfaction, and word-of-mouth (Lemon & Verhoef, 2016). More specifically, we estimated a structural model relating flow directly to CX and CX directly to satisfaction and word-of-mouth (CFI = .97; TLI = .97; RMSEA = .04; SRMR = .04). As expected, positive relationships were observed ($\gamma_{CX, flow} = .750$; $\beta_{satisfaction, CX} = .871$; $\beta_{word-of-mouth, CX} = .683$; $p < .001$), explaining a significant amount of variance ($R^2 = .92$). In summary, our findings support the nomological validity of the proposed CX construct.

We are currently working on study 6 to generalize and further show the discriminant, predictive and experimental validity of our scale in a cultural and industry setting different from study 5.

Conclusion

This research entails three contributions to the body of existing literature and to management practice. First, we provide a conceptual contribution by unveiling six distinct CX dimensions: affective, cognitive, sensorial, physical, relational, and symbolic.

² $\Delta AIC_{1 \text{ factor}} = 5,618.23$; $\Delta BIC_{1 \text{ factor}} = 5,540.13$; $\Delta AIC_{2 \text{ factors}} = 4,793.35$; $\Delta BIC_{2 \text{ factors}} = 4,720.46$; $\Delta AIC_{3 \text{ factors}} = 3,342.36$; $\Delta BIC_{3 \text{ factors}} = 3,279.88$; $\Delta AIC_{4 \text{ factors}} = 1,872.49$; $\Delta BIC_{4 \text{ factors}} = 1,825.63$; $\Delta AIC_{5 \text{ factors}} = 675.53$; $\Delta BIC_{5 \text{ factors}} = 649.49$. For model fit comparisons among different scale dimensionalities, we chose the model with the highest average inter-item correlation of all potential model specifications for a certain scale dimensionality. For information about the exact model specifications, please contact the authors.

Second, we develop a scale that holistically measures CX throughout the entire customer journey. Third, accounting for the different elements of the customer journey, our scale can be used to measure overall experiences directly as well as to aggregate distinct single CX measures to an overall CX measure by the use of customer-specific weights. [The MSI financially supports our research.]

Table 1: The Scale Development Process

Step	Study	N	Objective
Item Generation	Literature review		
	Study 1: written customer experience descriptions by customers	29	Domain representation
	Study 2: in-depth interviews with customers	21	
Item Selection	Study 3: item screening by marketing and psychology experts	18	Face validity
	Study 4: item sorting by customers	162	Content validity
Scale Purification and Validation	Study 5: online survey with customers on the evaluation of customer experiences in the clothing industry	1,348	Reliability Dimensionality Convergent validity Discriminant validity Known group validity
Generalizability	Study 6: online survey with customers on the evaluation of customer experiences, customer experience correlates, and outcomes in the hospitality industry (in progress)	ca. 1,000	Discriminant validity Experimental validity Predictive validity

Table 2: Psychometric Properties of CX Scale

CX Dimension	Item No.	Factor Loading	Mean	Standard Deviation	Corr. Item-Total Correlation	Cronbach's Alpha	Composite Reliability	Average Variance Extracted	Squared Factor Correlations
Affective (A)	A08	.90	4.12	1.97	.82	.90	.90	.75	C: .17 P: .09 R: .26 S: .21 Y: .18
	A12	.84	4.26	1.94	.78				
	A16	.85	4.13	1.94	.78				
Cognitive (C)	C01	.74	3.32	1.96	.64	.82	.81	.59	A: .17 P: .06 R: .29 S: .23 Y: .22
	C17	.79	3.47	2.05	.68				
	C18	.79	3.78	1.99	.67				
Sensorial (S)	S01	.81	4.38	1.84	.74	.89	.89	.74	A: .21 C: .23 P: .18 R: .33 Y: .40
	S06	.87	3.85	1.88	.79				
	S08	.90	3.97	1.91	.82				
Physical (P)	P03	.85	3.91	2.08	.75	.84	.85	.66	A: .09 C: .06 R: .15 S: .18 Y: .10
	P04	.87	3.81	2.04	.76				
	P19	.69	4.43	1.88	.63				
Relational (R)	R19	.84	3.47	2.05	.72	.83	.83	.63	A: .26 C: .29 P: .15 S: .33 Y: .40
	R20	.83	3.69	1.99	.72				
	R22	.71	3.05	1.97	.64				
Symbolic (Y)	Y01	.81	4.91	1.71	.70	.81	.82	.61	A: .17 C: .22 P: .10 R: .40 S: .29
	Y04	.75	4.67	1.81	.64				
	Y09	.78	4.81	1.82	.68				

Notes: As the scale development is still in progress, we do not reveal the item wording here. For more information on the items, please contact the authors.

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