MEASURING CUSTOMER EXPERIENCES: A TEXT-BASED AND PICTORIAL SCALE

Markus Gahler\textsuperscript{a}, Jan F. Klein\textsuperscript{b} and Michael Paul\textsuperscript{a}
\textsuperscript{a}University of Augsburg, Germany
\textsuperscript{b}Tilburg University, The Netherlands

ABSTRACT

Providing superior customer experiences has become a strategic priority for companies. However, companies and researchers lack a measure that quantifies customer experience (CX) as a multi-dimensional construct in today’s omni-channel environment, predicts crucial outcomes (e.g., customer satisfaction and loyalty), and measures CX in an accurate but efficient way (e.g., in mobile surveys). This has led to persistent difficulties for companies to manage customer interactions. To address these drawbacks, this paper provides two reliable and valid CX scales: a text-based and a pictorial scale. While research can apply the text-based scale, the pictorial scale especially enables companies to track CX efficiently.

INTRODUCTION

Providing superior customer experiences along the customer journey has become a strategic priority for practitioners and researchers alike (MSI 2016). Acknowledging that superior customer experiences are crucial to improve important outcomes such as customer satisfaction and loyalty ratings, practitioners increasingly seek to directly measure and manage the customer experience (CX). The management of CX has especially gained relevance with the growing complexity of customer interactions in today’s omni-channel environment, where it becomes increasingly difficult to obtain a 360-degree view of their customers (Lemon and Verhoef 2016).

Extant research has mainly focused on the conceptual investigation of CX (e.g., Lemon and Verhoef 2016), with empirical studies seeking to measure CX still being scarce. In particular, both academics and practitioners lack a CX measure that (i) quantifies CX as a multi-dimensional construct for all kinds of customer-experience provider interactions in the omni-channel environment, (ii) predicts crucial marketing outcomes (i.e., customer satisfaction and loyalty), and (iii) measures CX in an accurate but efficient way (e.g., in surveys on mobile devices). The lack of a sound CX measure that fulfills all these requirements has led to persistent difficulties for the management of and research on CX (Lemon and Verhoef 2016).
While initial empirical research has advanced our understanding of measuring CX, it has addressed the CX construct in a conceptually relatively narrow and limited way. This includes a focus on specific domains of CX (e.g., brands: Brakus et al. 2009) which is in contrast to prevalent conceptual approaches of CX (e.g., Lemon and Verhoef 2016). Instead of focusing on specific domains, these conceptual approaches emphasize the idea of CX as a construct which assesses customers’ responses that can originate from an interaction with any experience provider (e.g., brand, personnel, other customers) at any touchpoint (e.g., advertisement, online shop, store) and any customer journey stage (i.e., pre-purchase, purchase, post-purchase). Moreover, from this perspective, CX is a multi-dimensional holistic construct which manifests itself in internal (e.g., cognitions) and behavioral customer responses (e.g., body movements) during the interaction with an experience provider, which is driven by antecedents (e.g., actions of an experience provider) and leads to consequences (e.g., customer satisfaction). Beyond measuring these conceptual aspects of CX rigorously, a CX measure also needs to be a strong predictor for important marketing outcomes (e.g., customer satisfaction and loyalty) and easy to implement for companies in their existing market research (e.g., surveys on mobile devices). To our knowledge, no research has so far developed a CX measurement that satisfies these requirements. To address these limitations, we develop a text-based scale and a pictorial scale to measure CX in research and managerial practice.

Our research contributions are twofold. First, we develop and validate two CX scales that quantify CX as a multi-dimensional construct for customer interactions in the omni-channel environment. Importantly, users can apply our scales to all types of customer-experience provider interactions in today’s omni-channel environment, that is, with any experience provider (brand, personnel, other customers), touchpoint (online, offline), or customer journey stage (pre-purchase, purchase, post-purchase). Prior to developing the two scales, we provide a theoretical conceptualization of CX – identifying six dimensions (i.e., affective, cognitive, sensorial, physical, relational, and symbolic) – and embed CX in a network of related marketing constructs. We show discriminant and predictive validity of our CX scales. Specifically, our CX measurement is discriminant valid compared to other experience scales (Brakus et al. 2009) and a strong predictor of customer satisfaction and loyalty. As a result, our scales can be used to advance empirical CX research and managerial practice. Companies can use the scales to evaluate various customer interactions, but also as a metric to improve satisfaction and loyalty ratings.
Second, we develop an efficient yet valid pictorial scale that captures each CX dimension in one easy to understand icon. In contrast to existing scales in marketing that commonly consist of a large number of text-based items (further referred to as items), this scale can be implemented easily in short questionnaires for company practice or in field studies (e.g., on mobile devices). Thereby, this scale addresses the need of companies and researchers to efficiently track CXs in the field. While pictorial scales are rarely used in marketing research and focus on unidimensional constructs (e.g., Ahearne et al. 2005), this paper provides a pictorial scale development that uses icons to measure a complex multi-dimensional construct. We thereby introduce a procedure to measure complex marketing constructs with easy to understand icons. In the future, this opens up opportunities to develop more pictorial scales that are especially attractive for managerial practice and field research.

CONCEPTUALIZATION OF CUSTOMER EXPERIENCE

We define CX as the customer’s individual state in the moment of the interaction with an experience provider that holistically evokes affective, cognitive, physical, relational, sensorial, and symbolic responses. Our definition follows the current consensus that has emerged in the literature (e.g., Lemon and Verhoef 2016), characterizing CX as individual and holistic. We can trace back the idea of something being holistic to Gestalt psychology, which builds on the principle of totality (e.g., Koffka 1935). According to this school of thought, each component of the human mind links to one another. As a result, individuals perceive experiences holistically by taking into account all internal (e.g., cognitions) and behavioral responses (e.g., body movements) simultaneously.

When conceptualizing and measuring CX in today’s omni-channel environment, it is essential to consider all potential customer-experience provider interactions. We define customer interaction as the customer’s individual contact with an experience provider at a certain touchpoint during a specific customer journey stage. Experience providers can be human (personnel, other customers) or humanlike interactants (brands). Touchpoints (e.g., advertisement, online shop, store) are physical or virtual media through which the customer interacts with the experience provider. A CX arises in the moment of the customer interaction and manifests itself simultaneously in multiple customer responses (e.g., emotions, cognitions, body movements).

Building on our definition of CX, the CX construct is multi-dimensional. Specifically, the CX manifests itself in various customer responses along different dimensions. To identify all relevant CX dimensions, we screened
the literature for all potential customer responses that can be evoked in the moment of a customer interaction and derived the following CX dimensions from the literature: affective (i.e., emotions, feelings, moods, and sentiments), cognitive (i.e., thoughts, ideas, insights, and learning), physical (i.e., body movements and physical actions), relational (i.e., social relation and belonging), sensorial (sight, hearing, touch, taste, and smell), and symbolic (self-affirmation and expression). In line with Gestalt psychology and experience research (e.g., Brakus et al. 2009), we propose that customer interactions with an experience provider holistically evoke all dimensions of the experience. That is, a CX is not affective or cognitive or physical etc. only, but manifests itself in all six dimensions simultaneously to different extents. But, the CX dimensions can vary in strength and valence, depending on the customer interaction.

As a moment-specific customer state, CX bridges the gap between actions of the experience provider that drive CX, and specific customer mindsets (e.g., satisfaction) and behavior (e.g., loyalty) that are the consequence of CX. Thereby, CX fills a unique position in its nomological network of antecedents and consequences that have important marketing implications for companies.

Customer interactions have different experiential attributes that companies can design and manage to influence the customer’s experience in the moment of the interaction. CX management studies (e.g., Puccinelli et al. 2009) commonly recommend providing personalized high-quality interactions in which customers are deeply absorbed to the extent that they perceive flow that should result in superior CXs. Thus, we expect the experiential attributes interaction quality, personalization, and flow to be antecedents of CX and to have a positive impact on it.

Research describes CX as a key determinant of the marketing outcomes customer satisfaction and loyalty (e.g., Brakus et al. 2009, Lemon and Verhoef 2016). The former results from a positive post-experience evaluation of CX against customer’s pre-experience expectations. The latter describes customers’ repurchase and recommendation intentions and behavior due to a favorable attitude towards a company (Dick and Basu 1994). Both customer satisfaction and loyalty do not originate in the moment of the customer interaction, but after it. Thus, we expect customer satisfaction and loyalty to be consequences of positive and strong CXs.
DEVELOPING AND VALIDATING THE CX SCALES

Overview of the scale development process

To measure CX, we first develop a text-based scale consisting of six text-based multi-item dimensions (i.e., affective, cognitive, physical, relational, sensorial, and symbolic). This scale is especially suitable to situations in which users investigate CXs under controlled conditions (e.g., lab experiments). Subsequently, we develop a pictorial scale that measures each of the six CX dimensions with a single pictorial item (i.e., icon). As mobile devices can display icons easily, this scale is particularly suitable for companies and field studies. To develop both CX scales, we conducted a multi-method research process including eight studies (see Table 1).

Table 1: Overview of the scale development process

<table>
<thead>
<tr>
<th>Step</th>
<th>Scale</th>
<th>Study</th>
<th>N</th>
<th>Evaluation Criteria</th>
<th># Items</th>
<th># Icons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item Generation</td>
<td>Text-based</td>
<td>Literature review</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Item Generation</td>
<td>Text-based</td>
<td>Study 1: written experience descriptions by students</td>
<td>29</td>
<td>Domain representation</td>
<td>104</td>
<td></td>
</tr>
<tr>
<td>Item Generation</td>
<td>Text-based</td>
<td>Study 2: in-depth interviews with customers</td>
<td>21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item Selection</td>
<td>Text-based</td>
<td>Study 3: item screening by marketing and psychology experts</td>
<td>18</td>
<td>Face validity</td>
<td>102</td>
<td></td>
</tr>
<tr>
<td>Item Selection</td>
<td>Text-based</td>
<td>Study 4: item sorting by customers</td>
<td>162</td>
<td>Content validity</td>
<td>72</td>
<td></td>
</tr>
<tr>
<td>Scale Purification and Initial Validation</td>
<td>Text-based</td>
<td>Study 5: online survey with customers on their CX in the fashion retail industry in Germany</td>
<td>1,348</td>
<td>Reliability, Dimensionality, Known group validity</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Icon Generation</td>
<td>Pictorial</td>
<td>Database search</td>
<td>3</td>
<td>Domain representation</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Icon Generation</td>
<td>Pictorial</td>
<td>Iterative design process with professional designers building on our results in Studies 1-5</td>
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</table>
Text-based scale: Item generation and selection (Studies 1-4)

To generate an initial set of items for the text-based scale, we reviewed existing experiences scales, asked 29 students to describe CXs on one sheet of paper (Study 1), and interviewed 21 customers about their CXs (Study 2). We derived an initial list of 104 items from these three sources.

To reduce this initial item pool, we first asked 18 marketing and psychology experts to evaluate to which extent each item can be applied as a measure of its respective CX dimension (Study 3). Based on the experts’ suggestions, we adapted 21 items and deleted two items, due to strong overlaps with existing items. Subsequently, 162 customers were recruited for an item-sort task and provided with the definitions of all CX dimensions and the adapted pool of 102 items (Study 4). We instructed the study participants to assign each item to one of the six dimensions that it best reflects. Following Anderson and Gerbing (1991), we deleted 30 items, resulting in 72 face- and content-valid items.

Text-based scale: Purification and initial validation (Study 5)

Based on the 72 items, 1,348 German customers of fashion brands evaluated a single CX resulting from a customer-experience provider interaction in a fashion-retailing context. More specifically, the customers evaluated their interaction with one experience provider (brand, personnel, or other customers) at a certain touchpoint (online, offline) in one specific customer journey stage (pre-purchase, purchase, or post-purchase). We
also asked the participants to evaluate their customer interaction either as eventful or uneventful. We measured all items on seven-point Likert scales, anchored by 1 = “strongly disagree” and 7 = “strongly agree”.

We first assessed each item’s representativeness for their respective CX dimension. As a result, we deleted 16 items due to low representativeness (i.e., corrected item-total correlations < .60). Subsequently, we conducted iterative confirmatory factor analyses (CFA) based on a six-dimensional conceptualization of CX, resulting in a 18-item scale (see Table 2 for exemplary items) that revealed very good model fit (CFI = .99; TLI = .98; RMSEA = .033; SRMR = .035). All items had substantial and significant loadings on their designated factors (> .71). Providing evidence for convergent validity, Cronbach’s alpha (α; > .81), average variance extracted (AVE; > .59), and composite reliability (CR; > .82) were above recommended thresholds for all CX dimensions.

To assess the construct validity, we tested the scale’s dimensionality and performed a known group comparison. We found that the squared correlation for every pair of factors was smaller than each factor’s AVE. We also compared the six-factor model to alternative models (e.g., five-factor, four-factor, etc.). The results show that the six-factor model has the lowest AIC and BIC compared to alternative models. This supports our conceptualization of CX as a six-dimensional construct. Additionally, we performed a known group comparison. As expected, study participants with eventful customer interactions scored significantly higher on all subscales than those with uneventful interactions (e.g., affective: M_{eventful} = 4.59; M_{uneventful} = 3.33; t (1,346) = 12.82; p < .001), providing support for the known group validity of our scale.

Table 2: Exemplary items of the text-based CX scale

<table>
<thead>
<tr>
<th>CX Dimension</th>
<th>Exemplary item</th>
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<tbody>
<tr>
<td>(Experience provider can be brand, personnel, or other customers)</td>
<td></td>
</tr>
<tr>
<td>Affective</td>
<td>The contact with the experience provider induced good emotions.</td>
</tr>
<tr>
<td>Cognitive</td>
<td>I got positive insights during the contact with the experience provider.</td>
</tr>
</tbody>
</table>
Physical During the contact with the *experience provider*, I was active in a way I liked.

Relational I felt positively connected with the *experience provider*.

Sensorial I had many good sensory impressions during the contact with the *experience provider*.

Symbolic The contact with the *experience provider* was in line with my personal values.

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Pictorial scale: Icon generation and selection (Studies 6 and 7)

To develop the pictorial scale, we first generated an initial pool of 18 icons by conducting database search using well-known icon databases (e.g., iconfinder.com). We used the icons from the database as an input for the design of the icons for our scale. Based on our search results and our insights from Studies 1-5, we then created 18 icons (three icons per CX dimension) in cooperation with three professional designers. This iterative design process included several discussions between the designers and authors to ensure convergence with the 18-item text-based scale. Figure 1 shows an exemplary icon.

Figure 1: Cognitive icon of the pictorial CX scale

Having generated 18 icons, we reduced the number of icons with two studies. First, we asked 127 students to write down their associations with each icon immediately after seeing it on a screen (Study 6). The resulting 5,821 associations were coded by two independent coders. Their coding revealed that the majority of the icon associations relates to their respective CX dimensions. We only deleted one icon with more than 50 per cent non-experience related associations, resulting in 17 face-valid icons. Second, we recruited 105 customers for an icon-sort task (Study 7) that was designed like Study 3. Following Anderson and Gerbing (1991), we deleted one icon, resulting in 16 face- and content-valid icons.
We asked 1,006 U.S. customers to evaluate their experience in a service context (i.e., hospitality). Customers used the 18-item text-based scale and the 16-icon pictorial scale to evaluate their interaction with one experience provider (brand, personnel, or other customers) at a certain touchpoint (offline or online) in one specific customer journey stage (pre-purchase, purchase, or post-purchase). The participants also completed items on established scales from interaction quality, personalization, flow, customer satisfaction, and loyalty. Further, customers who encountered a brand as an experience provider also completed items from the brand experience scale (Brakus et al. 2009). We also asked the participants to evaluate how positive their customer interaction was. We used seven-point rating scales for all items (with 1 = “strongly disagree” and 7 = “strongly agree”) and icons (with 1 = “not positive at all” and 7 “strongly positive”).

To purify the 16-icon scale, we first assessed the icons’ correlations with factor scores of the text-based scale dimensions. Due to low convergence with its respective text-based CX dimension (i.e., icon correlation with text-based factor score < .6), we deleted one icon. The magnitude of the other correlations (> .6) suggested convergence. Second, we conducted an iterative CFA, resulting in a six-icon pictorial scale that revealed very good model fit (CFI = .99; TLI = .99; RMSEA = .040; SRMR = .018). The scale is convergent valid (α = .83; AVE = .46; CR = .83) with all icons having substantial and significant loadings (> .63).

In a next step, we replicated the text-based scale by showing convergent validity for this scale (i.e., α > .87; AVEs > .71; CR > .88) and the scale’s dimensionality, as the six-factor model (CFI = .98; TLI = .97; RMSEA = .058; SRMR = .042) outperformed alternative models. Afterwards, we performed a known group validity test for both CX scales: We expect that customers with strong, positive CXs scored significantly higher on all text-based and pictorial subscales than customers with weak, positive CXs. The scores for the text-based (e.g., affective: Mstrongly positive = 5.45; Mweakly positive = 3.14; t (1,004) = 16.62; p < .001) and pictorial scale (e.g., affective: Mstrongly positive = 5.66; Mweakly positive = 3.61; t (1,004) = 16.13; p < .001) reflect the expected pattern of results. This supports our known group findings.

To test the scales’ discriminant and nomological validity, we embedded CX in its network of antecedents (i.e., interaction quality, personalization, flow) and consequences (i.e., satisfaction and loyalty). We found that CX (measured by both scales) is empirically distinct to its antecedents and
consequences, as all squared correlations with the CX dimensions were smaller than the AVEs for each construct.

To empirically test the expected relationships, we estimated two structural models. In Model 1 (CFI = .96; TLI = .96; RMSEA = .050; SRMR = .043), we estimated CX as a second-order reflective construct composed of six first-order reflective constructs, measured by the 18 items for the corresponding CX dimensions. In Model 2 (CFI = .97; TLI = .96; RMSEA = .059; SRMR = .041), the six icons measure the CX construct reflectively. According to our conceptualization of the CX network, we related interaction quality, personalization, and flow to CX and CX to customer satisfaction and loyalty. In line with the literature (e.g., Dick and Basu 1994), we included a link from satisfaction to loyalty. To test for mediation, we also included direct paths from antecedents to consequences in both models. As expected, we observe positive and significant relationships between CX and its antecedents and consequences in Model 1 ($\gamma_{\text{CX, interaction quality}} = .38; \gamma_{\text{CX, personalization}} = .40; \gamma_{\text{CX, flow}} = .24; \beta_{\text{satisfaction, CX}} = .40; \beta_{\text{loyalty, CX}} = .36; \beta_{\text{loyalty, satisfaction}} = .27; p < .001$) and Model 2 ($\gamma_{\text{CX, interaction quality}} = .39; \gamma_{\text{CX, personalization}} = .41; \gamma_{\text{CX, flow}} = .17; \beta_{\text{satisfaction, CX}} = .36; \beta_{\text{loyalty, CX}} = .22; \beta_{\text{loyalty, satisfaction}} = .31; p < .001$). In both models, we found that CX fully or partially mediates the effect of CX antecedents on customer satisfaction and loyalty. This illustrates the important role of CX in driving satisfaction and loyalty.

In further analyses, we also found that the variance of customer satisfaction explained by CX is 66.23 per cent for the text-based scale and 68.18 per cent for the pictorial scale. This supports the predictive power of the two scales. Both CX scales are also good in predicting customer loyalty, as the proportion of the variance explained by the independent variable is 51.13 per cent for the text-based scale and 50.33 per cent for the pictorial scale. Additionally, we compared the scales’ predictive power with the brand experience scale (Brakus et al. 2009; $\alpha > .77$; AVE > .57; CR > .79) in the brand interaction subsample of Study 8 ($N = 313$). We found that the variance of satisfaction explained by CX (text-based scale: 66.59 per cent; pictorial scale: 72.26 per cent) clearly exceeds the variance explained by brand experience (39.89 per cent). For loyalty, both CX scales slightly predict better (text-based scale: 50.42 per cent; pictorial scale: 56.12 per cent) than the brand experience scale does (45.07 per cent).

**DISCUSSION AND IMPLICATIONS**

In this paper, we develop and validate a text-based and a pictorial scale that both cover all relevant experience dimensions (i.e., affective,
cognitive, sensorial, physical, relational, and symbolic). Thereby, we directly respond to recent research calls (e.g., Lemon and Verhoef 2016) and the managerial need to measure CX for various customer interactions (MSI 2016). Developing a holistic measure of CX, our scales go beyond existing empirical approaches (e.g., Brakus et al. 2009), while substantially predicting important marketing outcomes (i.e., customer satisfaction and loyalty). While managers currently need to rely on these outcomes to infer implicitly their CX performance, we provide a direct measure for CX.

Further, our pictorial scale enables researchers and managers to measure the complex CX construct with only six simple icons. Thus, our pictorial scale advances behavioral research and management practice, as it allows to track CX in the field and to include CX as a key metric in companies' marketing dashboards.

CLOSING REMARKS

Due to space limitations, we did not include our 18-item text-based scale and the 6-icon pictorial scale in this paper. The scales are available upon request. The Marketing Science Institute supports our research financially.
REFERENCES


