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The interplay between physical and social servicescape: investigating negative CCI

Abstract

Purpose—Negative customer-to-customer interactions (NCCI) occurring in physical service encounters can have a detrimental effect on a focal customer's experience. This paper explores how the interplay between the physical servicescape and the presence and behavior of other customers can lead to NCCI. Moreover, through an examination of customers' responsibility attribution, the paper underlines the need for service organizations to manage this interplay.

Design/methodology/approach—The authors rely on a mixed approach with two studies grounded in the S–O–R paradigm. In a preliminary quantitative study, the authors test a model of the effects of NCCI on customers' attribution and behavioral outcomes using PLS-SEM. Next, in a qualitative study, they collect and explore NCCI incidents in eight service industries relying on the Critical Incident Technique (CIT).

Findings—When experiencing NCCI, customers attribute at least partial responsibility for their negative experience to the service provider. The findings of the CIT study reveal three interplay mechanisms leading to NCCI: (1) when other customers' behavior is triggered by the physical servicescape; (2) when other customers' behavior is incongruent with the behavioral norms set by the physical servicescape; and (3) when the physical servicescape is altered by other customers' misbehavior.

Originality—This paper provides a comprehensive, empirically grounded, understanding of the interplay between the physical and social servicescape, focusing on the presence and behavior of the other customers, and its effect on the customer experience.

Keywords—physical context, servicescape, customer-to-customer interactions, offline service encounters, responsibility attribution, customer experience

Introduction

A service environment powerfully affects customer experience, as detailed by services marketing scholars who have investigated its different dimensions (Bitner, 1992; Rosenbaum and Massiah, 2011), and their influence on customers' behavior (Mari and Poggesi, 2013) and on service experience (Becker and Jaakkola 2020). The service environment implies the sharing of a physical setting with other customers (Bruce *et al.*, 2019; Colm *et al.*, 2017), which can enrich customer social experiences, but might also threaten some negative implications (Nicholls, 2020). Sharing a physical service environment with other customers, who are strangers, might result in negative customer-to-customer interactions (NCCI). The risk of such NCCI might be exacerbated or mitigated by the design of the physical environment (Colm *et al*., 2017; Nicholls, 2020). For example, high social density among customers (Rosenbaum and Massiah, 2011) caused by a cramped service facility might result in exposure to inappropriate behaviors (Baker and Kim, 2018), or a sense of insufficient privacy (Camelis *et al*., 2013).

On the one hand, there has been substantial scholarly effort to develop a holistic servicescape perspective integrating the physical and social dimensions of the service environment (Rosenbaum and Massiah, 2011; Tombs and McColl-Kennedy, 2003). On the other hand, a comprehensive understanding of how the interplay between the physical servicescape and the other customers' presence and behavior can lead to NCCI, and ultimately influence customers' service experience and behavioral outcomes, is lacking. The impact of the other customers on customer experience has been investigated in a distinct stream of service research concentrating on CCI (Grove and Fisk, 1997; Martin, 1996; Nicholls, 2020). However, focusing on customers' social interactions, CCI studies have generally neglected the service physical environment (Nicholls, 2010). Even if a few CCI studies acknowledge that a service physical environment can evoke dysfunctional behaviors (Daunt and Harris, 2012) or encourage social interactions (Heinonen and Nicholls, 2022), there is no comprehensive

investigation in this literature of what features in the physical servicescape might increase the risk of NCCI, or how the interplay between the physical servicescape and other customers informs the customer service experience.

The lack of integration between these two streams of research produces a critical blind spot in the understanding of customer service experience, which might have critical consequences for theory development and service organizations. Indeed, if consumers mostly attribute the blame of NCCI to other customers (Baker and Kim, 2018), they might also attribute part of this responsibility to the service provider (Huang *et al.*, 2010) — especially when they perceive the service organization had some control over the factors causing the NCCI (Bitner, 1990). Understanding customers' responsibility attribution is imperative because of its likely impacts on critical attitudinal and behavioral outcomes, such as satisfaction, repatronage intentions, and word-of-mouth (WOM) behavior (Lemon and Verhoef, 2016). Accordingly, we establish the following research question:

RQ1: When experiencing NCCI in a physical service encounter, do customers attribute some responsibility for their negative experience to the service firm, and to what extent does this attribution influence their behavioral outcomes?

Moreover, if customers do attribute at least some of the responsibility to the service firm, and if this attribution has a negative influence on their behavioral outcomes, it would then be critical to better understand how the interplay between the physical servicescape and the presence and behavior of other customers can lead to NCCI, leading to our second research question:

RQ2: How do the physical servicescape and the other customers' presence and behavior conjointly act, as environmental stimuli, to cause NCCI and negatively affect the customer experience during service encounters?

In our effort to answer the first research question, we conduct a preliminary study based on retrospective experience sampling to examine customers' attribution of their negative experience and

its influence on customers' behavioral responses. Then, to answer the second research question, we conduct a second study using the critical incident technique (CIT) to investigate the interplay between the physical environment and other customers' presence and behavior causing NCCI.

With these two studies, which are grounded in the S–O–R paradigm (Mehrabian and Russell, 1974) and attribution theories (Weiner, 2000), we seek to make several contributions to the extant literature. First, by bringing together servicescape and CCI research, we aim to respond to recent calls for more research on customer experience focusing on the physical service context (Bruce *et al*., 2021) and its interaction with the social environment (Becker and Jaakkola, 2020). By investigating the interplay between physical and social stimuli leading to NCCI, and therefore opening the black box of environmental stimuli affecting customer experience, we also extend the S–O–R perspective taken by prior studies. By doing so, we also strive to contribute to the expanded servicescape literature (Rosenbaum and Massiah, 2011) by highlighting the influence of the other customers as key elements of the social servicescape, which has been overlooked thus far (Kranzbühler *et al.*, 2018). Finally, we also aim to contribute to the CCI literature by first, systematically investigating the influences of physical servicescape elements on NCCI, which have received relatively little attention from scholars (Nicholls, 2010), and second, providing a better understanding of customers' attribution of responsibility following NCCI (Baker and Kim, 2018). Additionally, by examining customers' responsibility attribution, we offer empirically-grounded managerial implications. Notably, we provide service organizations with a better understanding of the detrimental effect of NCCI, as well as their responsibility in preventing them.

In the following sections, we review the extant literature on customer service experience, servicescape and CCI. Next, we present the theoretical underpinning, methods and findings of our two studies. We conclude with a discussion of our contributions and suggestions for further research.

Literature review

Customer service experience

Each customer service experience is an "individual assessment, response, or reaction derived from the customer's interaction with any direct or indirect contact with a firm's physical environment, employees, other customers, core service, or other aspects related to service delivery" (Becker and Jaakkola, 2020, p. 635). This assessment, which is subjective and personal, encompasses emotional, cognitive, sensory, social, and behavioral components (Lemon and Verhoef, 2016). Studies have also shown that such an assessment is made holistically (Bitner, 1992), suggesting that various environmental stimuli simultaneously trigger customers' emotions, and thereby affect their attitude and behavior (see Becker and Jaakkola, 2020; Kranzbühler *et al.*, 2018 for recent reviews). Yet, prior literature tends to examine the distinct effects of specific stimuli, somewhat neglecting their combined effects (Becker and Jaakkola, 2020). Thus, while the social and physical environments are two notable determinants of customer experience (Verhoef *et al.*, 2009), less is known about their interplay and its effect on customer experience (Becker and Jaakkola, 2020; De Keyser *et al.*, 2020), especially when social stimuli, such as the other customers, are seen as outside the control or responsibility of service organizations (Kranzbühler *et al.*, 2018). Still, as the diverse physical and social factors influencing customer experiences do not operate in isolation (Bolton *et al.*, 2018), service organizations need a better comprehension of this interplay and its possible negative consequences.

Focusing on firm-controlled social environmental variables, prior empirical studies have investigated the combined effects of the physical environment and factors related to service employees, such as their appearance, attitude and emotional competence (Baker *et al.*, 1994; Turley and Milliman, 2000; Delcourt *et al.*, 2016) on customer experience. There are also streams of research examining specific phenomena related to physical and social service environments, notably crowding (Hui and Bateson, 1991) and queuing (Rafaeli *et al.*, 2002), revealing their influence on customer experience.

Although the customer experience literature has largely focused on firm-controlled environmental factors, there is a growing recognition of the role of the other customers in affecting a focal customer's experience (De Keyser *et al*., 2020). Notably, it has been suggested that in interacting with firm-controlled stimuli, such as the physical environment, the behavior of other customers may thus affect customer responses (Becker and Jaakkola, 2020).

The physical and social servicescape

Marketing research has demonstrated a longstanding interest in studying the environment in which consumption occurs, and the influence it may have over customers. Kotler (1973) refers to *atmospherics* as the "conscious designing of space to create certain effects in buyers" and argues that different buying environments may elicit different emotions and hence, different purchase behaviors. Building on these premises, seminal studies (e.g., Bellizzi *et al*., 1983; Milliman, 1986) have investigated the effects of specific atmospheric cues (e.g., ambient, design, layout, and signage factors) on customer behavior. Integrating these different cues in an overarching framework, Bitner (1992) introduces the term of "servicescape" to represent the mix of physical environmental features controlled by service organizations, specifying three distinct dimensions:

(1) Ambient conditions and background stimuli that affect the five senses, such as music, odor, lighting or temperature.

(2) Space and function, which reflect the spatial configuration of the service environment (i.e., how physical elements such as equipment and furnishing are arranged), and its functionality (i.e., the ability of physical elements to facilitate service performance).

(3) Signs, symbols, and artifacts that explicitly or implicitly communicate about the service, including rules of behavior.

Grounded in the S–O–R paradigm, the initial servicescape conceptualization (Bitner, 1992) recognizes various environmental stimuli that can elicit cognitive, emotional, and physiological

responses from customers (Bitner, 1992). Although she defines the physical and social dimensions separately, Bitner (1992) recognizes that consumers tend to perceive these environmental dimensions holistically, in a "pattern of interdependent stimuli" (Bitner, 1992, p. 65). Customers' overall perception of the servicescape has thus been shown to influence their responses to the service offering (Mari and Poggesi, 2013), as well as diverse customer responses such as satisfaction (Hanks and Line, 2018), emotions (Dedeoglu *et al.*, 2018), WOM behavior (Choi and Kandampully, 2019), and repatronage intentions (Hooper *et al.*, 2013).

Acknowledging that social interactions also represent important environmental stimuli, and thus influence customers' responses and behaviors, Tombs and McColl-Kennedy (2003) develop the concept of "social-servicescape" to include both service employees and customers in the service environment. Stressing the importance of the interplay between the physical and social dimension, they argue that the intended influence of the physical servicescape might be counteracted by the other people present in the service environment (Tombs and McColl-Kennedy, 2003). Building on these foundations, Rosenbaum and Massiah (2011) propose an expanded servicescape perspective encompassing physical, social, socially-symbolic, and natural dimensions. This broader, holistic, understanding of the servicescape hence combines a plethora of environmental stimuli that are, to various extents, managerially controllable by the service organization (Rosenbaum and Massiah, 2011).

Prior studies adopting an expanded servicescape perspective have primarily focused on the conjoint effects of the physical dimension and service employees as part of the social servicescape. The study of Harris and Ezeh (2008) reveals the importance of employee-related factors, in addition to ambient conditions and design factors, as environmental stimuli affecting customer loyalty in a restaurant context. More recently, Lee and Chuang (2022) apply the expanded servicescape to a hotel context and demonstrate the positive effects of ambiance and interactions with employees on customer satisfaction and loyalty. While reinforcing the importance of studying the interplay between the

physical and social servicescape, these studies, to a large extent, focus on service employees as the main element of the social servicescape.

Hence, there is only limited evidence of the conjoint influences, especially negative, of the physical servicescape and the other customers. For example, Rosenbaum (2006) emphasizes the combined role of the physical servicescape and social interactions with other customers to foster positive customer outcomes. Line *et al.* (2018) demonstrate that customers' responses to the servicescape, combined with their perceived similarities with other customers, influence their identification with the company. Still, the lack of research investigating the negative interplay between physical servicescape elements and other customers' presence and behavior (Lin *et al.*, 2020) calls for further exploration.

Customer-to-customer interactions

Since Martin and Pranter (1989) first discussed customer-to-customer relationships, studies have investigated how experiences in offline service settings are affected by other customers (Grove and Fisk, 1997), whether directly through a specific behavior, or indirectly due to their mere presence within the service environment. Prior research has proposed various classifications of CCI (see Nicholls, 2020 for a review), which might also use alternative terminology, such as customer co-presence influence modes (Colm *et al.*, 2017) or incidents caused by other customers (Grove and Fisk, 1997). Some of these studies focus exclusively on negative aspects of CCI and offer classifications of dysfunctional customer behaviors (Harris and Reynolds, 2003), disruptive behaviors (Gursoy *et al.*, 2017), or service failures caused by other customers (Baker and Kim, 2018; Huang, 2008). Beyond classifications, CCI studies also highlight the influence of the other customers on customer outcomes, such as the service experience (Grove and Fisk, 1997), emotions (Miao and Mattila, 2013), satisfaction (Huang, 2008), loyalty (Harris and Reynolds, 2003), repatronage intentions and WOM (Baker and Kim, 2018).

Some CCI studies have also investigated, albeit quite scarcely, the blaming mechanisms occurring

when customers face NCCI (e.g., Baker and Kim, 2018; Huang, 2008; Huang *et al.*, 2010). The findings of these studies suggest that the extent to which customers attribute responsibility to the service provider depends on different factors, among which are the occurrence and frequency of NCCI, which could be controlled by service organizations via the design of the physical servicescape and other managerial actions (Tsang *et al.*, 2016). In addition, Colm *et al*. (2017) found that regardless of the actual control the firm has over CCI, some customers implicitly hold the service organization responsible for the spatial layout, the functionality of the service processes and the types of customers accepted in the service environment.

However, CCI studies rarely examine the role of the physical servicescape directly in relation to CCI, even after Nicholls (2005) asserted its critical influence on the likelihood of CCI occurrence and amplification potential. The influence of the physical servicescape on CCI is often suggested, but seldom empirically investigated. For example, Moore *et al*. (2005) argue that atmospherics influence CCI, while Martin (1996) posits that firms could use elements of the servicescape to manage CCI. Similarly, some studies of positive CCI (Harris *et al.*, 1995) indicate that service organizations could use their servicescape to foster positive interactions, while other studies suggest some servicescape design solutions to limit the occurrence of NCCI (Camelis *et al*., 2013) or customer misbehavior (Daunt and Harris, 2012). In addition, Reynolds and Harris (2009) identify the servicescape as one of the factors influencing the severity of other customers' misbehavior. Still, there has been little research into how other customers interact with the physical servicescape and how this interaction, in turn, affects customer experience during service encounters.

Theoretical embedding

To answer our research questions and bridge the gaps identified in the literature, we develop two empirical studies—one quantitative preliminary study and one qualitative main study—both grounded in the S–O–R paradigm (Mehrabian and Russell, 1974) and drawn on tenets of attribution theories

(Weiner, 2000).

As theorized by Mehrabian and Russell (1974, p. 8), "physical and social stimuli in the environment directly affect the emotional state of a person, thereby influencing its behaviors in it." Following foundational servicescape studies (see Ezeh and Harris, 2007, for a review) and prior empirical research (e.g., Hoffman *et al.*, 2003; Lin and Mattila, 2010), we use S–O–R as an overarching framework to better understand the interplay between the physical servicescape and other customers' presence and behavior, as physical and social environmental stimuli leading to NCCI. By investigating this interplay, we address a research gap regarding the interconnection and conjoint effects of environmental stimuli (Becker and Jaakkola, 2020). Prior research has indeed put more focus on the relationship between the organism and customer responses, rather than between the various environmental stimulus variables (Choi and Kandampully, 2019).

Moreover, to establish the importance for service firms to better understand, and manage, this interplay of physical and social stimuli, we also aim to clarify to whom customers attribute the responsibility for their negative experience when suffering NCCI. Indeed, the presence of various social and physical stimuli in the service environment, perceived as more or less controllable by the service organization (Kranzbühler *et al.*, 2018), may lead to ambiguity regarding customers' attribution of responsibility (Albrecht *et al.*, 2017; Baker and Kim, 2018). Attribution theories refer to individuals' perception of what causes a specific behavior or event, and how their interpretation of the cause influences their reaction (Kelley and Michela, 1980). Therefore, understanding customers' attribution of a negative service experience is crucial (Iglesias, 2009), as this dimension of their cognitive assessment is likely to affect their subsequent attitudes and behaviors (Weiner, 2000). Consistent with attribution theories (Weiner 2000), we thus contend that when customers perceive that their negative experience could have been prevented by elements that are in the control of the service organization, such as the physical servicescape, they attribute at least partial responsibility to the service provider

(Bitner, 1990), even if the incident is caused by other customers (Colm *et al.*, 2017; Huang *et al.*, 2010). Thus, understanding whether customers hold service organizations responsible for NCCI is critical, as it is likely to influence their behavioral outcomes (Albrecht *et al.*, 2017).

Study 1

With this first study, we seek to clarify if customers attribute at least some part of the responsibility for their negative experience to the service organization, and how this attribution affects their satisfaction and behavioral intentions. By doing so, we aim to underline the critical significance of NCCI for both service customers and organizations.

Relying on retrospective experience sampling (Bougie *et al.*, 2003; Huang, 2008), we collected data using a questionnaire-based survey. Next, using partial least squares structural equation modeling (PLS-SEM) (Hair *et al.*, 2014), we tested a model (Figure 1) suggesting that customers' attribution of their negative experience to the service organization influences their satisfaction and behavioral intentions. Thus, acting as a mediator between customers' negative emotions following NCCI and both their satisfaction and behavioral intentions. In a Web Appendix, we present the methodological details including our data collection procedure, the measures included in the survey instrument, the method used for data analysis as well as the results of the assessment of the measurement model. These sections have all been left out of the main body of this article for space constraint reasons.

Results

We used the standardized root mean square residual (SRMR) to evaluate the fit of the structural model (Henseler *et al.*, 2015). With a SRMR value of .093, we demonstrate an acceptable fit for the structural model (Hu and Bentler, 1999). The assessment of the relationships in the model shows a significant direct effect of negative emotions on customers' dissatisfaction ($\beta = .340$; $t = 3.813$; $p < .01$) and attribution ($\beta = .467$; $t = 5.612$; $p < .01$). Attribution partly mediates the relationship between negative

emotions and dissatisfaction ($\beta = .190$; $t = 3.608$; $p < .01$), and between negative emotions and repatronage intentions ($\beta = -.087$; $t = 1.986$; $p < .05$). Moreover, the results show significant direct effects of attribution on dissatisfaction ($\beta = .407$; $t = 4.800$; $p < .01$), repatronage intentions ($\beta = -.185$; $t = 2.214$; $p < .05$), and negative WOM ($\beta = .189$; $t = 2.258$; $p < .05$). The total effect of customers' responsibility attribution on repatronage intentions is –.315 ($t = 4.508$; $p < .01$), and on WOM is .413 ($t = 5.608$; $p < .01$), which demonstrate the relevance of attribution.

[Insert Figure 1 About Here]

These results demonstrate that when suffering NCCI, customers do attribute some part of the responsibility for their negative experience to the service provider, and that it negatively affects their satisfaction, repatronage intentions, and WOM behavior. The negative implications of these results for both customers and service organizations thus underscore the need to further investigate the interplay between the physical servicescape and the other customers' presence and behavior.

Study 2

We designed a second, qualitative, study to explore the mechanisms of this interplay, and better understand how the physical servicescape and other customers' presence and behavior inform each other to cause NCCI and negatively affect the customer experience.

Method

Data collection procedure and instrument

We collected data using the CIT (Flanagan, 1954; Gremler, 2004), a research method widely used in service research (Gremler, 2004), notably to study customer experiences, CCI (Grove and Fisk, 1997; Nicholls, 2020), and servicescape (Hoffman *et al.*, 2003). CIT is particularly well-suited for gaining an "understanding of the incident from the perspective of the individual, taking into account cognitive, affective, and behavioral elements" (Chell, 1998, p. 56). We thus collected rich descriptions of

memorable NCCI incidents related by customers in their own words.

Data were collected by students for which they received course credits. The use of students as data collectors is considered a common and reliable data collection method in CIT studies (e.g., Bitner *et al.*, 1990; Grove and Fisk, 1997; Keaveney, 1995; Nicholls, 2020). After being trained on the data collection method and instrument (which was previously pretested by the authors), the 103 data collectors were instructed to recruit a convenience sample of five Swiss adult service consumers. They conducted structured individual interviews, which were recorded and transcribed verbatim.

The informants were asked to describe a specific NCCI incident, during which their satisfaction with an offline service experience was negatively affected by the presence or behavior of other customers in the last two years. The physical servicescape was not mentioned in this prompt, to avoid priming the informants to select incidents according to any specific framework (Gremler, 2004). Similar to Bitner *et al*. (1990), we also included follow-up questions to gather more insights about the specific elements that negatively affected the service experience and customers' responses following the incident. Building on the findings from the preliminary study, respondents were also asked whether they believed that the service organization could have prevented the occurrence of the NCCI incidents, and if so, to describe how.

Sample selection and description

A total of 515 incidents were collected. A preliminary reading revealed that some of them were not related to the physical servicescape. Following Hoffman *et al.*'s (2003) recommendation, two members of the author team undertook a meticulous case selection effort, to find incidents related to the physical servicescape by seeking cues that linked the service environment to the incident. To do so, they relied on a list of keywords describing environmental and atmospheric elements based on previous studies (see Web Appendix A2), and thus selected informant's verbatim containing these keywords or related expressions. The two coders compared their selection, producing a satisfactory agreement rate of .84

(Gremler, 2004). A discussion leading to the refinement of the selection resulted in a sample of 231 incidents, provided by 112 men and 119 women with an average age of 39.1 years (SD = 16.4 years). Eight service industries are represented in the sample—healthcare (5), hotel and tourism (17), leisure (47), passenger transport (61), personal (4), public (6), retail (56), and restaurant services (34)—which allowed us to obtain a broad variety of incidents.

Data analysis

Standard CIT data analysis procedures typically focus on classifying the collected incidents into categories to organize and describe the data (Bitner *et al.*, 1990; Gremler, 2004). As per Nicholls (2020), we analyzed the NCCI incidents with a thematic analysis, drawing on the six stages proposed by Braun and Clarke (2006). In a first inductive stage, two coders who did not take part in the prior stage of case selection read the data several times to familiarize themselves with the incidents, noting their initial ideas about the classification scheme. Then, in a second stage, they used open coding to classify the incidents according to the elements of the physical environment detected in their description. The intention of this stage was to classify the physical servicescape elements emerging from the verbatims, given that the social dimension was systematically included in all incidents (i.e., informants were asked to describe a negative service experience due to the presence or behavior of other customers). In a third stage, the codes were organized into four broader themes to describe physical servicescape elements that affect customer experience in conjunction with the other customers. The fourth stage consisted in the coders ensuring that the themes were coherent, supported by the data and producing categories that were not overlapping. In the fifth stage, while aiming to name and define the categories, the coders identified the following physical dimensions of the servicescape proposed in the literature (Bitner, 1992; Rosenbaum and Massiah, 2011) as suitable theoretical categories: signs, spatial layout, functionality, and ambient conditions. These four categories differ from the original framework, as no evidence related to artifacts or symbols emerged from our data.

Moreover, the coders decided to keep spatial layout and functionality as two separate categories, as they found that customers were affected differently in incidents related to these servicescape elements.

Next, these same coders reread the incidents classified in the four categories aiming to clarify how combinations of physical servicescape elements and other customers' presence and behavior might have harmed customers' experiences. This stage allowed for the precision of the social dimension, by specifying three different mechanisms through which the other customers and their interactions with the physical servicescape elements negatively influence customer experience. Several rounds of discussion between the two authors led to the refinement of the classification, and the illustration of the categories with data extracts. The coders agreed on theoretical saturation after 200 incidents, at which point no new categories emerged (Saunders *et al*., 2018). The 31 additional incidents supported refinements of the category descriptions.

Subsequently, as typical in CIT studies to ensure the reliability of the classification scheme (Gremler, 2004), an additional independent coder, who was not part of the author team or involved in any prior stage of the analysis, read and assigned the incidents to the identified categories, producing a satisfactory agreement rate of .86 (Gremler, 2004). Disagreements in the classification were resolved by jointly reviewing the incidents with the first two coders (Gremler, 2004).

In addition, to provide service managers with insights into potential preventive measures, two coders, who were indeed part of the author team, conducted a thematic analysis of the informants' verbatims describing the measures that service organizations could have taken to prevent the occurrence of NCCI incidents. Overall, 172 informants provided 221 suggestions that were first open-coded and then collated into two overarching themes depending on whether they were associated with the servicescape design or to some other complementary measures. Then, suggested measures related to the first overarching theme were classified according to the physical servicescape category they addressed, and those pertaining to the second overarching theme based on whether they were linked to

the establishment of behavioral rules or to their implementation.

Findings – Interplay mechanisms

The thematic analysis of the CIT data reveals three mechanisms through which physical servicescape elements affect customer experience conjointly with the presence or behavior of other customers. Customer experience can be affected by (1) the behavior of other customers triggered by elements of the physical servicescape, (2) the presence or behavior of other customers that are incongruent with behavioral norms set by the physical servicescape, and (3) a physical servicescape that has been altered or damaged by previous customers' behavior (see Table I for a synthesis of the findings and Table II for illustrative quotes).

[Insert Tables I and II About Here]

Triggering mechanism

Firstly, the physical environment might have a triggering effect on the behavior of other customers, which in turn negatively affects the focal customers' service experience. This mechanism represents a chain effect from the physical environment to the focal customer's experience, through the behavior of other customers. Indeed, elements of the physical environment spark a disturbing behavior among other customers, which affects the focal customers' experience through a NCCI. Across the NCCI incidents reported by our informants, we identified three physical servicescape dimensions as having such triggering effects.

Ambient conditions. Ambient conditions can trigger disturbing behaviors by other customers, because these background environmental stimuli can affect human sensations and therefore induce particular actions. In turn, they may lead to NCCI incidents, as illustrated by a railway user:

> On the train to London, another passenger kept complaining about the temperature. This person thought it was too cold and that the heat had to be turned on. He complained both to his travel companions and to the train staff.… The trip became enjoyable only after he left the train. (Informant #5)

Functionality. If the physical servicescape suffers from poor functionality that hinders service performance, customers' experience can be tarnished by the affected behavior of the other customers. These effects are especially notable in relation to queues and checkout systems:

> [Ski resort context] The waiting system to take the ski lift is like a funnel, so all customers rush and kick with their skis because they think others will go before them.… The system is not functional at all … because everybody passes and pushes everybody, and that stresses everyone out. (Informant #215)

Spatial layout. The design of the spatial layout can also lead to disturbing behaviors by other customers. A spatial layout that triggers excessive social density can create privacy issues, such as in this example in a restaurant context where one informant was disturbed by other customers seated in close proximity:

> Last summer, I went to a restaurant with my girlfriend to celebrate our anniversary. We had chosen a nice place with few customers, but the tables were rather close to each other. Everything was going well until three people arrived […] and were very noisy. As the tables were adjacent, we [my girlfriend and I] couldn't hear each other. They even started to chat with us several times whilst we wanted to be quiet. (Informant #128)

These incident descriptions reveal how the physical servicescape can trigger situations where the other customers' behavior ultimately affects the service experience of focal customers. In this mechanism, the physical servicescape acts as an initial stimulus that elicits a behavioral response in other customers, which in turn, acts as a stimulus causing an affective and behavioral response in the focal customer.

Behavioral incongruence mechanism

Secondly, our informants also reported incidents in which the other customers' behavior in the service environment violated their expectations, and consequently affected their service experience. In these incidents, the service experience of the focal customers is affected by the behavior of the other customers because of specific characteristics of the physical environment. Similar behaviors might be

perceived as perfectly acceptable in a different setting. For example, eating with one's fingers is acceptable in a fast-food restaurant, however, in a Michelin-star restaurant it might disturb the focal customers. In these incidents, the initial stimulus does not come solely from the physical environment, but from the interplay between the physical environment and the behavior of the other customers. Thus, when the behavior of the other customers was incongruent with the behavioral norms set by elements of the physical servicescape, our informants' service experience was damaged.

Signs. Customers often form behavioral expectations in response to signs displayed by the firm to explicitly indicate rules of conduct. When some other customers do not follow those rules, it can hinder customers' experience. In the following description, the informant recalls a sense of frustration, due to other customers' disregard for airline rules: "I often see other passengers who do not respect the separate lines and use the priority line without paying for it.… It is frustrating." (Informant #2)

Spatial layout. The spatial layout can also lead customers to form certain behavioral expectations, which, when contradicted by other customers' behavior, can lead to NCCI. For example, in the context of a concert, when the spectators in front of our informant stood up in the sitting area:

> I bought relatively expensive show tickets to ensure a seat in a location I felt was optimal. Just as the show starts, two people in front of me stand up. I gently remind them that we are in the seated area and that I would like them to stay seated because I can't stand all evening. With that they ignore me and continue. (Informant #55)

Functionality. Similarly, elements related to the functionality of the physical servicescape can raise customers' expectations, as for example with self-checkouts at the supermarket which are considered quick by our informant, who was unpleasantly surprised to find two very slow customers with a full shopping cart before him:

> Typically, in the supermarket, there are now automatic checkouts, where you can quickly pay when you buy one or two things. A week and a half ago, I only had two things to buy I really had to hurry. And there were two elderly people, with full shopping carts, who arrived just before me, and who took the two checkouts that were available. Obviously, there was a line on the other one. And I think it would have been quicker if I

had waited in line for the other one because it was really too long. (Informant #7)

Ambient conditions. Informants also described negative experiences caused by other customers' violations of the behavioral norms had formed on the basis of the visual and atmospheric conditions in the physical servicescape. In a luxurious hotel for example, the sophisticated ambiance raised certain expectations about guest behavior that were not met and affected our informant's service experience:

> We were at the hotel celebrating New Year's Eve, and there was a Russian tourist who was drunk and started taking off his clothes, talking very loudly and acting crazy. He ended up being completely naked in the pool around midnight! What bothered me was seeing that kind of behavior in a rather luxurious place. (Informant #73)

In these incidents, the physical and social stimuli were perceived as incongruent by the focal customers, which affected their service experience. On the one hand, the physical environment acts as a stimulus creating expectations for the focal customer; but on the other hand, the other customers are behaving in ways conflicting with these expectations, leading to NCCI.

Spillover mechanism

Thirdly, our informants also reported that other customers sometimes damage or alter the physical servicescape, with implications for the service experience of subsequent customers. In these incidents, as in the triggering mechanism, there is a chain effect. However, in the spillover mechanism, the order of the stimuli is reversed. First, other customers alter the physical servicescape, which in turn affects the service experience of the focal customer. In such cases, customer experience is affected by traces of another customer's misbehavior.

Functionality. When elements of the servicescape have been damaged by other customers, it can reduce its functionality for others. Thus, subsequent customers find themselves unable to use the servicescape, and, as experienced by an informant at a bowling alley, when he was assigned: "…a really dirty table left in poor conditions by the people before us…. We had to go find employees to ask

for a new, usable table." (Informant #27)

Ambient conditions. Other customers' behavior might also alter the ambient conditions for the subsequent customers, as when a customer urinated in the shower at the municipal pool: "…after a few hours there was a very unpleasant smell." (Informant #54)

In this mechanism, the behavior of the other customers is not a direct stimulus, but there is an indirect effect of this behavior as it is the damaged servicescape that acts as the stimulus diminishing the focal customer's service experience.

Preventive measures

Our analysis of the CIT data reveals that customers consider that service organizations could have taken various measures to prevent the occurrence of NCCI. These suggestions of preventive measures indicate that customers attribute some control over the situation to the service organizations. Suggested measures involve either the design of the physical servicescape or complementary measures to compensate for its weaknesses (see Table III for illustrative quotes). Measures implying modifications of the servicescape span the four servicescape elements previously identified: addition or improvement of signs, better design or segmentation of the spatial layout, improved queuing and other service processes to enhance functionality, and enhancements of the ambient conditions. In contrast, some NCCI incidents appear to require more than modifications of servicescape elements, as informants propose complementary solutions to compensate for weaknesses in the physical servicescape design, whether ahead of the design (e.g., establishing behavioral rules) or during the service process (e.g., employees enforcing rules). In line with the results of the preliminary study, these findings also provide further evidence that customers do attribute some part of the responsibility for the NCCI incidents to the service organizations, reinforcing the need to better understand the interplay mechanisms.

[Insert Table III About Here]

Discussion

Theoretical contributions

We contribute to the extant services marketing literature in several ways. First, by bringing together servicescape and CCI, two separated, but as we demonstrated, complementary streams of literature, we contribute to calls in the customer experience literature to conjointly study various stimuli affecting customer service experience (Becker and Jaakkola, 2020). In doing so, we extend the S–O–R perspective taken by prior studies by opening the black box of environmental stimuli and studying the interconnection of physical and social environmental stimuli negatively affecting the customer service experience. Specifically, by revealing three distinct interplay mechanisms, we offer a novel understanding of how physical and social stimuli inform each other to cause NCCI. In Figure 2, we provide a visual representation of these interlay mechanisms, emphasizing the different sequences of physical servicescape elements and other customers' presence and behavior leading to NCCI in each case.

[Insert Figure 2 About Here]

With the first mechanism, we clarify the triggering effect of physical servicescape elements on other customers' behavior. That is, the physical servicescape acts as a stimulus that triggers a behavioral response in other customers, whose behavior in turn elicits an affective and behavioral response in the focal customer. This mechanism highlights the indirect effect of the physical servicescape on the focal customer via the behavior of other customers. We thus contribute concrete empirical evidence of the triggering effect of the physical servicescape on other customers leading to NCCI, which had been missing from the CCI literature (Nicholls, 2010).

Next, with the behavioral incongruence mechanism, we highlight the fact that customer service experience can be affected when physical and social environmental stimuli are conflicting, and more specifically, when other customers behave in a way that violates the expectations formed by the focal

customer in response to elements of the physical servicescape. In such NCCI, the physical environment does not influence the behavior of the other customers, but rather influences how this behavior is perceived by the focal customer. This mechanism thus implies a norm-based perspective on customer misbehavior (Fullerton and Punj, 2004), which posits that customer misbehavior is any behavior that violates the generally accepted norms of conduct in an exchange setting (Fullerton and Punj, 2004), even if the same behavior might be perfectly acceptable in a different setting.

Finally, the spillover mechanism illustrates that customer experiences might be affected when the physical servicescape has been altered by other customers. In this case, it is the physical environment, previously damaged by the detrimental behavior of other customers, that acts as a stimulus to affect the customer experience. This mechanism aligns with a spillover perspective on service encounters that predicts effects beyond their basic temporal boundaries (Yue *et al.*, 2022); in other words, other customers' behaviors spill over to the service experience of focal customers. This notion is here extended to CCI, with customer experiences being affected by elements of the physical servicescape that have been altered by previous customers. We, thus, bring a fresh perspective that had been missing from the servicescape and CCI literatures. Our data also provides empirical evidence of a specific type of CCI suggested by Nicholls (2005, p. 68) as "transtemporal CCI" occurring "across time but in the same spaces," in this case directly related to the physical servicescape.

By distinguishing between these three mechanisms, we also extend knowledge on the effect of the servicescape on customers' behavior and experience. Even if this effect is perceived holistically by the customers (Bitner, 1992), it is critical to understand these different mechanisms to better manage customer experience. By doing so, we contribute to the expanded perspective of the servicescape (Rosenbaum and Massiah, 2011) by concentrating on the other customers as an important, although understudied, component of the social servicescape (Tombs and McColl-Kennedy, 2003).

Moreover, our findings also contribute to the CCI literature by systematically investigating the

influences of the different elements of the physical servicescape in NCCI, which have been previously overlooked in this literature (Nicholls, 2010). Additionally, by demonstrating that customers attribute some part of the responsibility for their negative experience to the service firm, and that they often believe the firm could have done something to prevent the negative incident, our findings also provide a better understanding of customers' blaming mechanisms when experiencing NCCI (Baker and Kim, 2018; Huang *et al.*, 2010).

Managerial implications

Although the other customers are often perceived as a less manageable aspect of the social servicescape (Rosenbaum and Massiah, 2011), our findings reveal several ways through which service organizations could in fact use the servicescape to manage the behaviors and presence of other customers, and thus prevent NCCI. Therefore, our findings provide some valuable insights for service managers. First, we highlight the critical importance for service firms to understand and manage the interplay between the physical and social servicescape. Indeed, we reveal that when experiencing NCCI in physical service encounters, most customers attribute at least partial responsibility to the service firm. Indeed, customers hold firms responsible for the design and maintenance of the physical environment. We emphasize the criticality of this attribution to the service organization as our quantitative study demonstrates its detrimental effect on the important customer and firm outcomes that are satisfaction, repatronage intentions, and WOM.

Second, we provide service firms with a better understanding of their servicescape's potential effect on their customers' behaviors, and their interactions with other customers. By specifying the three interplay mechanisms leading to NCCI, we thus bring attention to the chain effects which they can act upon to prevent the occurrence of NCCI.

Finally, through the suggestion of potential preventive measures, service managers are provided with several avenues to revisit their physical servicescape in light of its interplay with customers'

presence and behaviors. Our classification also highlights some measures that could compensate for weaknesses in the physical servicescape design for preventing NCCI, whether before the design process or during the service process. Notably, our findings emphasize the key role of frontline employees, as part of the social servicescape, in enforcing the rules set by the service organization, and thus, in preventing the occurrence of NCCI in the service environment.

Limitations and suggestions for further research

As with any study, ours is not without limitations, which might provide some opportunities for future research. Our data refer to CCI incidents in eight service industries, so that our findings appear relevant to various service contexts. Although our sample of 231 critical incidents across multiple service industries increases the generalizability of our findings, some elements of the physical servicescape (Bitner, 1992; Rosenbaum and Massiah, 2011), such as symbols and artifacts, do not emerge from our data. Further studies could focus on specific service contexts in which symbols and artifacts have more prominent roles (e.g., high-end hotels and restaurants, luxury retail), to gain complementary insights. In addition, this study was conducted in Switzerland, where the communication style primarily relies on explicit information rather than implicit cues, which might limit the relevance of symbols and artifacts. Further research might replicate our study in a high-context culture (e.g., Italy, Arabic countries) to assess whether the culture has any effect. Moreover, future research could investigate NCCI occurring in online service contexts, and thus examine the interplay of the social and virtual service environments.

These promising avenues for research could complement our novel perspective on the interplay between the physical and social service environments and the resulting effects on customer experiences.

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Table I. Interplay mechanisms of the physical servicescape and other customers' presence and behavior

Physical servicescape elements	Mechanisms		
	Triggering *Customer experience is affected by the disturbing behavior of other customers triggered by elements of the physical servicescape*	**Behavioral Incongruence** *Customer experience is affected by the behavior of other customers that is incongruent with the behavioral expectations set by the physical servicescape*	**Spillover** *Customer experience is affected by the physical servicescape, which has been altered/damaged by preceding customers' misbehavior*
Signs		The behavior of other customers violates behavioral expectations set by elements (e.g., signage, marking) of physical the servicescape.	
Spatial layout	The spatial layout triggers disturbing behaviors from other customers (e.g., crowding, noise making).	Other customers' behavior contradicts behavioral expectations set by the spatial layout) of the physical the servicescape.	
Functionality	The design of the service process affects the functionality of the physical servicescape, which triggers disturbing behaviors from other customers (e.g., slowing down, jamming).	The behavior of other customers violates the behavioral expectations formed in response to the functionality of the physical servicescape.	The functionality (service performance) of the physical servicescape is altered by other customers.
Ambient conditions	Ambient conditions (e.g., heat, noise, smell) trigger disturbing behaviors from other customers.	Other customers' behavior is incongruent with behavioral expectations set by the ambient conditions of the physical servicescape.	Ambient conditions (e.g., heat, lighting, level of noise) are altered by other customers.

Table II. Illustrative quotes for the three interplay mechanisms

	Mechanisms		
	Triggering	**Behavioral Incongruence**	**Spillover**
Physical servicescape elements	*Customer experience is affected by the disturbing behavior of other customers triggered by elements of the physical servicescape*	*Customer experience is affected by the behavior of other customers that is incongruent with the behavioral expectations set by the physical servicescape*	*Customer experience is affected by the physical servicescape, which has been altered/damaged by preceding customers' misbehavior*
Signs		[Airport check-in context] I often see other passengers who do not respect the separate lines and use the priority line without paying for it.… It is frustrating (Informant #2). [Clothing retailer context] There were markings on the floor, but behind me, people were standing too close to me, and even other people came in close to check some earrings displayed next to me. I found myself "sandwiched" between all those people who should not have been there, and my personal space was completely invaded by these potential virus transmitters (Informant #49).	
Spatial layout	Last summer, I went to a restaurant with my girlfriend to celebrate our anniversary. We had chosen a nice place with few customers, but the tables were rather close to each other. Everything was going well until three people arrived […] and were very noisy. As the tables were adjacent, we [my girlfriend and I] couldn't hear each other. They even started to chat with us several times whilst we wanted to be quiet (Informant #128).	[Concert context] I bought relatively expensive show tickets to ensure a seat in a location I felt was optimal. Just as the show starts, two people in front of me stand up. I gently remind them that we are in the seated area and that I would like them to stay seated because I can't stand all evening. With that they ignore me and continue (Informant #55). There were markings on the floor, but behind me, people were standing too close to me, and even other people came in close to check some earrings	

		displayed next to me. I found myself "sandwiched" between all those people who should not have been there, and my personal space was completely invaded by these potential virus transmitters (Informant #49).	
Functionality	[Ski resort context] The waiting system to take the ski lift is like a funnel, so all customers rush and kick with their skis because they think others will go before them.… The system is not functional at all … because everybody passes and pushes everybody, and that stresses everyone out (Informant #215).	[Supermarket context (self-checkout)] Typically, in the supermarket, there are now automatic checkouts, where you can quickly pay when you buy one or two things. A week and a half ago, I only had two things to buy I really had to hurry. And there were two elderly people, with full shopping carts, who arrived just before me, and who took the two checkouts that were available. Obviously, there was a line on the other one. And I think it would have been quicker if I had waited in line for the other one because it was really too long (Informant #7).	[Bowling context] After we paid, we went to our dedicated bowling alley, and found really dirty table left in poor conditions by the people before us. […] We had to go find employees to ask for a new, usable table (Informant #27). [Gym context] The previous user had left it damp with sweat […] In the end, I had to clean it myself, which disgusted me, because it was someone else's sweat, and with the pandemic going on, some things are better avoided (Informant #158).
Ambient conditions	[Public transports context] On the train to London, another passenger kept complaining about the temperature. This person thought it was too cold and that the heat had to be turned on. He complained both to his travel companions and to the train staff.… The trip became enjoyable only after he left the train (Informant #5).	[Hotel context] We were at the hotel celebrating New Year's Eve, and there was a Russian tourist who was drunk and started taking off his clothes, talking very loudly and acting crazy. He ended up being completely naked in the pool around midnight! What bothered me was seeing that kind of behavior in a rather luxurious place (Informant #73).	[Swimming pool context] People who urinate in the shower… after a few hours there is a very unpleasant smell (Informant #54). [Night club context] It seems that someone threw up in the middle of the room and there was first of all an unbearable smell […] (Informant #110).

Table III. Preventive measures

Categories	Preventive Measures	Illustrative Quotes
Measures implying modifications to the physical servicescape		
Signs	Improvement/addition of signs	Putting strips on the floor, because there were none (Informant #175).
Spatial layout	Better segmentation of the space	Reserve this type of wagon for the customers with young children (Informant 58).
	Better space design	Have a terraced floor rather than a flat one (Informant #32).
	New technological measures (e.g., surveillance cameras)	I tell you, the best thing is surveillance cameras (Informant #80).
Functionality	Improved design of the waiting process	Yes, I think the company could use a system with numbers. When each customer arrives, she takes a ticket with a number and waits for her turn (Informant #240).
	Improved efficiency of the waiting process	Yes, with Easter weekend coming and sales in the store, the manager could have planned to open more checkouts counters (Informant #186).
	Improvement of other service processes (e.g., after-sales service)	Yes, I would say that fruits and vegetables could be weighed directly at the checkout counter (Informant #9).
Ambient conditions	Improved ambient conditions (e.g., smell, temperature, colors)	Play relaxing or calming music instead of rhythmic music, to avoid exciting customers. Or help people with a relaxing decor, not too vivid or too rich (Informant #198).
Measures to supplement the physical servicescape		
Behavioral rules	Regulation of access to the service	Do not accept customers without masks (Informant #24).
	Limitations on the number of people in the servicescape at the same time	Introduce a limit of people inside the restaurant [at the same time] (Informant #154).
	Establishment of penalties	If a person is unable to remain silent during the film, he or she should be asked to leave the room (Informant #4).
	Establishment of additional (behavioral) rules	Well … ban drinking alcohol on the trains! (Informant #67).
Enforcement of rules	Presence of more employees in the servicescape	The organization could provide for the presence in the room of certain employees who maintain control (Informant #21).
	Better training of employees	Perhaps they could offer better training to frontline service employees on how to better handle these situations (Informant #19).
	Systematic information/reminders of existing rules by employees	Explain the rules to people when they take the tickets at the counter (Informant #106).
	Not selling goods (e.g., popcorn, candies) that deteriorate ambient conditions	They should not sell food like potato chips, which make a lot of noise when you eat them (Informant #204).

Figure 1. Structural model

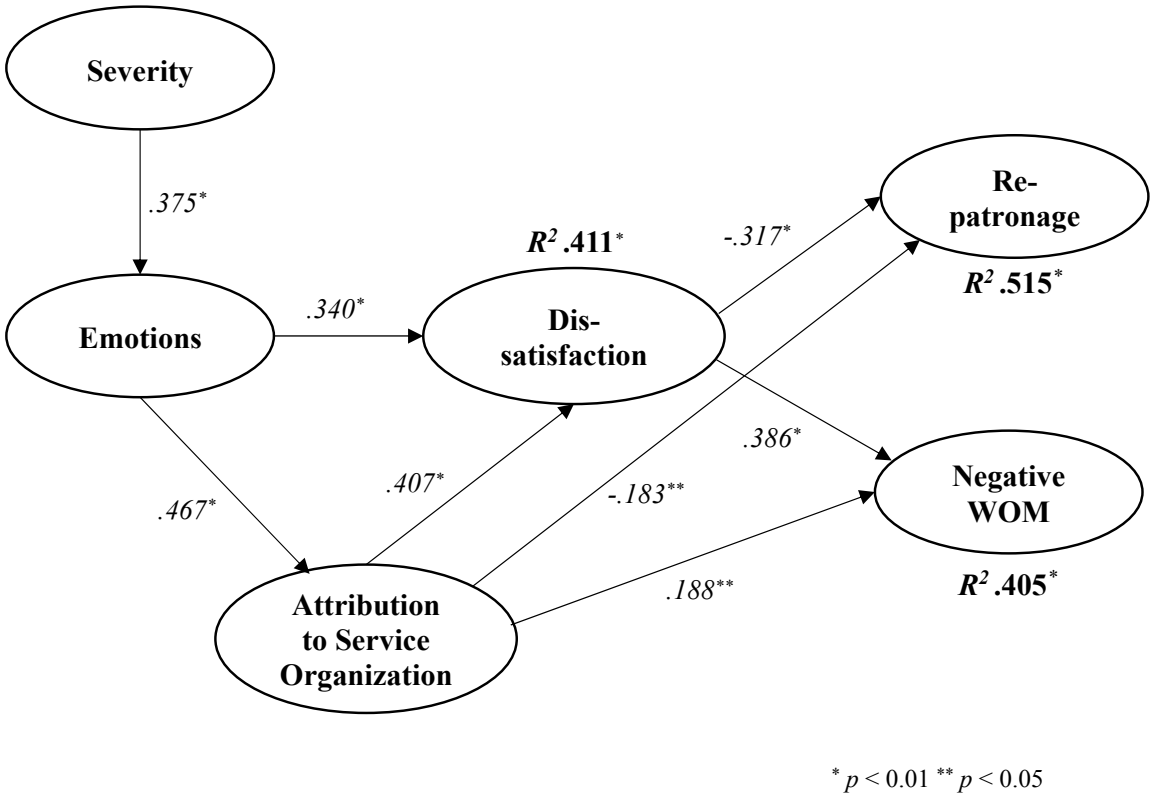

Figure 2. Interplay mechanisms of the physical servicescape and other customers' presence and behavior