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RESEARCH ARTICLE

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The role of a smile in customer-employee interactions: Primitive emotional contagion and its boundary conditions

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Abstract

By investigating emotional contagion in customer-employee interactions using the emotional facial action coding system, this study offers a means to separate primitive emotional contagion from its conscious counterpart. As an empirical validation of primitive emotional contagion and its impact on customer satisfaction, the multifaceted research approach, involving an experimental laboratory study and two field studies in hospitality and retail settings, reveals consistent findings. Additionally, the influence of emotional contagion on customer satisfaction is moderated by the esthetic appeal of the interior design. This work advances the theoretical understanding of the dynamics of primitive emotional contagion; it also offers practical insights regarding the importance of interior designs and busyness for enhancing service interactions.

KEYWORDS

customer-employee interactions, customer satisfaction, emotional contagion, emotional facial action coding system (EMFACS), interior design, store busyness

1 | INTRODUCTION

Emotions are pivotal in customer-employee interactions, in that they define the customer experience (Bruder et al., 2021; Pham et al., 2022), with resultant effects on firm growth and profitability (Grandey et al., 2010; Lemon & Verhoef, 2016). A particularly crucial mechanism is emotional contagion (Lu & Hong, 2022), as occurs when an employee's emotional expressions (Ekman et al., 2002a) evoke corresponding customer emotions (Du et al., 2011; Liu et al., 2019; Liu & Liu, 2020), through mimicry or synchronization (Elfenbein, 2014; Hatfield et al., 2014; Ramanathan & McGill, 2007). This contagion arguably might be primitive, or unconscious, reflecting a natural human "tendency to automatically mimic and synchronize expressions, [...] and to converge emotionally" (Hatfield et al., 1994, p. 153). But it also could be conscious and reflect explicit appraisal processes (Elfenbein, 2014). Both marketing and management acknowledge the conceptual distinction between the two types, but their empirical distinction is lacking (Du

et al., 2011; Liu et al., 2019; Liu & Liu, 2020; Pugh, 2001). Methodologies that assess changes in customer affect before and after the service interaction using self-reported measures (e.g., Hennig-Thurau et al., 2006) cannot discriminate between primitive and conscious emotional contagion, because alterations in customers' affect stem from both forms. Thus, we need more refined methodologies that can quantify each type of emotional contagion separately.

The variation in conceptualizations of emotional contagion often reflects the theoretical perspective taken for the research project. Conscious emotional contagion does not arise in every interaction, but primitive emotional contagion arguably is ubiquitous; its rapid occurrence does not involve deliberate cognitions (Park et al., 2019). Considering that people usually do not share deep personal relationships in service interactions, emotional contagion likely operates on an unconscious level (Hatfield et al., 1994; Lim et al., 2017). In this sense, and from both theoretical and practical management perspectives, it seems especially relevant to address primitive emotional contagion and establish measures

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to capture it accurately. By explicitly embracing this focus, we also seek a deeper understanding of the mechanisms underlying emotional exchanges that can enhance customer experiences.

That is, emotional contagion can be a significant determinant of customer reactions, including satisfaction with transactions, customeremployee rapport, and perceived service quality (Hennig-Thurau et al., 2006; Lin et al., 2008; Liu et al., 2019; Pugh, 2001; Woo & Chan, 2020). Therefore, we explore the occurrence of primitive emotional contagion and its impact on customer responses, particularly customer satisfaction, in an effort to constructively replicate studies that establish an influence of emotional contagion on customer satisfaction (Lykken, 1968), with a precise focus on primitive emotional contagion. By applying the emotional facial action coding system (EMFACS; Ekman et al., 2002a, 2002b), we can test for the occurrence of primitive emotional contagion; we measure employee and customer emotions on the basis of their facial expressions, for which we define the frontline employee as the sender who initiates the process of emotional contagion (Park et al., 2019). A key requirement for EMFACS is the ability to code both the sender's and the receiver's facially expressed emotions during the interaction, according to both their valence and intensity, which generally requires assistance from certified FACS coders (Ekman et al., 2002a, 2002b). In turn, it supports a dynamic perspective by capturing emotions at the moment they occur, and according to their type and strength. Neither senders nor receivers of emotions need to specify their own emotional experience, which allows for assessments of the unconscious occurrence of emotions.

Then, to gain more detailed insights, we seek to identify specific conditions that influence the impact of primitive emotional contagion on customer behavior. Existing studies note how emotional labor affects customer reactions (Chi et al., 2011: Lechner & Mathmann, 2021: Lechner et al., 2022) and identifies some factors that moderate the effects of emotional contagion (Lin et al., 2008; Shugair et al., 2024). Accordingly, companies often seek to optimize both social and physical aspects of their service environments (Rosenbaum & Massiah, 2011), which can boost sales (Addock Solutions, 2022). For example, in retailing, Burberry's cohesive global store concept purposefully aims to foster an attractive and emotionally resonant customer experience (Morris, 2021), and in hospitality, BigMamma Group focuses on individual and unexpected interiors that aim at providing fun (Architecture Magazine, 2022). In addition, prior research highlights that the customer experience is collaborative, involving employees (i.e., social service environment), other customers (e.g., store busyness; Hanks et al., 2021; Rosenbaum & Massiah, 2011), and physical surroundings (Hoffman & Turley, 2002; Rosenbaum & Massiah, 2011; Verhoef et al., 2009). For example, employees exhibit more positive emotions in less busy service environments (Grandey et al., 2011; Pugh, 2001; Rafaeli & Sutton, 1990), and in busier settings, customers appear less influenced by employees' displays of emotion (Grandey et al., 2005, 2011; Rafaeli & Sutton, 1990; Sutton & Rafaeli, 1988). Thus, emotional contagion and its positive influences on customer responses might be more likely in quieter settings (Otterbring, 2017). In high-traffic, stressful service settings, customers instead might need more marked emotional expressions, to counteract the adverse environmental influences (Eroglu et al., 2005). At the same

time, positive emotional contagion might be more important in bustling retail environments, to mitigate the stress and enhance customer experiences (Rafaeli & Sutton, 1990). Existing research has yet to reach a consensus on if and how busyness in the retail environment determines the impact of emotional contagion on customer reactions.

The store's physical environment, as manifested in its interior design, also influences customer reactions. Interior design, as a key component of the physical environment (Baker et al., 2002; Hoffman & Turley, 2002; Verhoef et al., 2009), affects customer responses (Bitner, 1992; Donovan, 1994; Porat & Tractinsky, 2012) and frontline employees' emotions (Lin & Lin, 2011). We take these findings a step further to investigate whether emotional contagion and interior design together might interact to determine customer responses. According to Lin and Lin (2017), an attractive interior design can encourage the development of emotional contagion and the impacts of behavioral mimicry on employee-customer rapport. Building on these findings as well, we consider whether perceptions of interior design amplify the effects of primitive emotional contagion on other, broader, companyrelated outcomes. Thus, as our second research objective, we examine the concurrent roles of store busyness and interior design perceptions as potential moderators of the relationship between primitive emotional contagion and customer satisfaction.

2 | CONCEPTUALIZATION AND MEASURE OF EMOTIONAL CONTAGION

Marketing and management research has long sought to understand the role of emotional contagion in determining customer responses, as the overview in Appendix S1A reveals. Highlighting a conceptualization of emotional contagion as a multifaceted construct (Hatfield et al., 2014), Elfenbein (2014) introduced a systematic classification of primitive versus conscious emotional contagion processes, establishing that both exist, but their underlying mechanisms vary substantially. Conscious emotional contagion involves controlled mechanisms and describes emotions as multidimensional constructs that include not only cognition but also motivations and relations (Lazarus, 1991) that can be individually regulated. Primitive emotional contagion instead relies on the so-called facial feedback hypothesis (Elfenbein, 2014), which predicts that people automatically and spontaneously mirror a sender's displays of emotion, due to their innate tendency toward mimicry and synchronization, which then affect their emotional state and resultant behaviors (Hatfield et al., 2014). In this view, basic emotions are unconscious, one-dimensional, psychobiological phenomena that are situation-specific, facially expressed through prototypical patterns (Ekman, 1993), and independent of culture or cognition (Ekman, 1992). These basic emotions also relate directly to the motivational system (Ekman, 1993) and correspond with felt emotions (Ekman, 1992; Elfenbein, 2014; Gump & Kulik, 1997; Hatfield et al., 2014).

Depending on the theoretical perspective taken, measures of emotions differ; across various disciplines, we also find a wide array of methods used to assess emotions and emotional contagion. In marketing research, *self-reported emotion measures* frequently apply to measure emotional contagion, using a comparison of customers' pre-encounter versus postencounter affect (Barger & Grandey, 2006; Grandey et al., 2005; Hennig-Thurau et al., 2006; Liu & Liu, 2020; Pugh, 2001; Woo & Chan, 2020). The different available scales generally are not comparable, nor can they differentiate primitive from conscious emotional contagion. Another option is Rafaeli and Sutton's (1990) observation scale, which promises to measure employees' friendliness on the basis of their greeting, thanking, smiling, and providing eye contact (e.g., Kim & Yoon, 2012). By definition though, this scale does not take a dyadic perspective, and it only covers some of the full range of emotions, while also mingling verbally (e.g., thanking) and nonverbally expressed emotions. Yet another approach relies on psychophysiological measures (Baldo et al., 2022), such as EMFACS, electromyography, or skin conductance (Li, 2019). Whereas unconscious measures that rely on (EM) FACS methods are widespread in psychology research (Fernández-Dols & Ruiz-Belda, 1995; Gosselin et al., 2010), they have only recently entered the marketing domain (Clark et al., 2020; Neudecker et al., 2021). To advance such efforts (Appendix S1A), we use EMFACS to investigate the role of primitive emotional contagion in service marketing.

3 | HYPOTHESES DEVELOPMENT

The conceptual framework reflects our intended research contributions, namely, to examine the occurrence of primitive emotional contagion by applying EMFACS (Ekman et al., 2002a, 2002b), clarify the impacts on customer responses (satisfaction), and identify boundary conditions related to the service environment. Using 2183

EMFACS enables us to assess the occurrence of emotional synchronization and emotional contagion, because we measure both employee and customer emotions and mimicry (i.e., facial expressions; Holland, O'Connell & Dziobek, 2021), as often as they occur (usually several times) during a customer-employee interaction. Figure 1 contains the conceptual model and derived hypotheses.

3.1 | Occurrence of primitive emotional contagion

The existence of primitive emotional contagion is well-established in other research disciplines, such as psychology (Park et al., 2019), but in marketing and management, researchers rarely distinguish it from conscious emotional contagion, such that we cannot assert confidently whether primitive emotional contagion occurs through mimicry and synchronization processes in service interactions. Drawing on primitive emotional contagion (Hatfield et al., 1993, 1994), we hypothesize that employees' displays of emotion affect customers' displays, such that contagious emotions get transferred within the sender-receiver dyad (Doherty, 1997; Kim & Yoon, 2012). Senders first express their inner feelings through displays of specific emotions (Elfenbein, 2014), and then receivers unconsciously perceive these displays, which prompts them to mimic and synchronize the emotions (Gump & Kulik, 1997; Hatfield et al., 1993, 1994, 2014). According to the facial feedback hypothesis (Elfenbein, 2014; Shuqair et al., 2024), this emotional contagion process results in a shared experience of the displayed emotion, such that receivers not only mimic but also experience the displayed emotions (Ekman, 1992; Hatfield et al., 2014; Ramanathan & McGill. 2007). Therefore:



H1: Employee's positive emotion displays (vs. neutral facial expressions) result in positive primitive emotional contagion in customer–employee interactions.

3.2 Emotional contagion and customer responses

Displaying specific emotions creates meaning and evokes specific attitudinal and behavioral intentions, for both senders and receivers (Ekman et al., 2002a; Elfenbein, 2014). Customers' own emotional experience provides an indicator of their subsequent behavior (Lin et al., 2008), and as Lim et al. (2017) show, customer satisfaction increases when the expressive similarity between the employee and customer is higher. In this sense, emotional contagion should drive customers' satisfaction or overall post-purchase evaluation (Fornell et al., 1996). In line with research that confirms the effect of emotional contagion (without differentiating between primitive and conscious forms) on various customer responses, including satisfaction (Hennig-Thurau et al., 2006; Lin et al., 2008; Liu et al., 2019), customer–employee rapport (Hennig-Thurau et al., 2006; Lin & Lin, 2017), and service quality (Pugh, 2001), we hypothesize a specific effect of primitive emotional contagion:

H2: Positive primitive emotional contagion positively influences customer satisfaction.

3.3 | Boundary conditions

Research into the boundary conditions of any effects of emotional contagion on customer responses is scarce; most studies instead address moderating influences on the relationship of employee emotions (not emotional contagion) with customer responses (Grandey et al., 2005; Lechner & Mathmann, 2021; Lechner et al., 2022) or factors that might moderate the occurrence of emotional contagion (Lin et al., 2008; Shuqair et al., 2024). Although extant research (Grandey et al., 2005; Lechner & Mathmann, 2021; Lechner et al., 2022; Lin et al., 2008; Shuqair et al., 2024) has not extensively explored the boundary conditions influencing the relationship between emotional contagion and customer responses predictions suggest that the retail environment, which encompasses both social interactions and physical settings (Baker et al., 2002; Bitner, 1992; Kearney et al., 2013), could moderate this relationship, because factors such as customer and employee presence and the designed atmosphere influence the customer experience (Anderson et al., 2008; Baker et al., 2002; Bitner, 1992; Hanks & Line, 2018; Hanks et al., 2021; Hoffman & Turley, 2002; Rosenbaum & Massiah, 2011; Verhoef et al., 2009).

For this study, we consider store busyness (Hanks & Line, 2018; Hanks et al., 2021) and interior design (Baker et al., 2002; Hoffman & Turley, 2002; Verhoef et al., 2009) as potential environmental boundary conditions. The interior design refers to the strategic arrangement and appeal of the physical space, including layout and furnishings, in line with Bitner's (1992) functional dimension and Rosenbaum and Massiah's (2011) physical dimension. We conceive of store busyness, in accordance with the social dimension described by Rosenbaum and Massiah (2011), as the total number of customers waiting in line to be served, divided by the number of available employees (see also Rafaeli & Sutton, 1990).

Our theoretical foundation also encompasses Bonnin's (2006) concept of appropriation, which offers insights into the dynamics between individuals and their environments, such as customers and retail spaces. Bonnin (2006, p. 52) describes appropriation as a "key process in the relationship with the environment and in place experience" and further frames it as a specific behavioral pattern in the person-environment interaction. An appropriation framework thus helps explain how customer service experiences and reactions can be shaped by both the physical attributes of the service environment and the internal and interactional processes undertaken by the customer, which may be conscious or unconscious. In our study context, appropriation thus suggests an interplay between the unconscious process of emotional contagion and consciously perceived elements of the service environment. Both emotional contagion and store busyness are situational factors related to service interactions, and their similarity helps us elucidate their combined effect on customer satisfaction. Their integrated effect also reflects an interplay of unconscious and conscious mechanisms.

In social interactions, both conscious elements (e.g., store busyness) and unconscious processes (e.g., primitive emotional contagion) collectively influence individual responses (Baumeister & Bargh, 2014). As social psychology research shows, motivation and social behavior are influenced by both automatic and deliberate mechanisms: motivation theory and studies also indicate that the interaction of conscious and automatic processes defines behavior (e.g., Forgas et al., 2005). Applying these insights to understand how primitive emotional contagion and store busyness might interact to drive customer satisfaction, we posit that because store busyness tends to diminish retail employees' ability to exhibit positive emotions -in that an employee's attention cannot be allocated fully to more than one customer at a time (Rafaeli & Sutton, 1990)-it might decrease customers' perceptions of service quality (e.g., Pugh, 2001). Customer satisfaction tends to be higher in less busy retail environments, in which employees, who likely are happier and less stressed, have more time to dedicate to each customer (Grandey et al., 2010, 2011; Pugh, 2001; Rafaeli & Sutton, 1990). High human crowding instead can increase perceived stress (Li et al., 2009) and even might provoke negative emotions such as anger and surprise (Eroglu et al., 2005). As the number of people in the store increases, the likelihood of employees displaying positive emotions decreases (Grandey et al., 2010, 2011; Rafaeli & Sutton, 1990).

But store busyness also offers potentially valuable social information about the service environment (Machleit et al., 2000; Mehta et al., 2013), such that it could increase customer satisfaction (Eroglu et al., 2005). Customers appreciate employees' positive emotion displays even more in stressful conditions, because such efforts are unexpected; they display positive emotions despite being unable to devote their full attention to different customers at the same time (Rafaeli & Sutton, 1990). Positive emotional contagion also might be more important in busy stores, in which stressed customers have a higher need for emotional exchanges to compensate for the context (Eroglu et al., 2005). Therefore,

H3: The relationship between positive primitive emotional contagion and customer satisfaction is positively moderated by store busyness.

According to environmental psychology research (Mehrabian & Russell, 1974), the retail environment is a crucial precursor of customers' emotional, cognitive, and behavioral responses (Bitner, 1992; Donovan, 1994; Furnham & Milner, 2013; Porat & Tractinsky, 2012), including their experience (Verhoef et al., 2009), purchase intentions, loyalty (Baker et al., 2002), and actual purchases (Furnham & Milner, 2013). The interior design also enhances frontline employees' emotions, which should benefit customer emotions and overall satisfaction (Lin & Lin, 2011). Yet the combined influence of visible elements and designs and contact personnel rarely has been studied empirically (Hoffman & Turley, 2002). We note evidence of the critical importance of both rapport between customers and employees (i.e., interaction guality; Hennig-Thurau et al., 2006) and the interior design (O'Mahony, Barry, & Binney, 2005), such that both employees and interior design influence customer emotions (Furnham & Milner, 2013). A few conceptual and empirical studies suggest that customers' perceptions of their interactions with employees and the retail environment-including aspects like lighting, music, temperature, thematic elements, comfort levels, and overall design-are closely linked, such that both substantially influence customer responses (Baker et al., 2002; Lin & Mattila, 2010).

This predicted interrelatedness again might be effectively framed according to appropriation concepts (Bonnin, 2006). The customer-employee interaction, which includes elements of emotional contagion, and the store's interior design might mutually influence customer responses, as informed by the interplay of a store's interior design and individual emotions (Julmi, 2017). Furthermore, Lin and Lin (2017) demonstrate that an employee's behavioral mimicry (i.e., aligning nonverbal communication between the employee sender and the customer receiver), when used in conjunction with the store's ambiance, significantly enhances customer-employee rapport. In this dynamic interaction, the service environment and mimicry, as components of emotional contagion, likely coalesce and enhance customer-employee rapport (Hennig-Thurau et al., 2006). However, the extent to which the interplay affects broader evaluative measures of organizational performance, such as customer satisfaction (Fornell et al., 1996), has not been explored. In line with appropriation theory (Bonnin, 2006), emotional contagion constitutes a social variable, so dyadic analysis is required to comprehend all its dynamics (Kim & Yoon, 2012). Emotions also are inherently situationspecific (Ekman, 1993; Goetze, 2023) and typically elicited through social interactions or specific events (Ekman, 2024), with impacts on all involved participants (Van Kleef & Côté, 2022). In line with our

definition and theoretical framing of emotional contagion, this view emphasizes its transient, interaction-dependent nature.

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In contrast, interior design is a contextual, relatively stable feature of the service environment. Once set, the store layout and design become practically irreversible, considering the high costs of changing them (Bonfrer et al., 2022). Unlike emotional variables, the service environment is not restricted to a singular event but instead remains consistent over time, providing a constant backdrop rather than fluctuating with each situation (Logkizidou, 2021). We thus can contrast interior design as a foundational, enduring influence in the service landscape with the ephemeral and event-driven nature of emotional contagion. Considering the strong influence of the interior design, we posit it might diminish the influence of emotional contagion on broader response variables such as customer satisfaction (Fornell et al., 1996). This notion of perceptions of the interior design as a compensatory factor that mitigates the impact of emotional contagion on customer satisfaction implies that a wellconsidered interior design not only enhances esthetic appeal but also stabilizes customer perceptions and experiences, providing a buffer against fluctuations in emotional contagion that can occur in dynamic service interactions. Formally,

H4: The relationship between positive primitive emotional contagion and customer satisfaction is negatively moderated by customers' perceptions of an attractive interior design.

4 | STUDY 1

To test these hypotheses, we start with a laboratory experiment to test for the occurrence of primitive emotional contagion and its effect on customer satisfaction (Study 1). Field Studies 2 and 3, which take place in a hospitality (bar) and a retailing (fashion apparel store) context, respectively, include store busyness and interior design perceptions as boundary conditions and also add several control variables (frequency of prior visits, number of contagious sequences) as robustness checks. Both field research contexts focus on providing enjoyable customer experiences (Bonnin, 2006).

4.1 | Research setting, participants, and procedure

For this experimental study, in a controlled laboratory setting, we adopted a one-factorial between-subjects design (smiling vs. nonsmiling employee). Participants (n = 70, 18–27 years of age, M = 22.52 years, SD = 2.02; 66.70% women) were students recruited from the entry hall of a medium-sized central European university and compensated for their participation with a voucher for coffee from the university's cafeteria. Health counseling for students represents the study context; it is both relevant to this population and increasingly important for stressed-out consumers (Abrams, 2022). Specifically, participants read about a new program, "Live Healthier," that aimed to help them achieve "stress

reduction and time management" or "exercise and healthiness." A realistic script, based on information gathered from real health consultancy services, was created with the assistance of a professional health counselor and pretested. The consultancy also proposed some interactive elements that focused on individual needs, that is, whether students were interested in stress reduction and time management or exercise and healthiness. The depicted employee, a student assistant (23 years of age, female), was intensely trained to explain the health program and display either a smiling or a nonsmiling face, by a certified FACS coder. Specifically, this employee either smiled with moderate intensity (action units [AUs] #6 C and AU#12 C; for an overview of AU, please see Appendix S1B) or did not smile (i.e., neutral facial expression) during the entire consultation. Participants were randomly assigned to one of the conditions.

In turn, we gathered two informative sources of data: (1) video data of the emotions expressed by the employee and customers during the interaction, in support of the EMFACS analysis and (2) customer data collected through postencounter questionnaires that included measures of satisfaction and manipulation checks. The respondents all agreed to participate and also agreed to being video-recorded; they were debriefed at the end of the experiment. Overall, the experiment involved 408 coded emotional contagion sequences, with a minimum of 1 and a maximum of 14 coded sequences per interaction (M = 5.83, SD = 3.35), as we describe in more detail subsequently. The fictive frontline employee either smiled or looked neutral; customers mainly responded with a smiling or a neutral face, but we also note one sequence expressing anger and one expressing surprise.

4.2 | Measures

Customer satisfaction was measured with three items adopted from Bauer et al. (2002) and Fornell et al. (1996) (see Table 1). The items were measured on seven-point Likert scales, ranging from "totally disagree" to "totally agree." Taking into account emotional contagion as unconscious (Doherty, 1997) and dyadic process (Kim & Yoon, 2012), we adopt EMFACS (Ekman et al., 2002a), which comprises 31 emotion-relevant AUs, defined as muscular activity that leads to specific facial movements, such as the "lip corner puller" (#12), "cheek raise" (#6), or "lips part" (#25) (Ekman et al., 2002b). Each AU represents a specific area of facial muscular activity, and the facial movements describe the expression (Ekman et al., 2002b) and experience (Ekman, 1992; Elfenbein, 2014) of specific emotions. The combination of AUs can convey the seven basic emotions (i.e., anger, fear, sadness, contempt, disgust, joy, and surprise). For example, nonsmiling is a neutral face, but smiling is represented by AUs #12 and #6, as well as AU #25, given that the employee was not talking to the customer

Figure 2 depicts the coding process, in which the coders initially coded any AUs that occurred, in terms of valence and intensity, separately for the frontline employee and the customer. Then they calculated the emotional contagion score. First, the coders determined contagious sequences, which are those in which the receiver immediately (i.e., within a second) mimics the sender's facial expression (i.e., sequences one and three in our case; sequence two was not included, because it featured no customer emotional reaction). Noncontagious sequences instead are those in which the sender's emotion displays are not

TABLE 1

study constructs.

Reliability and validity of

	Item-to-total correlation			Factor loadings			
Item	Study 1	Study 2	Study 3	Study 1	Study 2	Study 3	
Satisfaction							
Coefficient α	0.884	0.862	0.978				
AVE	81.68%	78.89%	94.55%				
Overall, I am satisfied with the decision to use company x	0.774	0.820	0.972	0.905	0.931	0.985	
I am satisfied with company x	0.838	0.745	0.929	0.935	0.893	0.960	
So far, company x has met my demands	0.722	0.655	0.936	0.871	0.838	0.964	
Interior design perception							
Coefficient α	NA	0.811	0.915				
AVE		73.21%	84.55%				
The interior design is neat and elegant	NA	0.706	0.847	NA	0.879	0.935	
Company x transmits a consistent visual presentation	NA	0.656	0.828	NA	0.848	0.926	
The interior décor of company x is great	NA	0.647	0.806	NA	0.839	0.912	

Abbreviation: AVE, average variance extracted, presented as a percentage.



Notes:

Sequence two was not considered in our calculation of emotional contagion because it featured no emotional reaction by the customer, such that no emotions transferred.

FIGURE 2 FACS coding procedure. Sequence two was not considered in our calculation of emotional contagion because it featured no emotional reaction by the customer, such that no emotions transferred.

mimicked. Mimicry only pertains to the valence or type of emotion (e.g., anger), regardless of intensity. Because EMFACS (Ekman et al., 2002a, 2002b) codes AUs at the moment muscular activity (i.e., facial expression) is strongest (i.e., apex), each emotional sequence describes each AU's development through to the apex and until it disappears.

Second, we measured the intensity of employee and customer emotion displays using a five-point scale, ranging from A to indicate "very weak" (slight facial movement) to E for "very strong" (strong facial movement). The resulting score encompasses both the AU and its intensity, such as #6C and #12C, which indicates that joy (#6 and #12) is being displayed with medium intensity (C) (Figure 2: employee, sequence 1). The intensity scoring was transformed into numerical values (1-5), so we obtained a mean intensity score for all contagious sequences. Importantly, similar to Pugh's (2001) approach to employee's displays of emotions, the multiple codes, consisting of single codes per sequence, were aggregated and averaged for each interaction. Here, the average score was calculated separately for the customer and the employee. Third, these two scores were then summed up. Thus, one score represents emotional contagion between both the source and receiver. In line with previous studies (Du et al., 2011; Kim & Yoon, 2012), we assume the

employee triggers the emotional contagion and represents the sender in the interactions (Park et al., 2019).

4.3 | Results

4.3.1 | Manipulation checks

We included manipulation checks to confirm whether the employee's emotion display was perceived as intended (e.g., "The emotion display is positive"). This manipulation was successful; participants in the smiling condition (n = 34) perceived the facial expression as more positive (M = 6.17) than those in the nonsmiling condition (n = 36; M = 4.21; t(57.71) = 5.48; p < 0.001). Two certified FACS coders coded the employee's facial expressions in the video data, and their assessments were fully in line with the results of the manipulation check.

4.3.2 | Reliability and validity assessment

The two FACS coders achieved a satisfying intercoder reliability of 0.90 (Neuendorf, 2002), calculated as the number of times the

coders agreed, divided by the total number of units analyzed. The Cronbach's α , item-to-total correlations, factor loadings, and average variance extracted, obtained through an exploratory factor analysis, also indicated the satisfactory reliability and validity of the measured construct (Table 1).

4.3.3 | Emotional contagion and consumer responses

The means, standard deviations, and correlations of the employee's emotion display, emotional contagion, and the dependent variable are listed in Table 2. To test H1, we used two-sided *t* tests and examined if the customer's emotion displays differed with the experimental condition (smiling vs. nonsmiling employee). In support of our prediction of emotional contagion, participants confronted with a nonsmiling (neutral facial expression) employee exhibit significantly lower levels of positive emotion displays (M = 1.03, SD = 0.92) than

TABLE 2 Means, standard deviations, and correlations.

their counterparts in the smiling (positive emotion displays) condition (M = 1.44, SD = 0.62, t(68) = -2.193, p < 0.05). Thus, we can confirm H1.

For the test of the relationship proposed in H2, we applied a simple regression model. Because emotional contagion has a positive effect on customer satisfaction ($R^2 = 0.80$, B = 0.49, p < 0.05), we find support for H2.

5 | STUDY 2

5.1 | Research setting, participants, procedure, and measures

To address whether primitive emotional contagion exists in the real world and test for its impact on customer satisfaction, while considering the potential moderating effects of the service environment, we next conducted a field study in a hospitality context,

Study 1 ^ª								
Variables	Mean	SD	1.	2.		3.		
1. Emotion display customer	1.25	0.80	1.00					
2. Positive emotional contagion	1.70	1.06	0.83**	1.00				
3. Customer satisfaction	5.03	1.31	0.18	0.28**		1.00		
Study 2 ^b								
Variables	Mean	SD	1.	2.	3.	4.	5.	6.
1. Positive emotional contagion	2.80	1.01	1.00					
2. Customer satisfaction	5.81	1.19	0.32*	1.00				
3. Frequency of prior visits	25.93	32.13	0.07	0.16	1.00			
4. Number of contagious sequences	1.38	0.63	0.11	0.09	0.20	1.00		
5. Store busyness	15.50	5.81	0.01	0.14	0.15	-0.28 [†]	1.00	
6. Interior design perception	5.46	0.97	0.12	0.72**	0.27 [†]	0.19	0.22	1.00
Study 3 ^c								
Variables	Mean	SD	1.	2.	3.	4.	5.	6.
1. Positive emotional contagion	5.00	0.78	1.00					
2. Customer satisfaction	6.78	0.79	0.30*	1.00				
3. Frequency of prior visits	12.51	15.51	-0.02	0.08	1.00			
4. Number of contagious sequences	3.37	2.34	0.25*	0.25*	0.04	1.00		
5. Store busyness	1.75	0.84	0.05	-0.02	0.14	0.07	1.00	
6. Interior design perception	6.51	0.87	0.14	0.74**	0.01	0.15	0.05	1.00

^an = 70; positive primitive emotional contagion ranges from 1.00 to 3.33; the theoretical scale range for customer satisfaction is 1 (low) to 7 (high).

 ^{b}n = 40; positive primitive emotional contagion ranges from 1.00 to 4.40; store busyness ranges from 7.00 to 25.00; frequency of prior visits ranges from 1.00 to 150.00; the theoretical scale range for customer satisfaction and interior design perception is 1.00 (low) to 7.00 (high).

 ^{c}n = 63; positive primitive emotional contagion ranges from 3.20 to 6.60; store busyness ranges from 1.00 to 4.00; frequency of prior visits ranges from 1.00 to 70.00; the theoretical scale range for customer satisfaction and interior design perception is 1.00 (low) to 7.00 (high).

[†]p < 0.10.

*p < 0.05; **p < 0.01.

namely, a self-service bar. Similar to Study 1, two certified FACS coders observed each employee-customer interaction and the displayed AUs by both the employee and the customer, to perform a separate coding of all displayed emotions. The coding process followed the procedure in Figure 2. The researchers, sitting at desks near the bar counter, could observe both employees' and customers' faces; the interactants stood quite still at the counter. To prevent observer bias, the researchers behaved like common customers. The bar manager, but not the employees, knew about the data collection, though the employees were debriefed later.

Thus for Study 2, we collected data from three sources: (1) observations of emotions displayed by employees and customers (basis for the subsequent EMFACS analysis), (2) objective store busyness data, and (3) customer data, including measures of satisfaction and interior design perceptions. The sample consists of 40 complete sets of observation, objective, and survey data, with 40 contagious sequences during the observed interactions, ranging from 0 to 3 contagious sequences per interaction (M = 1.38, SD = 0.69). The researchers observed displays of multiple emotions: Frontline employees showed joy in 87.10% of the cases, sadness in 1.61%, contempt in 3.23%, and fear in 8.06% of all cases. They did not exhibit any surprise or anger. Customers expressed joy in 81.82%, surprise in 3.90%, sadness in 6.49%, contempt in 5.19%, and anger and fear in 1.30% each of all cases. The few displays of negative emotions did not appear to have sufficient power to induce emotional contagion. For the analyses, we, therefore, focus on positive emotions and, in line with our theoretical reasoning, positive emotional contagion.

The sample admittedly is small, but it also is typical for coding studies (Hadinejad et al., 2019). The sample characteristics also reflect the customer profile for the bar: Visitors were aged between 20 and 41 years (M = 25.28 years, SD = 4.85), and 60% were women. The bar has a large base of loyal customers, and on average, the respondents already had visited it 25.93 times (SD = 32.13). They spent an average of $3.94 \in (SD = 2.26 \in)$ on this particular visit (before answering the questionnaire).

We again included the Study 1 measure of *customer satisfaction*. To assess the *store's busyness* during the interaction, the two observers counted how many customers were waiting in line, divided by the total number of employees present. For *perceptions of the interior design*, we included three items (Table 1), taken from Homburg et al. (2005), Simoes (2005), and Clow et al. (1997). The seven-point Likert scales ranged from "strongly disagree" to "strongly agree."

5.2 | Results

5.2.1 | Reliability and validity assessment

The observation data were coded by two certified FACS coders, who achieved a very satisfactory intercoder reliability of 0.92 (Neuendorf, 2002). All the reliability and validity values meet the conventionally established threshold levels (Table 1).

5.2.2 | Emotional contagion and customer responses

The means, standard deviations, and correlations of emotional contagion, control variables, and dependent variables are included in Table 2. First, to affirm the occurrence of emotional contagion, we calculated the impact of primitive emotional contagion on customer satisfaction without any control variables (Table 3, Model 1). It related positively to customer satisfaction ($R^2 = 0.10$, B = 0.35, p < 0.05), in support of H2. Second, we added two controls (frequency of prior visits and number of contagious sequences) to the model (Table 3, Model 2), which revealed only a slight decrease in the effect of emotional contagion ($R^2 = 0.12$, B = 0.33, p < 0.10). The control variables did not have significant effects on their own (p > 0.10).

TABLE 3 Moderated regression analysis for Studies 2 and 3.

Study 2						
	Customer satisfaction					
Variables	Model 1	Model 2	Model 3			
Positive emotional contagion	0.35*	0.33 [†]	1.29*			
Frequency of prior visits		0.00	0.00			
Number of contagious sequences		0.06	0.03			
Store busyness			-0.17*			
Interior design perception			1.86**			
Emotional contagion × Store busyness			0.06*			
Emotional contagion × Interior design perception			-0.39**			
R ²	0.10	0.12	0.67			
F	4.23*	1.64	9.29**			
Study 3						
	Customer satisfaction					
Variables	Model 1	Model 2	Model 3			
Positive emotional contagion	0.30*	0.26*	2.39**			
Frequency of prior visits		0.00	0.00			
Number of contagious sequences		0.06	0.03			
Store busyness			-0.67			
Interior design perception			2.25**			
Emotional contagion × Store busyness			0.13			
Emotional contagion × Interior design perception			-0.39**			
R ²	0.09	0.13	0.84			
F	6.02*	2.92	40.52**			

[†]p < 0.10.

*p < 0.05; **p < 0.01.

5.2.3 | Moderation effects

To test H3 and H4, we undertook moderated regression analyses (Cohen et al., 2003), using version 4.2 of the SPSS PROCESS macro, and obtained estimates for an additive multiple moderation model that allows for simultaneous inclusion of the moderators (Table 3, Model 2) (Hayes, 2022). Then with the R package interactions (R Core Team, 2023; see also Long, 2019), we probed significant interactions in a floodlight analysis, using Johnson-Neyman points to explore the simple effect of the moderator and to plot the estimated simple effect of the moderators with confidence bands (Spiller et al., 2013).

The results in Table 3 (Model 3) offer support for both H3 and H4, because the objective measure of store busyness (B = 0.06, p < 0.05) and perceptions of its interior design (B = -0.39, p < 0.01) act as boundary conditions in the relationship between emotional contagion and customer satisfaction. The main effect of positive emotional contagion on customer satisfaction remains significant (B = 1.29, p < 0.05). A model without the control variables yielded similar findings. The Johnson-Neyman analysis also revealed a significant simple effect of store busyness for all the observed values (7–25) and a significant simple effect of perceived interior design perceptions for values between 6.25 and 7. Figure 3a,b depicts the range (i.e., blue shaded area) for which moderators have significant impacts; this range is bounded by the confidence bands, and the bold line indicates observed values.

6 | STUDY 3

6.1 | Research setting, participants, procedure, and measures

With a second field study, we check whether the Study 2 results hold in a retailing context. We collected the Study 3 data in a fashion (lingerie) store in Germany, a context in which employees and customers interact intensively, due to the relatively high need for consultancy (Lin et al., 2008). This data collection encompassed three sources: (1) video data of expressed emotions by employees and customers, (2) objective data regarding store busyness, and (3) customer data collected in postencounter questionnaires.

The video recording was limited to sequences outside the fitting room. Cameras located around the cashier's desk captured relevant sequences. Right after each interaction, customers completed a postencounter questionnaire that included measures of their satisfaction and perceptions of the interior design. The customers, finally, were debriefed and informed that the project involved employee and customer emotions. One customer withdrew the agreement to participate, and eight data sets could not be analyzed due to problems with the video data. The employees knew they were being observed and recorded, but they did not know that the research pertained to displays of emotion until after the experiment was over. A cover story indicated that the video recording would support training and assessments of the impact of the service environment on customer behavior.

The final sample consisted of 63 video-recorded employeecustomer interactions, with corresponding questionnaires and objective data. These interactions included 226 single sequences, with 1-11 (M = 3.37, SD = 2.34) contagious sequences per interaction. The coding procedure was as described previously, except that the coders used the videos as the basis for their coding process. The frontline employees showed a negative emotion (anger) once, and there were two negative sequences (sadness and anger) among customers. In the majority of cases though, we identified only positive emotions; the three negative emotional sequences also were not contagious. The sample characteristics represent the profile of shoppers in this store: 98% women, aged between 22 and 88 years (M = 54.65 years, SD = 15.99), who had visited the store an average of 12.51 times (SD = 15.17) previously. The average contact length (i.e., interaction duration) was 23.09 min (SD = 14.74), and respondents spent an average of 127.36€ (SD = 113.53€). The measures were the same as those in the previous studies.

6.2 | Results

6.2.1 | Reliability and validity assessment

The two FACS coders showed highly satisfactory intercoder reliability of 0.91 (Neuendorf, 2002). The validity and reliability assessment again affirmed that the values met common threshold levels.

6.2.2 | Emotional contagion and customer response

Table 2 contains the means, standard deviations, and correlations for this study as well. In the simple regression models, without control variables (Table 3, Model 1), we found support for H2, in that positive emotional contagion positively influenced customer satisfaction ($R^2 = 0.09$, B = 0.30, p < 0.05). When we included the control variables as robustness checks (Table 3, Model 2), the effect of positive emotional contagion on customer satisfaction remained significant ($R^2 = 0.13$, B = 0.26, p < 0.05), and the control variables were nonsignificant (p > 0.10).

6.2.3 | Moderation effects

We used the same procedure to test for the moderation effects and list these results in Table 3. Because the interaction effect with store busyness was not significant, we cannot confirm H3. However, the interaction effect of perceived interior design and positive emotional contagion on customer satisfaction (B = -0.39, p < 0.01) was significant, in support of H4. A model excluding the control variables yielded similar findings. According to the Johnson-Neyman technique (Spiller et al., 2013), the simple







(c) Simple Effect of Emotional Contagion with Interior Design Perception, Study 3



FIGURE 3 Simple effects for the moderation hypotheses, Studies 2 and 3. (a) Simple effect of positive primitive emotional contagion with store busyness, Study 2. (b) Simple effect of positive primitive emotional contagion with interior design perception, Study 2. (c) Simple effect of emotional contagion with interior design perception, Study 3.

effect of interior design perceptions was significant in a range of values between 1.67 and 5.44 (Figure 3c). We also uncovered a significant main effect of perceived interior design on customer satisfaction (B = 2.28, p < 0.01). In line with the Study 2 findings, when the interior design is perceived as attractive, customer satisfaction increases. Similarly, positive emotional contagion serves as a significant driver of customer satisfaction (B = 2.39, p < 0.01).

7 | GENERAL DISCUSSION

7.1 | Summary

This research provides insights into when and how primitive emotional contagion occurs in dyadic service interactions, as well as its impacts on customer satisfaction and the boundary conditions within which it operates. With three empirical studies, we establish

the positive effects of primitive emotional contagion on customer satisfaction in different service settings. Furthermore, we clarify that store busyness can increase the relevance of positive primitive emotional contagion for inducing favorable customer responses, and the appealing interior design of a store acts as a boundary condition, such that the favorable effect of positive emotional contagion on customer satisfaction is less important when customers perceive the interior design as attractive.

7.2 | Theoretical implications

This article makes several theoretical contributions. First, it provides empirical evidence of primitive emotional contagion as a powerful, unbiased, unconscious driver of customer responses, including satisfaction, in a marketing context and using EMFACS. Accordingly, this research establishes emotional contagion as an unconscious (Doherty, 1997) and *dynamic process*, in the sense that it comprises multiple contagious sequences (Hatfield et al., 1993, 1994, 2014; Kim & Yoon, 2012). Thus, we advance emotional contagion theory (Hatfield et al., 1993, 1994) by providing new insights into the development and consequences of primitive emotional contagion in the specific context of customer-employee interactions. This research accounts for both employees' and customers' emotions, focusing on emotional mimicry and multiple synchronization processes initiated by the employee (sender) in service interactions (Park et al., 2019). In turn, it responds to calls to use multiple methods in marketing research to contribute more effectively to consumerbased strategies (Hamilton, 2016) and to track emotions across marketing contexts (Baldo et al., 2022). Using EMFACS in combination with objective data (store busyness) and customer data (service environment perceptions, satisfaction), we address such recommendations and also offer potentially more unbiased results (Hamilton, 2016; Lemon & Verhoef, 2016),

Second, by detailing the relevance of the service environment (store busyness and interior design perception) in the relationship of primitive emotional contagion with customer satisfaction, we contribute to (service) marketing literature. A busy service environment increases the relevance of positive primitive emotional contagion in the bar context, though in the fashion retail context, store busyness did not have a significant moderating effect. This latter insignificant effect supports previous evidence that suggests customers may be less demanding when the store is busy (Rafaeli & Sutton, 1990). But they also seem to appreciate employees' positive emotion displays in such stressful conditions (Rafaeli & Sutton, 1990), as supported by the results in the bar context, where positive primitive emotional contagion becomes more important if things are busy. By showing that store busyness can be a relevant boundary condition, we add nuance to literature focused on its moderating effects in the link between emotional labor and customer response (Lechner & Mathmann, 2021; Lechner et al., 2022). Our findings also suggest the need for further research into busyness effects.

Turning to the consistent results regarding interior design perceptions as a relevant boundary, we suggest that, independent of the service sector (hospitality vs. retailing), a nice interior design decreases the relevance of positive emotional contagion for ensuring customer satisfaction. Adding to research that emphasizes the importance of the service environment in terms of interior design (Bitner, 1992; Donovan, 1994; Furnham & Milner, 2013; Lin & Lin, 2011; Mehrabian & Russell, 1974; Porat & Tractinsky, 2012), we propose that interior design can not only induce customer emotions and responses but also function as a key boundary condition of the effect of emotional contagion on customer responses. Due to its substantial relevance as a stable variable (Bonfrer et al., 2022), interior design has a major influence in crafting service experiences.

7.3 | Managerial implications

This study shows that nonverbal communication, including facial expressions of emotions like a smile (Gabbott & Hogg, 2001), is a critical element of customer-employee interactions in both hospitality and retailing contexts (Bruder et al., 2021; Pham et al., 2022). Thus, managers need to encourage positive primitive emotional contagion, while also acknowledging the important role of the service environment, in altering the effectiveness of emotional contagion for driving customer responses. By displaying smiles though, employees can elicit positive emotions in customers through a process of emotional synchronization. Independent of the context or industry, managers should give employees guidelines for how to ensure the valence of their emotion displays, whereas the intensity of the display is less relevant. Employees need to be trained to exhibit appropriate emotion displays and to show positive emotions without experiencing emotional dissonance, which can have negative implications for their own health (Hochschild, 2006). Furthermore, firms likely should seek out employees with a friendly, positive demeanor who readily display positive emotions, which implies their strong social competence and communication skills. Companies like Apple, Disney, and IKEA already recognize the benefits of investing in employee training to help them create emotional connections with customers. A French bookstore chain explicitly trains employees to detect customers' facial expressions, and then approach customers whose faces signal surprise, confusion, or dissatisfaction to assist and advise them. This strategy resulted in a notable 10% increase in sales (The Economist, 2017). Frontline employees should remain aware that their positive emotion displays affect customers' emotions on an unconscious level, which makes it even more important to adopt proper emotion displays. The power of primitive emotional contagion is undeniable.

Regarding the boundary conditions, we recommend training that helps employees handle potentially stressful, busy situations with positive emotion displays while still trying to address all customers who are present. A smile helps increase customer satisfaction even when the store is busy, at least in a bar. This setting arguably might be characterized by less desire for privacy and an acceptance of crowding, high levels of social information (Mehta et al., 2013), and high arousal (O'Mahony et al., 2005); customers still expect frontline employees to be friendly, which can facilitate the occurrence of positive emotional contagion and customer satisfaction.

The service environment's interior design strongly affects the relevance of emotional contagion, which implies that companies need to emphasize maintaining a neat and elegant interior design (Homburg et al., 2005) and guarantee a consistent visual presentation (Simoes, 2005), especially considering the long-term nature of interior design choices (Bonfrer et al., 2022). A nice interior design is particularly important for companies that struggle to find and train frontline employees; it can create a positive consumption experience while simultaneously mitigating the relevance of the social aspects of positive emotional contagion. Employees thus can take a short break from continuous, intensive efforts to engage in positive emotion displays if the interior design is appealing. In turn, companies should focus on customers' needs when designing the interior of their stores and ask for feedback to learn which interior designs appeal to them and which do not.

7.4 | Limitations and further research

This research highlights the importance of positive primitive emotional contagion in customer–employee interactions; continued research can shed even more light on this exciting area. In particular, it would be interesting to examine the interplay of verbal and nonverbal communication in customer–employee interactions, accounting for not just facial expressions but also verbal communication and employees' emotional competence (Matute et al., 2018), to determine which skills are most decisive for positive customer responses.

This research accounts for perceived interior design and store busyness as important service environment elements; additional studies could investigate other boundary conditions in the service environment, such as background music, colors, or other ambient conditions (Bitner, 1992), as well as socially symbolic and natural dimensions (Rosenbaum & Massiah, 2011). Such investigations would establish more sophisticated insights into the interaction of emotional contagion with the service environment. Furthermore, research might address our ambiguous finding regarding the boundary condition of store busyness by testing it in different service environments (e.g., hotels, healthcare, banking, and finance).

Although the use of EMFACS has many advantages, some disadvantages need to be acknowledged. It requires video or observation data, which creates some legal constraints and time demands. However, we believe its advantages far outweigh the disadvantages, so marketing researchers should continue to apply (EM)FACS to gain deeper insights into the development and consequences of primitive emotional contagion in customer-employee interactions. Automatic coding software such as Affectiva (2024) (https://www.affectiva.com), Tawny (Tawny.ai, 2023), or FACSGen have some drawbacks (Krumhuber et al., 2012), but they are starting to inform scientific research (Krumhuber et al., 2012), and

their increasing uses might be effective for expanding emotion research based on EMFACS, especially by making coding more accessible to emotion researchers.

Finally, this study involves only face-to-face service interactions. To investigate emotional contagion online (Shuqair et al., 2024; Smith & Rose, 2020), it would be beneficial to examine our predictions for online retailing or curated shopping. In a similar vein, our study does not include real customer or behavioral data as an outcome variable; further research might integrate such data to increase the external validity of our findings.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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