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Configuring Customer Touchpoints: A Fuzzy-Set Analysis of Service Encounter Satisfaction

By Nancy V. Wünderlich* und Jens Hogreve

Knowledge about the importance of sub-service encounters or touchpoints within the service process is a topic of interest to both researchers and businesses. However, existing research mainly analyses service encounter evaluations based on composite or overall measures. While these studies make a significant contribution to understanding the importance of specific attributes for evaluating the overall encounter, our study extends existing research by showing how evaluations might be built upon different configurations of touchpoints. Based on a qualitative comparative analysis, we identify the determinants that are ultimately necessary, as well as those that are sufficient, for creating positive customer experiences within airline services. We provide managers with guidance on how to design successful customer experiences and long-lasting customer satisfaction. This knowledge helps service firms invest in quality improvements that will pay off in the long run. We enrich service theory by providing an in-depth view of customer service encounters and by identifying how different configurations of touchpoint evaluations lead to satisfactory service experiences. We establish a complementary explanation of the creation of customers' evaluations of multiple touchpoints.

Nancy V. Wünderlich is Professor of Service Management at Paderborn University, Warburger Str. 100, 33098 Paderborn, Germany, E-Mail: nancy.wuenderlich@upb.de
* Corresponding Author.

Jens Hogreve is Professor of Service Management at Catholic University of Eichstätt-Ingolstadt, Auf der Schanz 49, 85049 Ingolstadt, Germany, E-Mail: jens.hogreve@ku.de

1. Introduction

Service experiences are more extensive than the consumption of goods, and they often last longer (Berry and Lampo 2004). Services typically entail multiple touchpoints, each creating individual experiences (Grewal et al. 2009; Voorhees et al. 2017). An airline trip is an example of this. A customer experiences at least three different service environments, including various touchpoints, such as the departure and arrival airports as well as the airplane itself. Within these environments, passengers evaluate multiple service encounters, such as check-in, boarding, transfer, cabin service and baggage handling. During these encounters, customers also come into contact with different personnel (e.g., check-in employees, flight attendants) or with technology if they use a kiosk or online/mobile check-in options. Thus, a customer's airline trip is a service that consists of an individual configuration of multiple touchpoints with objects, people and physical surroundings they encounter over an extended period, thereby forming the customer experience (Lemon and Verhoef 2016; Voorhees et al. 2017). Consequently, a service provider has to carefully design and manage a number of touchpoints that present opportunities for pleasing or disappointing customers (Berry and Lampo 2004).

Managers face significant challenges in their attempts to affect customer experiences. It is not easy for a service provider to receive the highest score on every touchpoint, and the design and management of each specific encounter is not independent from the design of the other service episodes in the service process. Moreover, investments in service design or customer satisfaction are costly (Pham et al. 2010). Therefore, service providers not only strive to know which touchpoints are most important to increase the overall customer experience, they also need to identify alternative paths to enhance customer perceptions.

Although knowledge about the varying importance of sub-encounters within the service process is important, existing research mainly analyses service encounter evaluations based on composite or overall measures (e.g., Bitner et al. 2000; Giebelhausen et al. 2014; Verhoef et al. 2009). While these studies make a significant contribution to and deepen our understanding of the determinants of an overall encounter evaluation, our study extends existing research by showing how service evaluations might be built upon different configurations of touchpoints. Because a consumer encounters multiple experiences along the cus-

tomer journey, it is important to obtain a deeper understanding of the interplay of the experiences and how these affect encounter evaluations, such as satisfaction.

Previous studies on service encounters have identified the effects that interaction styles have on consumers during service interactions (Matilla and Enz 2002; Pugh 2001), analysed the customers' and employees' reactions to the design of servicescapes (Bitner 1990; Bitner et al. 1990) or identified the effects that technology infusion within the service encounters have on consumers (Bitner et al. 2000; Giebelhausen et al. 2014; for a detailed discussion of the service encounter literature, see also Voorhees et al. [2017]). Customer satisfaction is one of the central metrics used to evaluate service encounters. Satisfaction is a function of the level of product/service performance in relation to the customers' expectations (Oliver 1980). To capture customer experience satisfaction holistically, Czepiel and Rosenberg (1977) suggest a comprehensive list of consumer satisfaction facets that resemble dimensions of the perception of servicescapes (Bitner 1992), e.g., functional attributes, aesthetic attributes, psychological attributes, service attributes and environmental attributes.

Previous studies on service encounters have related customer satisfaction to various facets of the service process. For example, authors typically consider monetary and non-monetary costs, service quality, the quality of employee interaction, the service delivery process or the consumption experience (e.g., Crosby and Stephens 1987; Bitner et al. 1990; Bolton and Drew 1994; Danaher and Mattson 1994) as satisfaction drivers. Typically, these studies identify multiple satisfaction drivers and address their relative importance. Unfortunately, the outcomes of these studies are mixed, at best, and they mostly identify isolated drivers of the customer experience evaluations. This could be seen as an issue because the improvement of some drivers might entail worsening of others in ways not captured by traditional models. Instead of focussing on isolated satisfaction drivers, we propose taking a holistic perspective on satisfaction in service encounters, and we focus on satisfactory configurations, sets of satisfaction drivers at various levels that, taken together, maximise satisfaction. In the context of airline services, we identify satisfactory configurations at process-related, people-related and/or servicescape-related touchpoints. To date, no academic study has compared different configurations of satisfaction with several levels of service sub-encounter evaluations. We address this gap by answering the following research questions:

1. Which configurations of satisfaction drivers on a touchpoint level lead to an overall highly satisfactory service evaluation?
2. Are there patterns of satisfactory configurations that are mainly driven by either satisfactory process-related, people-related or servicescape-related touchpoints?

The contribution of this paper is threefold. First, and from a theoretical perspective, we agree with Palmer (2010) and consider customer experience to be a response to cues that is assumingly phenomenological. Thus, we enrich service theory by taking a configurational approach on customer experience and by identifying how different configurations of touchpoint evaluations lead to satisfactory service experiences. This is in line with Lemon and Verhoef's (2016) call to focus more on identifying the components of integrated customer experience models. In the context of an airline service, and based on a qualitative comparative analysis (Fiss 2007), we identify the determinants that are ultimately necessary, as well as those that are sufficient, to creating satisfactory customer experiences. Therefore, we establish a complementary explanation of the creation of customer satisfaction based on customer experience configurations. Second, the use of a qualitative comparative analysis (Fiss 2007; Ordanini et al. 2014) and configuration logic captures the complexities underlying consumers' evaluations of service processes, and it identifies the ways in which service attributes should be aligned to create positive service encounters. In so doing, we develop a set of configurations that build an isolated path to customer satisfaction in an experience context. Third, we provide service managers with guidance on how to design and implement successful, long-lasting customer experiences. This knowledge helps service firms invest in quality improvements that will pay off in the long run. Toward that end, we provide a brief overview of the set-theoretic approaches, followed by an analysis of a dataset from the airline industry. We close with a discussion of our findings, and we present the limitations of the study and suggestions for future research avenues.

2. Methodology

2.1. The Set-theoretic Approach

We use a set-theoretic method of analysis to investigate how customers' perceptions of multiple touchpoints form their overall impression, and how different configurations of satisfactory touchpoints might lead to the same overall experience. This analysis goes beyond the insights of traditional models, such as regression analysis; therefore, it can be used to obtain complementary information about how to effectively manage touchpoints. While fuzzy-set qualitative comparative analysis (fsQCA) was introduced to the field of social science in the late 1980s (Fiss 2007; Ragin 1987), it has only been applied hesitantly in management and marketing research (Fizz 2011; Novais Santos et al. 2018; Ordanini and Maglio 2009; Ordanini et al. 2014).

The fsQCA approach combines quantitative and qualitative methods, and it models the concept of conjunctural causation. The idea is that combinations of various config-

urations (causal conditions), rather than one specific attribute, lead to an outcome (Fiss 2007; Ragin 1987). The basic view underlying fsQCA is that cases are best understood as configurations of attributes resembling overall "types" (Fiss 2011). For example, to explain which of the different configurations of (un-)satisfactory touchpoints might lead to high overall customer satisfaction, fsQCA examines cases with "overall highly satisfying" evaluations, and then it identifies the combinations of attributes associated with overall high customer satisfaction that lead to the outcome. Thus, fsQCA captures the idea of equifinality (Fiss 2007), meaning that more than one combination of causal conditions may be found to be linked to the same outcome. This relates to the concept of necessary and sufficient conditions. fsQCA delineates whether a condition or a combination of conditions is sufficient to produce a specific outcome. A sufficient condition is not always necessary for the outcome because some other alternative conditions could lead to the same outcome. Thus, a necessary condition for an outcome is always present when the outcome occurs (Rihoux and Ragin 2009).

To empirically accomplish the identification of causal conditions, fsQCA usually follows different steps. First, the dependent and independent measures are calibrated and transformed into fuzzy sets using thresholds for membership participation in order to have a continuous set calibrated to indicate the degree of membership (Ragin 2000). In this context, calibration means assessing the measure of a case, not only in relation to other measures in the distribution of the scores on the indicator, but also anchoring that measure to some values for non-membership (0), full membership (1) and indifference (.5, the cross-over point). Second, a truth table algorithm is applied to construct a data matrix known as a truth table with 2^k rows, where k is the number of causal conditions used in the analysis (Fiss 2011). Third, an algorithm based on Boolean algebra is used to logically reduce the truth table rows to simplified combinations.

The truth table algorithms distinguish between parsimonious and complex solutions. A parsimonious solution includes the most simplifying assumptions that lead to the given outcome. A complex solution includes all possible assumptions that lead to the given outcome. The notion of causal conditions belonging to core or peripheral configurations is based on these parsimonious and complex solutions; core conditions are those that are part of both the parsimonious solution and the complex solution[1], and peripheral conditions are those that are eliminated in the parsimonious solution and only appear in the complex solution (Fiss 2011). Core conditions represent stronger evidence for the outcome than peripheral conditions.

2.2. Research Setting and Measures

We use satisfaction data from a customer survey to analyse the impacts that different (un)satisfactory touchpoint configurations have on overall satisfaction with a flight experience. Customer satisfaction scores from customer surveys for 24 airlines in 31 countries were obtained during our observation period. Each satisfaction score is based on a customer survey that was conducted with 1,400 customers of the airlines. We obtained satisfaction scores for each airline, not only for customer overall satisfaction but also for customer satisfaction with eight different touchpoints available. The satisfaction scores regarding the touchpoints consist of flight process-related variables, such as satisfaction with departure (punctuality), the check-in process and baggage handling, servicescape-related variables, such as satisfaction with the food, beverages, entertainment system and the cabin condition, and people-related satisfaction with the flight attendants. All the satisfaction scores were measured with a single item ("Overall I am very satisfied with my airline trip.") on a 6-point Likert Scale ranging from 1 to 6, with 1 indicating "no agreement" and 6 indicating "full agreement".

3. Data Analysis

3.1. Fuzzy Sets and Calibration

We used the satisfaction data for overall satisfaction and for satisfaction with eight touchpoints for 24 airlines to conduct the fsQCA. Our data consisted of 24 cases with overall satisfaction as the outcome variable and the eight different touchpoints as causal conditions in the fsQCA. Because all satisfaction scores were measured on a Likert scale, we had to transform and calibrate them into fuzzy scores. For that transformation, we opted to adapt the calibration of the fuzzy set based on the distribution of each satisfaction score (see *Tab. 1*). For every satisfaction score, we chose the median as the cross-over point (fuzzy set value = .5) and considered the upper 25 % as fully satisfied customers (fuzzy set value = 1, full membership) and the lower 25 % as fully non-satisfied customers (fuzzy set value = 0, no membership).

3.2. Identifying the Necessary Conditions

Based on the results, we identified eight causal conditions. Process-related conditions are: satisfaction with the check-in, departure, and baggage handling. Conditions that reflect touchpoints with the servicescape are: satisfaction with the food, beverages, cabin conditions and entertain-

[1] Fiss (2011) distinguishes between parsimonious and intermediate solutions. The intermediate solution is less parsimonious; it is derived by using the most complex solution and then using only "easy" counterfactuals. Fiss (2011) defines peripheral conditions as those that were eliminated from the parsimonious solution but that only appear in the intermediated solutions. We divert from this definition because we focus on comparing the different paths of the complex solutions and their causal combinations.

Variables		Original metric scale	Calibration rules	Fuzzy set values
process-related tp	check-in	1-6	If > 5.06 (75 percentile) If 5 (median) If < 4.89 (25 percentile)	1 (fully satisfied) .5 (cross-over point) 0 (fully nonsatisfied)
	departure	1-6	If > 5 (75 percentile) If 4.94 (median) If < 4.65 (25 percentile)	1 (fully satisfied) .5 (cross-over point) 0 (fully nonsatisfied)
	baggage	1-6	If > 4.96 (75 percentile) If 4.82 (median) If < 4.53 (25 percentile)	1 (fully satisfied) .5 (cross-over point) 0 (fully nonsatisfied)
servicescape related tp	food	1-6	If > 4.24 (75 percentile) If 4.05 (median) If < 3.87 (25 percentile)	1 (fully satisfied) .5 (cross-over point) 0 (fully nonsatisfied)
	beverages	1-6	If > 4.93 (75 percentile) If 4.82 (median) If < 4.55 (25 percentile)	1 (fully satisfied) .5 (cross-over point) 0 (fully nonsatisfied)
	entertainment	1-6	If > 4.25(75 percentile) If 4.12 (median) If < 3.61 (25 percentile)	1 (fully satisfied) .5 (cross-over point) 0 (fully nonsatisfied)
	cabin condition	1-6	If > 4.68 (75 percentile) If 4.51 (median) If < 4.34 (25 percentile)	1 (fully satisfied) .5 (cross-over point) 0 (fully nonsatisfied)
people-related tp	flight attendants	1-6	If > 5.07 (75 percentile) If 4.94 (median) If < 4.81 (25 percentile)	1 (fully satisfied) .5 (cross-over point) 0 (fully nonsatisfied)

Notes: tp = touchpoint.

Tab. 1: Calibration of the fuzzy set values

ment system. Satisfaction with flight attendants is the people-related touchpoint during the airline experience. We started by testing whether any of the causal conditions could be considered a necessary condition for the outcome. A causal condition is called "necessary" if the instances of the outcome constitute a subset of the instances of the causal condition (Ragin 2006, p. 297). This implies that, for each case, the set membership value of outcome Y is lower than the set membership value of the causal condition X. We adopted the consistency score suggested by Ragin (2006) to quantify the degree to which the observations conform to the rule. The consistency score measures the extent to which cases do not meet the rule, and it weighs large misses more heavily than short misses. A consistency score of 1 indicates that the combination of causal conditions meets the rule across all cases. The more cases fail to meet the consistency criterion, and the larger the distance from meeting the criterion, the more likely it is that the consistency score will fall below 1. Conventionally, a condition, or a combination of conditions, is called "necessary" or "almost always necessary" if the consistency score exceeds the threshold of .9.

Variables	Consistency	Coverage
check-in	.658017	.583882
departure	.675626	.630078
baggage	.754402	.685762
food	.525487	.495197
beverages	.663577	.648551
entertainment	.695088	.621891
cabin condition	.846154	.780342
flight attendants	.894541	.82993

Tab. 2: Necessary conditions for fully satisfied customers

We analysed whether any of our eight causal conditions (and their negations) are necessary to account for fully satisfied customers (see *Tab. 2*). No condition exceeds the necessary threshold of .90 (Ragin 2006). The consistency measure for satisfaction with flight attendants assumes a value of .89, the highest value among all the conditions. Therefore, we were unable to identify any necessary con-

# Set	Check-in	Departure	Baggage	Food	Beverages	Entertainment	Cabin condition	Flight attendants	# Cases	Overall satisfaction	Consistency
1	1	1	1	0	1	1	1	1	1	**1**	1.000
2	0	1	1	0	1	1	1	1	1	**1**	1.000
3	1	1	1	0	0	0	1	1	1	**1**	1.000
4	1	0	1	0	0	1	1	1	1	**1**	1.000
5	1	0	1	0	0	0	0	1	1	**1**	1.000
6	0	0	0	1	1	0	1	1	1	**1**	1.000
7	1	1	1	0	1	0	1	1	1	**1**	.956
8	0	1	1	1	1	1	1	0	1	**1**	.870
9	0	0	0	1	0	0	0	1	1	**1**	.774
10	1	1	1	1	1	1	1	1	3	**1**	.744
11	0	0	1	0	0	0	0	0	1	**0**	.588
12	0	0	0	1	0	1	1	0	1	**0**	.411
13	1	0	0	0	0	0	0	0	1	**0**	.392
14	0	0	0	0	0	0	0	0	1	**0**	.375
15	1	0	0	1	0	0	0	0	1	**0**	.362
16	1	1	0	0	0	0	0	0	1	**0**	.356
17	0	1	0	0	0	0	0	0	1	**0**	.337
18	0	0	1	1	1	0	0	0	1	**0**	.290
19	0	0	0	1	1	1	0	0	1	**0**	.268

Notes: 5 sets with no cases were omitted.

Tab. 3: Truth table with 19 relevant sets

dition that needs to be present to satisfy customers in an airline context. Hence, we need to further investigate which of the sufficient conditions impact the service evaluation.

3.3. Sufficient Conditions based on the Truth Table Algorithm

The first step in analysing the sufficient conditions is the creation of logically possible configurations of the conditions associated with a given outcome. The truth tables approach yielded 2^8=512 logically possible configurations of the conditions associated with an outcome for our data. We then applied the truth table algorithm that compares cases in order to reduce the number of causal configurations of the conditions (Ragin 2000). For each set, a value reflecting the number of cases in the set with a membership value >.5. We deleted all sets that have no cases; this means that there are no airlines with these configurations. Thus, we have 19 relevant sets. This truth table is presented in *Tab. 3*. Each row represents a fuzzy subset, where 1s and 0s represent full membership and no membership in each condition, respectively. For instance, the third row of the table represents a set with one case with customers that are fully satisfied with punctuality check-in, baggage handling, cabin conditions and flight attendants, but that are fully dissatisfied with food, beverages and the entertainment system.

A causal condition can be considered sufficient to lead to the outcome if, for each case, the fuzzy membership value of the causal condition does not exceed the fuzzy membership value of the outcome (Ragin 2000). The same applies for conditions joined by a logical "and". Since the configurations of the conditions rarely meet the rule for sufficiency across all cases, a consistency measure is invoked. Each set in the truth table reveals a measure of consistency with the criterion variable, namely the frequency with which a set can be considered to be a sufficient condition for the outcome. We eliminated sets where the measure of consistency was <.74. In the end, we observed 10 out of 512 logically possible causal configurations that we further considered in our analysis. We categorized these configurations of conditions as sufficient; therefore, the outcome is assigned a value of 1 in the truth table. Conversely, configurations with a consistency level below or at the cut-off value are not considered sufficient, and the outcome is assigned a value of 0. The minimum number of cases that can be related to each relevant set is 1; the highest number is 3.

3.4. Configurations for Fully Satisfied Customers

The truth table algorithm yielded a complex solution and a parsimonious solution. The parsimonious solution is displayed in *Tab. 4*; it represents two configurations leading to fully satisfied customers, with a solution consisten-

	Raw Coverage	Unique Coverage	Consistency
flight attendants+	.90	.32	.83
beverage*cabin condition	.65	.07	.85

Notes: Solution coverage: .974; Solution consistency: .826; +: Presence of either condition or both conditions; *: Presence of both conditions.

Tab. 4: Parsimonious solution

cy value of .826 and a solution coverage (share of outcome explained by solution) value of .974.

Coverage is a key parameter for assessing fsQCA fit, it measures how much a consistent subset "covers" the superset (Ragin 2006). The coefficient for coverage ranges from 0 to 1. A coverage of 1 indicates a complete overlap between solution X and outcome Y, meaning that the solution X covers all cases with the outcome Y. We provide two measures of coverage for each parsimonious solution: raw coverage and unique coverage. The raw coverage is the extent to which each solution can explain the outcome. The unique coverage is the proportion of cases that can be explained exclusively by that solution.

The first parsimonious solution is the presence of satisfaction with the people-related condition (satisfaction with flight attendants). The raw coverage of this solution is 0.90. Thus, we conclude that if the encounter with flight attendants is evaluated as satisfactory (within all sufficient solutions) the overall evaluation of the service experience is most likely highly satisfactory. The unique coverage of this solution is 0.32, meaning that satisfactory experiences with flight attendants alone only leads in 32 % of all cases to a satisfactory outcome. The other parsimonious configuration leading to fully satisfied customers is represented by a combination of servicescape-related conditions – satisfaction with cabin conditions and satisfaction with beverages – having a raw coverage of 0.65 and a unique coverage of 0.07.

The overall solution coverage is 0.974, it highlights the empirical importance of the parsimonious solutions. Either satisfaction with flight attendants or satisfaction with cabin conditions, together with satisfaction with beverages, must be included in any solution because these are decisive causal ingredients that distinguish configurations that lead to high overall satisfaction from those that do not lead to high overall satisfaction.

The complex solution of our fsQCA identified eight different configurations to overall fully satisfied customers, including core and peripheral conditions. Because we wanted to explore which touchpoints the airline can even poorly perform without harming overall fully satisfied customers, the additional analysis of the peripheral conditions in the complex solutions has high relevance for our study.

Tab. 5 presents the fsQCA results for overall satisfied customers with the identified eight solutions represented as eight columns. These eight solutions represent eight different configurations of satisfactory touchpoints (conditions) that lead to overall highly satisfactory service evaluations. For each solution, the circles indicate if a condition has to be present OR if it does not have to be present. Black circles indicate ("●") the presence of a condition in a solution, and white circles ("○") indicate its absence. Blank spaces in a solution indicate a "don't care" situation in which the condition may be either present or absent. Large circles indicate core conditions, and small circles refer to peripheral conditions. Core conditions, as shown in the parsimonious solution, are satisfaction with flight attendants OR satisfaction with both cabin conditions and beverages. All the other causal conditions are mentioned in at least one of the eight different solutions, and they can be regarded as peripheral conditions.

The first two columns represent solutions with almost exclusively satisfactory touchpoints. Solution #1 includes satisfactory experiences with all the process-related touchpoints and with the people-related touchpoint. All the servicescape-related touchpoints need to be satisfactory; in this solution, only the experience with food does not have to fully satisfy the customers. Solution #2 includes an unsatisfactory experience with food while two of the three process-related touchpoints and the people-related touchpoints need to be satisfactory. The third and fourth columns represent solutions that are characterised by satisfactory servicescape-related touchpoints. Keeping in mind that both solutions lead to an overall highly satisfactory service experience, it is important to look at which of the sub-encounters *do not* have to satisfy the customers. For example, in solution #3 unsatisfactory experiences with punctuality, the check-in and the entertainment systems are outweighed by otherwise highly satisfactory touchpoints with the servicescape and the flight attendants. Solution #4 is the only configuration where unsatisfactory experiences with the people-related touchpoint are balanced out by fully satisfactory servicescape touchpoints.

Columns 5–7 represent solutions that are characterised by satisfactory process-related touchpoints next to a satisfactory experience with flight attendants. Solution #5 includes satisfying experiences with all three process-related variables, while solution #6 and solution #7 only require satisfactory experiences in two of the three process-related touchpoints to yield an overall satisfactory service evaluation. Most noteworthy, solution #6 even includes unsatisfactory experiences with all servicescape-related

Condition \ Solution		Almost exclusively satisfactory tp		Satisfactory servicescape-related tp		Satisfactory process-related tp			Only 2 sat. tp
		1	2	3	4	5	6	7	8
Satisfaction with:									
process-related tp	check-in	●		○	○	●	●	●	○
	departure	●	●	○	●	●	○	○	○
	baggage	●	●	●	●	●	●	●	○
	food		○	●	●	○	○	○	●
servicescape-related tp	beverages	⬤	⬤	⬤	⬤		○	○	○
	entertainment	●	●	○	●	○	○	●	○
	cabin condition	⬤	⬤	⬤	⬤	●	○	●	○
people-related tp	flight attendants	⬤	⬤	⬤	○	⬤	⬤	⬤	⬤
	Consistency	0.82	1	1	0.87	0.97	1	1	0.77
	Raw coverage	0.28	0.2	0.07	0.07	0.15	0.11	0.11	0.08
	Unique coverage	0.14	0.06	0.05	0.05	0.09	0.04	0.04	0.04

Tab. 5: Configurations for achieving fully overall satisfied customers

Notes: ⬤ = core condition (present); ● = peripheral condition (present); ○ = peripheral condition (absent); overall solution consistency: 0.877; overall solution coverage: 0.705; tp = touchpoints.

touchpoints. Finally, solution #8 shows that a configuration exists that leads to high overall satisfaction with only two satisfactory touchpoints: food and flight attendants.

4. Discussion

Our findings mainly contribute to research on satisfaction formation and satisfaction drivers in service industries. While service research has focused on identifying satisfaction drivers, such as service quality, availability or price perception that typically prevail among all offered services in one or more industries, we show that satisfaction drivers are not always generalisable for even one industry. We contribute to the current literature on service encounters and satisfaction by showing that customers form their overall satisfaction evaluations based on the selected (un)-satisfying touchpoint encounters along their journey. However, we show that the touchpoints that are crucial for the overall satisfaction evaluation vary depending on the service provider's offerings. Our results indicate that there is not one static combination of more or less satisfactory touchpoints that is likely to achieve the highest consumer evaluations; rather, we show that various combinations of satisfactory and unsatisfactory touchpoints exist in one industry that lead to equally beneficial outcomes for customers. More specifically, different combinations of multiple (un-)satisfying process-, servicescape- and people-related touchpoints determine the customers' overall satisfaction with a service offering.

We contribute to research on customer experience by using a configurational approach to analyse customer experience (Palmer 2010; Verhoef et al. 2009). To identify its relevant drivers, customer experience is often measured and analysed using a regression framework as a function of the different components driving the service experience (Srivastava and Kaul 2014). The same applies to measures of service quality or satisfaction (e. g., Parasuraman et al. 1988). This led to a narrow and limited focus on identifying the strengths of drivers and their contributions to overall service perceptions. However, in complex service encounters, additive models are often less than optimal because customers' overall experience is based on the totality of the service encounter and purchase situation relative to their expectations. Using fsQCA, we applied a relatively new method in social science that enables researchers to analyse patterns even in a small-N environment (Ragin 2000). Thus, our study showed that fsQCA can be used to analyse perceptual databases that deliver scores on a firm-level basis, such as industry-comparative satisfaction surveys.

Achieving customer satisfaction with service encounters is the primary goal for service firms today because increasing satisfaction retention leads to improved profits. On a managerial level, our results have implications for the airline industry. Based on the case of the airline industry, we present sets of alternative configurations that help service providers efficiently manage their customer satisfaction efforts. While there are configurations in which nearly all touchpoints need to be evaluated as satisfactory (solution #1 and solution #2), we identified configurations in which satisfactory experiences are mainly driven by satisfactory servicescape-related touchpoints (solution #3 and solution #4) or satisfactory process-related touchpoints (solutions #5, #6 and #7).

Moreover, we showed that, in nearly all the configurations, the experience with flight attendants had to be satisfactory in order to lead to an overall satisfactory service experience. This emphasises that frontline employees play a crucial role in customer satisfaction, which is mentioned in studies on the boundary spanning role of the service provider employee (Bettencourt and Brown 2003). The particular significance of frontline employees persists even in complex service encounters where many touchpoints might diminish the impression the personnel have made on the customer. However, for solution #4 even poor satisfaction with flight attendants lead to high overall satisfaction scores. We showed that airlines, for example, can rely on improving servicescape and process touchpoints to compensate for the actions of their personnel because these touchpoints deliver quality in a heterogeneous way.

Our results support the recommendation that service providers should regularly survey their customer base regarding customer satisfaction. However, our results indicate that providers should not focus solely on aggregate measures, such as overall satisfaction; rather, they should take a more granular approach and measure satisfaction at each touchpoint of the customer journey. Mapping the customer journey and the customer experience to identify important touchpoints from a customer's perspective is a prerequisite for this approach.

Moreover, our results indicate that the importance and combination of satisfaction-driving touchpoints differs between the service offerings from service providers in the context of one industry. Thus, it is essential to look beyond each firm's boundaries and analyse which touchpoints drive the competitors' customer satisfaction. Identifying combinations of satisfying touchpoints that work for competitors can be a starting point for service providers to reflect on their customer experience management along the touchpoints.

5. Limitations and Future Research

Based on the findings of our study, we call for research that does not focus solely on linear causal relationships when explaining customer experiences; rather, studies should explore the patterns of touchpoints that must be in place to lead to beneficial customer experiences. For example, it would be interesting to analyse the dependence of successful customer experience configurations on situational factors, such as the type of store where the service is provided, the channel that is used to provide the service, the location itself, the societal culture, economic climate or even rivalry in the industry (Verhoef et al. 2009).

Another interesting research avenue is to identify the differences in configurations for different customer segments. For example, future research on airline experiences could address questions such as: What are important touchpoints for frequent travellers vs. occasional flyers? What are important touchpoints for business vs. leisure flyers? What are important touchpoints for different loyalty program status segments?

Our study is based on satisfaction scores for 24 cases. Previous research has shown that fsQCA can be also applied to large N-settings (Fiss 2011; Ragin and Fiss 2008); therefore, future research should explore if different configurations of touchpoints that lead to overall highly satisfactory service evaluations are stable when the sample is enlarged from 24 to 30 airlines, or even more. Moreover, it would be interesting to see the fsQCA results verified with larger satisfaction survey at the customer level.

Our results might have to be validated with several robustness checks and sensitivity analyses. Future research should explore, for example, the sensitivity of outcome calibration. Here, it would be interesting to distinguish between high overall satisfaction (> median) and ideal overall satisfaction, which could be the upper 10 percentiles.

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