

Aggregated Customer Experience Scale: Item Development and Scale Purification

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Abstract

Customer experience is a dominant marketing concept and is regarded as a key determinant of success, yet there is a lack of a widely adopted operationalization of the construct. In this study, we aim to ‘aggregate’ validated CX-related scales to develop a context-independent measure of CX. ‘Aggregating’ in this paper is a novel approach and refers to deriving dimensions and items from available CX-related scales identified through a systematic literature. 315 items from 23 scales were thus compiled and face validated to reach a final item pool consisting of 47 items and 10 dimensions. The item pool is empirically tested in a field study (n=625) for psychometric evaluation and further item reduction. The reduced scale consists of 40 items and potentially 10 dimensions: hedonic, affective, social experience, community, employee characteristics, empathy, complaint handling, learning, process experience and overall evaluation.

Keywords: customer experience, scale development

1. Introduction

Customer experience (CX) has developed into an important marketing concept in the past couple of decades. Yet at the same it runs the risk of becoming a fad, as business practice fails to see returns and the academic knowledge is in need of integration which further adds to the confusion. In fact, Marketing Science Institute (MSI) has included CX in its research priorities in five consecutive publications since 2010 (De Keyser et al., 2020), that drives continued interest in scholarly research focusing on CX. The proliferation in academic publications also led to a considerable fragmentation in the field (Becker & Jaakkola, 2021). Despite continued interest, there is a lack of a widely adopted CX measure and prominent scholars call for the development of a CX scale capable of representing the concept with all of its facets (Verhoef et al., 2009; Lemke et al., 2011; Lemon & Verhoef, 2016).

The aim of this research is to ‘aggregate’ a CX scale from previously validated scales that are employed in measuring CX and related concepts, that can be applied to different contexts and types of experiences. For this purpose, an initial item pool was ‘aggregated’ from the scales identified through a systematic literature review (Palmatier et al., 2018). Aside from the development of the item pool, the research follows established scale development procedures (Churchill, 1979; Netemeyer et al., 2003).

2. Conceptual background

Customer experience can be broadly defined as, consumers’ subjective responses to direct or indirect interactions with a company, its products or services, communications and the like, throughout the entire customer journey – including before and after the core service delivery (Lemon & Verhoef, 2016; Vorhees et al., 2017). Considering the variety of industries and different channels, CX is a rather broad concept (Lemon & Verhoef, 2016). Furthermore, customers’ experience expectations may vary according to product category, involvement, product complexity or relationality (Lemke et al., 2011). Recent operationalizations of CX determine the domain and dimensionality of the construct either based on a specific context (e.g. Klaus and Maklan, 2011), or a type of experience (e.g. Collier et al., 2018) as is recommended in scale development procedures (Churchill, 1979; Netemeyer et al., 2003). However representing a broad concept such as CX with a narrow focus presents the risk of excluding some aspects of CX in its measure. Although there are several validated measures of CX related constructs, these measures are quite incompatible as can be seen in Table 1. This incompatibility presents itself in the dearth of published empirical quantitative research, where almost each study employs a different operationalization adding further to the confusion (Becker and Jaakkola, 2021).

3. Methodology

The study reported herein is a sub-study in a larger project funded by TUBITAK of Turkey. The main study aims to test the proposed ‘CX → perceived value → performance’ relationships. Since there is a lack of a widely adopted CX scale capable of representing the concept with all of its facets, the development of a new scale was deemed necessary. As the previously proposed scales already employ established scale development procedures, a novel approach is employed in this study. Instead of determining the dimensionality of the concept through exploratory methods, this research relies on prior operationalizations of the construct. The ‘aggregated customer experience’ scale is a collection of different scales, aggregated to be used as a context-independent

measure of CX as part of this research. This report explains the item development and scale purification stages of the development process.

Table 1. Proposed measures of customer experience related constructs

Author	Klaus & Maklan	Chang & Horng	Collier et al.	Brakus et al.
	(2011)	(2010)	(2018)	(2009)
Scale	EXQ	Experience quality	ISE	Brand experience
Context	Mortgage	Retail and aquarium	Extraordinary experiences	Branded goods
No of items	19	38	9	12
Dimensions	Peace of mind (6) Moments of truth (5) Outcome focus (4) Product experience (4)	Physical surroundings (17) Service providers (5) Other customers (4) Customers' companions (4) Customers themselves (8)	Perceived employee effort (3) Surprise (2) Perceived empathy (4)	Sensory (3) Affective (3) Behavioral (3) Intellectual (3)

* Number of items in each dimension are given in brackets

Although there are several scales related with CX proposed in the marketing literature, there are rather few empirical studies employing these scales. One potential reason deterring researchers in adopting these scales might be their adaptability. As these scales are developed focusing on specific contexts or types of experiences, it is very likely that they do not apply well into other contexts. Yet, each of these scales are developed and validated employing established scale development procedures (e.g. Churchill, 1979) and they represent certain facets of CX. This research aims to ‘aggregate’ those facets of experience that are represented in individual scales to develop an ‘aggregated’ and multi-faceted CX scale that can be adapted into different contexts as well as types of experiences. Apart from the item development procedure, which is explained in detail below, the research follows established scale development procedures (Churchill, 1979; Netemeyer et al., 2003).

In order to create a frame for the selection of the scales, a systematic literature review was conducted (Palmatier et al., 2018) and a total of 23 articles were found employing a scale related with customer experience. However, the excessive number of the items in these scales (315 items in total), a preliminary assessment of the scales and dimensions were deemed necessary. As the aim of the ‘aggregation’ is to develop a context-independent scale, the researchers evaluated each scale for its suitability for inclusion in the initial item pool. This selection process took into account conceptual considerations stemming from the definition of CX, which first and foremost emphasizes the interactive nature of CX (De Keyser et al., 2020). Furthermore, the customer

journey portrays the experience as a process and relevant research underlines learning from these experiences as a feedback loop feeding into the expectations from future experiences (Lemon & Verhoef, 2016).

Scales that explicitly focus on specific experiences such as flow experience (e.g. O’Cass & Carlson, 2010), specific touchpoints such as customer service (e.g. Froehle & Roth, 2004), or in instances where dimensions of interest are duplicated (e.g. Cassab & MacLachlan, 2009) has been excluded from the initial list. After careful consideration, 13 scales and a total of 71 items have been selected as the draft item pool of the aggregated CX scale. The dimensions from these 13 scales are grouped conceptually as shown in Figure 1. These items are then shared with three marketing professors and six marketing practitioners from different industries for face validation purposes. Items that received a negative evaluation from at least one academic and one practitioner participant were eliminated from the study. After this qualitative assessment of content validity, 47 items made it into the final item pool of the scale.

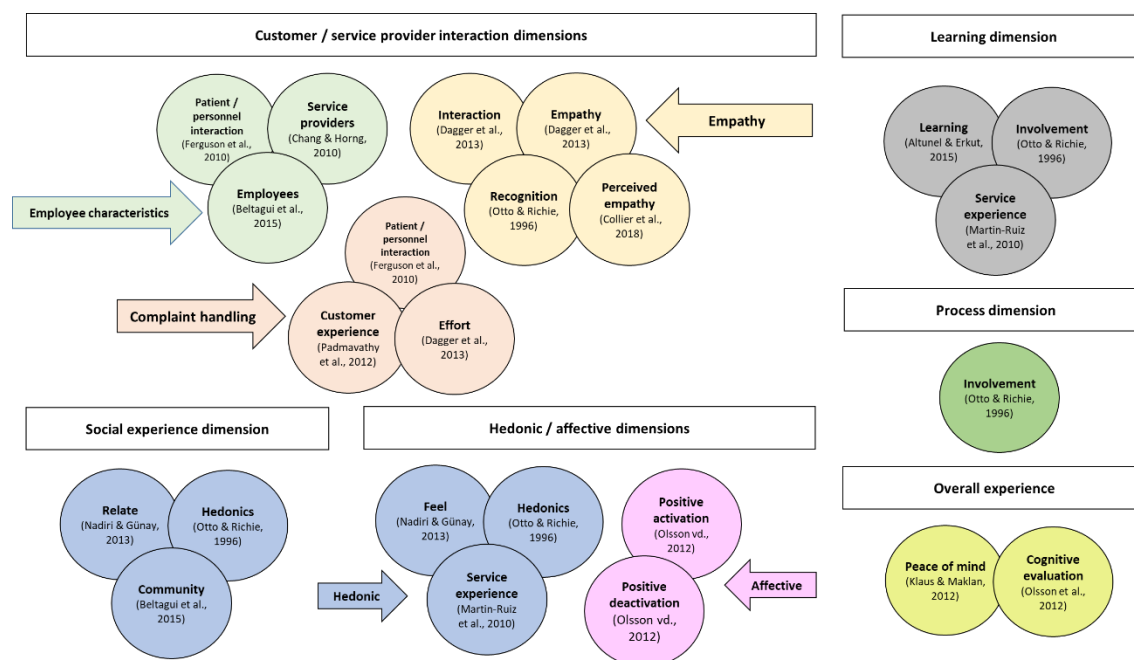


Figure 1. The dimensions that are ‘aggregated’ in the study

An item pool thus purified qualitatively needs to undergo a quantitative assessment to evaluate its psychometric properties and proposed dimensionality (Churchill, 1979; Netemeyer et al., 2003). As the aim of the aggregated CX scale is achieving context independence, the purification (as well as validation) studies need to employ independent samples of different service industries. For scale purification purposes, airline passenger transportation and parcel delivery services are selected according to Lovelock’s (1983) service typology, representing people processing and possession processing services respectively (see Wirtz & Lovelock, 2018 for details). In total, 629 responses were collected (49.8% female & average age=30.5, stdev=11.25).

4. Results

The ‘aggregated’ CX scale encompassing items / dimensions from 13 different scales is first purified qualitatively through a rigorous procedure and next quantitatively employing statistical procedures, exploratory and confirmatory factor analyses. The statistical analyses are conducted on groups of constructs because when there are many constructs to be examined, assessing fewer measurement models is preferable (Menon et al. 1996). The constructs are grouped according to their conceptual similarities: (i) hedonic and affective dimensions, (ii) social experience and community dimensions, (iii) learning, process and overall evaluation dimensions, and finally (iv) employee characteristics, empathy and complaint handling dimensions. The analyses were run on each industry separately, then for the merged data set (Hair et al., 2014). Summary results for EFA and CFA are presented in Tables 2 and 3 respectively. The EFA results corroborate the proposed dimensionality presented in Figure 1 for all dimensions (social, hedonic / affective, learning, process, overall evaluation) other than the customer / service provider interaction dimensions.

Table 2. Exploratory factor analysis summary results

Sample / dimensions	KMO ¹	BTS ²	AVE ³
Airline passenger transportation sample (n=315)			
Hedonic / affective	0.913	3513.067	83.1
Social / community	0.845	942.682	74.8
Emp. char. / empathy / comp. handling	0.958	3049.695	69.7
Learning / process / overall	0.892	2510.121	86.6
Parcel delivery sample (n=314)			
Hedonic / affective	0.894	3147.697	87.4
Social / community	0.858	1022.714	76.8
Emp. char. / empathy / comp. handling	0.970	3514.432	68.0
Learning / process / overall	0.898	2792.147	89.0
Merged sample (n=629)			
Hedonic / affective	0.898	6080.935	86.7
Social / community	0.859	2029.150	76.3
Emp. char. / empathy / comp. handling	0.973	8561.878	76.3
Learning / process / overall	0.900	5419.946	88.1

¹ Kaiser-Mayer-Olkin’s measure of sampling adequacy

² Bartlett test of sphericity (p=0,000)

³ Average variance extracted

In this study, the dimension that represents customer / service provider interactions was expected to show three sub-dimensions that relate to the characteristics of the service employees, their ability to empathize with the customers and complaint handling approaches. When this dimension is empirically tested, the parcel delivery sample shows a single-factor structure, the airline sample shows a two-factor structure and only the merged sample shows a three-factor structure as theorized. These factor structures are shown in Figure 2, color coded according to their expected dimensions. Employee characteristics items are shown in green, empathy items are yellow and complaint handling items are orange. The labels of the items together with a short description is shown in the bubbles.

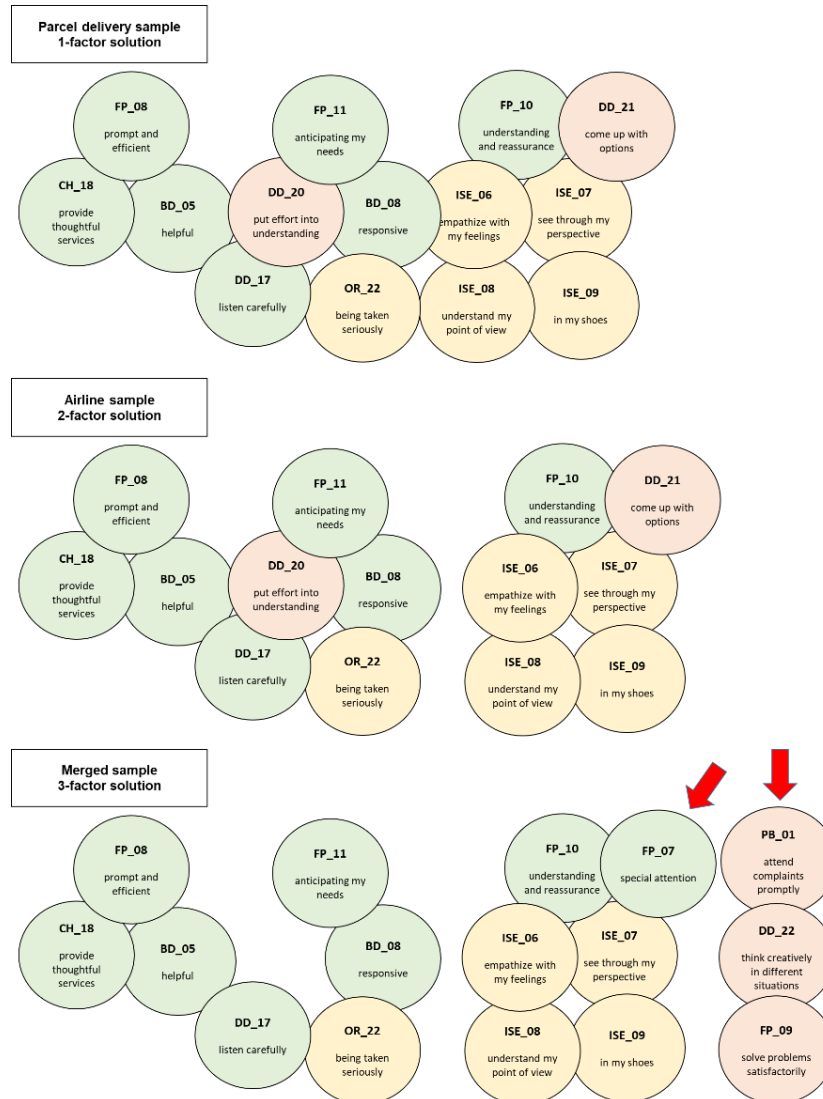


Figure 2. Customer / service provider potential factor structures

Following the EFA analysis, CFA analysis is used to test both the relationships between individual manifest variables, and the proposed model's fit with observed data (Hair et al., 2014). Although the chi-square (χ^2) statistic shows poor fit, this result is expected in studies employing a high number of variables (>30) and number of observations (>300). In these situations, researchers are recommended to base their decisions on other absolute fit indices (Fornell & Larcker, 1981;

Hair et al., 2014). Other absolute fit indices (RMSEA and GFI) as well as all incremental fit indices show at least acceptable and generally a good fit with the proposed model as shown in Table 3.

Composite reliabilities ($\rho > 0.70$) and average variance extracted (AVE > 0.50) as well as Cronbach alpha values ($\alpha > 0.70$) for each one of these ten constructs are found acceptable (Hair et al., 2014). Only the AVE values calculated for both data sets as well as the merged sample for the social experience construct is found close to the recommended values (~ 0.55 levels). Yet this finding is not surprising considering the less symbolic nature of the services chosen in this initial study. This minor drawback will be addressed in the main study through selecting industries which have more visible social meanings (Belk, 1988; Solomon, 1983).

Both the EFA and CFA results are found encouraging for the aggregated CX scale. Only those items found significantly problematic are excluded from the study resulting with 40 items to re-test in the validation study.

Table 3. Confirmatory factor analysis summary results

Sample	Goodness of Fit Indices ^{1, 2}					
	RMSEA	GFI	NFI	NNFI	CFI	AGFI
Airline	0.051	0.83	0.98	0.99	0.99	0.80
Parcel	0.057	0.82	0.98	0.99	0.99	0.78
Merged	0.051	0.87	0.99	0.99	0.99	0.85

¹ The chi-square (χ^2) statistic is not reported because it demonstrates a poor fit ($p < 0.05$), yet this finding is acceptable in large sample sizes ($n > 250$) and other fit statistics are evaluated (Hair et al., 2014)

² RMSEA: Root mean square error of approximation; GFI: Goodness-of-fit index; NFI: Normated fit index; NNFI: Non-normated fit index; CFI: Comparative fit index; AGFI: Adjusted goodness-of-fit index

5. Discussion

This research focuses on the item generation and scale purification stages of the development of the aggregated CX scale. The findings suggest that customer experience is indeed a multi-dimensional and complex concept encompassing cognitive, affective, social and holistic evaluations paralleling the definition of CX. The initially proposed dimensionality for the aggregated customer experience scale is observed empirically for – social, community, hedonic / affective, learning, process and overall evaluation – dimensions. The interaction dimension that is expected to be composed of three sub-dimensions, namely employee characteristics, empathy, and complaint handling, demonstrated varied factor solutions empirically. We deliberately abstained from further eliminating items from this major dimension in order to test these items repetitively in other contexts and with more data, and finally come up with a parsimonious representation of the interactive dimension(s).

This research proposes a novel approach to scale development as it is an integration effort for the various scales that have been developed thus far focusing on different contexts or types of experiences. It is also a step towards a context-independent and valid measure of CX, which in turn will aid the development of our understanding of customer experiences.

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