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ORIGINAL EMPIRICAL RESEARCH

Multiple emotional contagions in service encounters

Jiangang Du · Xiucheng Fan · Tianjun Feng

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Abstract This paper investigates the dynamic impact of multiple sequential emotional displays by employees on customers' negative emotions. Using video-based stimuli to manipulate emotional displays by employees, this study shows the sequential occurrences of negative and positive emotional contagions in service failure and recovery encounters. The results suggest that higher levels of employees' negative emotional displays lead to a greater increase in customers' negative emotions through the process of negative emotional contagion during service failure. More importantly, we find that positive emotional displays by employees can decrease customers' negative emotions through the process of positive emotional contagion during service recovery, i.e., higher levels of employee positive emotional displays lead to a greater decrease in customers' negative emotions. In addition, no matter whether customers experience higher or lower levels of employee positive emotional displays during service recovery, their final negative emotions cannot fully return to their emotional levels prior to service failure. However, for customers experiencing higher levels of employee positive emotional displays, their final negative emotions can be greatly mitigated and are closer to their initial emotional levels, as compared to customers experiencing lower levels of employee positive emotional displays. The results further indicate that susceptibility to emotional contagion increases the effect of employees' negative (positive) emotional displays on customers' negative emotions during service failure (recovery). The findings of this study suggest that service firms should provide effective training to their frontline service employees so that they can display proper positive emotions during service encounters.

Keywords Multiple emotional contagions · Emotional displays · Negative emotions · Service encounters · Service failure and recovery

J. Du
School of Business, Nankai University,
Tianjin, People's Republic of China 300071
e-mail: dujiangang@nankai.edu.cn

T. Feng (✉)
School of Management, Fudan University,
Shanghai, People's Republic of China 200433
e-mail: tfeng@fudan.edu.cn

X. Fan
The Center for Service Marketing and Management,
School of Management, Fudan University,
Shanghai, People's Republic of China 200433
e-mail: xcfan@fudan.edu.cn

It has long been observed that one person tends to "catch" the emotions that another person displays in an interaction, a psychological phenomenon known as emotional contagion (Hatfield et al. 1994). Drawing on emotional contagion theories, several papers have studied the process of emotional contagion in service marketing (Dallimore et al. 2007; Hennig-Thurau et al. 2006; Luong 2005; Pugh 2001; Tsai 2001). Most of them focus on positive emotional contagion during service employee and customer interactions, i.e., positive emotional displays by service employees are contagious for customers' emotional levels. One exception is the study by Dallimore et al. (2007), which looks at the employees' perspective to explore the impact of customers' negative emotional displays (e.g., nonverbal expressions) on employees' negative emotions through the process of negative emotional contagion. However, there is little research that studies how negative emotional contagion, which is driven by employees' negative emotional displays, operates between employees and customers.

The prior literature on emotional contagion in service settings focuses on a single process of emotional contagion (either positive or negative emotional contagion) during

employee and customer interactions. However, during service encounters, customers may experience positive and/or negative emotional displays from different employees at different times. As a result, the positive and negative emotional contagion processes between employees and customers may occur sequentially within a short timeframe, leading to more complex and dynamic emotional changes for customers. This is typical of service failure and recovery encounters. For example, during service failure, customers usually experience the process of negative emotional contagion coupled with negative emotional displays from employees. Then, to recover the service failure, the manager usually presents positive emotional displays to those customers, which leads to positive emotional contagion during the process of service recovery. Multiple emotional contagions are prevalent in certain service interactions; however, the research is scarce in terms of studying the change in customers' emotions during the process of multiple sequential emotional contagions.

This study aims to investigate how customers' negative emotions dynamically change throughout the process of multiple emotional contagions generated from positive and/or negative emotional displays by employees in the service setting. The main contribution of this paper is two-fold. First, it has been shown that positive (negative) emotional displays by senders can lead to increases in positive (negative) emotions of receivers in the process of positive (negative) emotional contagion, respectively (Dallimore et al. 2007; Pugh 2001). The prior literature also suggests that positive and negative emotions are two independent constructs and that they have different correlates (Costa and McCrae 1980; George 1998; Liu et al. 1992; Watson et al. 1988). In contrast, this study provides both cogent predictions and empirical evidence that through the process of positive emotional contagion during service recovery, positive emotional displays by employees can decrease customers' negative emotions, which is consistent with the findings of Luong (2005). This makes a contribution to the literature in emotional contagion. Second, we show that, no matter whether customers experience higher or lower levels of employee positive emotional displays during service recovery, their final negative emotions cannot fully return to their emotional levels prior to service failure. However, for customers experiencing higher levels of employee positive emotional displays, their final negative emotions can be greatly mitigated and are closer to their initial emotional levels, as compared to customers experiencing lower levels of employee positive emotional displays.

The rest of the paper is organized as follows. After reviewing the literature on emotional contagion in service encounters, we propose a conceptual model of the multiple emotional contagions in service encounters for this study. Next, we describe the design of our experiment and present the main results of our study. Finally, we discuss the theoretical and managerial implications of our results.

Emotional contagions in service encounters

The prior literature suggests that emotional contagion can occur at both subconscious and conscious levels (Barsade 2002; Hennig-Thurau et al. 2006). Specifically, Barsade (2002) argued that the emotional contagion process involves subconscious, automatic, "primitive emotional contagion," and more conscious emotional comparative processes. Primitive emotional contagion refers to "the tendency to automatically mimic and synchronize facial expressions, vocalizations, postures, and movements with those of another person and, consequently to converge emotionally" (Hatfield et al. 1994, p. 5). In contrast, conscious emotional contagion is based on social processes in which people compare their emotions with those of another person and use the emotion as a type of social information to understand how they should be feeling (Hennig-Thurau et al. 2006).

Both primitive and conscious emotional contagions have been studied in the service setting (e.g., Dallimore et al. 2007; Hennig-Thurau et al. 2006; Luong 2005; Pugh 2001). Most of those papers consider the process of emotional contagion in their study to be primitive emotional contagion which is mainly based on mimicry (automatic), pre-cognitive responses (i.e., Dallimore et al. 2007; Luong 2005; Pugh 2001). By contrast, Hennig-Thurau et al. (2006) suggested that both primitive and conscious emotional contagions could occur in service interactions, i.e., primitive emotional contagion might not remain throughout the completion of a service encounter, and conscious emotional contagion is likely to occur when customers receive authentic emotional labor displays from employees.

More specifically, Pugh (2001) found that smiling is contagious and that customers are vulnerable to catching displayed emotions of employees through the process of emotional contagion, i.e., positive emotional displays are positively related to customers' positive emotions and evaluations of the service quality during service encounters. This is also consistent with the results of Tsai and Huang (2002), which stated that employees' friendliness is positively associated with customers' positive emotions during employee and customer interactions. Grandey et al. (2005) studied the impact of the authenticity of employees' positive emotional displays on customers' impressions that are formed from employees' friendliness as well as overall satisfaction of the service encounter using both a laboratory experiment and a field study. They showed that the

authenticity of employees' emotional displays influences customers' perceived friendliness of employees in both studies. Furthermore, Hennig-Thurau et al. (2006) showed that the authenticity of employees' emotional labor displays (deep versus surface acting), instead of the extent of employees' positive emotional displays, influences customers' emotional levels and perceptions of the service encounter.

The literature on emotional contagion in the service setting focuses mainly on the process of positive emotional contagion during employee and customer interactions, with little research on the process of negative emotional contagion during service encounters. Dallimore et al.'s (2007) study, which examined the occurrence and extent of negative emotional contagion in service failure, is one exception. More specifically, they found that employees are susceptible to catching strong negative emotions of complaining customers, i.e., employees tend to have higher levels of negative emotion when exposed to angry customer complaints compared to non-angry customer complaints. It is clear that they studied the process of negative emotional contagion during service failure from the employee's perspective, rather than from the customers' point of view.

Based on the discussion above, we can conclude that both positive and negative emotions are able to induce emotional contagion in the service setting, i.e., customers are susceptible to catching employee positive (negative) emotion in a process of positive (negative) emotional contagion (e.g., Dallimore et al. 2007; Pugh 2001). In addition, individuals are more concerned about negative emotion than positive emotion (Bartel and Saavedra 2000). This is consistent with prospect theory, which suggests that losses and disadvantages have greater impact on preferences than the equivalent-sized gains do, i.e., negative things are weighed more heavily psychologically than positive things are (Kahneman and Tversky 1979). Therefore, in our study, when customers first experience service failure, they are likely to unconsciously catch the negative emotion from service employees through the process of negative emotional contagion.

Meanwhile, in this study, we consider a dynamic process of two sequential employee emotional contagions. As discussed before, when customers first experience the negative emotional contagion in service failure, it may lead to an increase in customers' negative emotions. However, when customers subsequently experience the positive emotional contagion in service recovery, it is not clear how the employee's positive emotional displays will influence customers' negative emotions. It has been shown that positive emotion and negative emotion are two independent dimensions (Costa and McCrae 1980; George 1998; Liu et al. 1992; Watson et al. 1988). Luong (2005) examined the influence of affective service display on customer emotions and found that customers report stronger positive emotions after viewing a friendly service display than after viewing a neutral display, which is consistent with the previous studies. In addition, Luong (2005) hypothesized that customers' negative emotions after watching a friendly service display will not differ from their negative emotions after watching a neutral service display. However, Luong's results did not support this hypothesis and in fact revealed that a friendly service display leads to lower negative customer emotions than a neutral service display does. Although Luong (2005) did not provide a cogent prediction, this result suggests interrelatedness between positive and negative emotions during service interactions, which appears to contradict some of the findings of prior research. Based on the finding of Luong (2005), we conjecture that the subsequent positive emotional displays from employees will also influence customers' negative emotions through the process of positive emotional contagion. Therefore, in this study, we focus on the dynamic change in customers' negative emotions throughout the service failure and recovery encounter.

A conceptual model of multiple emotional contagions in service interactions

We consider a service failure and recovery encounter in which multiple emotional contagions could occur sequentially and explore the dynamic impact of multiple emotional contagions on customers' negative emotions. Figure 1 illustrates the conceptual model of multiple emotional contagions in service interactions. From this figure, it is seen that customers first experience a process of negative emotional contagion in service failure and then experience a process of positive emotional contagion in service recovery. Specifically, the negative emotional contagion is generated from different levels (higher and lower) of negative emotional displays by service employees during service failure. Subsequently, service employees try to recover the service failure by showing different levels (higher and lower) of positive emotional displays to customers, which results in the positive emotional contagion during service recovery. In this study, we manipulate the two affective primes (i.e., employee negative emotional displays and employee positive emotional displays), while controlling other cognitive primes.[1] We are interested in

[1] For example, in our experiment, we controlled those cognitive primes, such as the impact of long-term waiting for food delivery, the impact of the time interval between watching service failure and service recovery, etc.

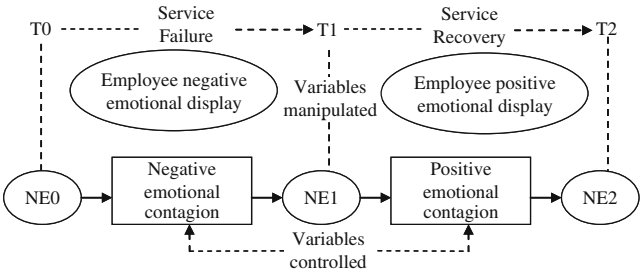

Fig. 1 A conceptual model of multiple emotional contagions in service interactions

examining the dynamic change in customers' negative emotions at three different times, denoted as T0 (before the service failure), T1 (right after the service failure) and T2 (after the service recovery). Customers' negative emotions at T0, T1 and T2 are represented by NE0, NE1 and NE2, respectively.

As previously discussed, recent research has confirmed the occurrences of both primitive and conscious emotional contagions in service interactions. It is worth mentioning that the underlying process of multiple emotional contagions in our study refers to primitive emotional contagion. First, in our study, the dynamic change in customers' negative emotions, generated by the process of both negative and positive emotional contagions, occurs at a subconscious level rather than at a conscious level. Second, the setting of our study is similar to the settings in the in the papers mentioned above (Dallimore et al. 2007; Luong 2005; Pugh 2001), all of which describe a process of primitive emotional contagion in service interactions.

During the process of negative emotional contagion in service failure, there is a greater increase in employees' negative emotions when they are exposed to angry customers as compared to non-angry customers (Dallimore et al. 2007). Dallimore et al. argued that emotional contagion is a bi-directional interactive process rather than being solely driven by emotional displays of either employees or customers. Thus, similar results should be found for the change in customers' negative emotions when customers view different extents of employees' negative emotional displays during service failure. On the other hand, Hennig-Thurau et al. (2006) proposed that the extent of employees' positive emotional displays (e.g., the amount of smiling) influences customers' positive emotions through the process of positive emotional contagion, i.e., a greater increase in customers' positive emotions is positively associated with higher amounts of employees' smiling. Furthermore, in the service setting, Luong (2005) was the first to show the interrelatedness between positive and negative emotions in service encounters and found that a friendly service display leads to lower levels of customers' negative emotions than a neutral service display does. Therefore, we suggest the following hypotheses:

H1: Higher levels of employee negative emotional displays lead to a greater increase in customers' negative emotions (i.e., NE1–NE0) than do lower levels of employee negative emotional displays through the process of negative emotional contagion (from T0 to T1).

H2: Higher levels of employee positive emotional displays lead to a greater decrease in customers' negative emotions (i.e., NE1–NE2) than do lower levels of employee positive emotional displays through the process of positive emotional contagion (from T1 to T2).

Hypothesis 2 implies that during service recovery, customers' negative emotions can be mitigated when they receive positive emotional displays by employees through the process of positive emotional contagion. However, it is not clear whether customers' final negative emotions (NE2) could regress to their initial emotion levels (NE0) for those customers who view higher or lower levels of employee positive emotional displays in service recovery (i.e., customers' negative emotions are effectively mitigated). This is important for service firms since they are concerned about the consequences of service recoveries (e.g., whether their recovery efforts decrease customers' negative emotions and increase customers' satisfaction levels). Barsade (2002) showed that emotional contagion creates a ripple effect of emotions from employees to customers in the service setting. Compared to lower levels of emotional displays, higher levels of emotional displays deliver emotional messages more accurately and clearly. Thus they can attract more attention and have greater influences on emotional transference (Barsade 2002). The service recovery paradox suggests that customers who receive very successful recoveries (e.g., a higher level of positive employee emotions) in response to a service failure may have higher levels of satisfaction and loyalty than those who have not experienced a service failure (Smith and Bolton 1998; Tax et al. 1998). In addition, customers report lower negative emotions after viewing a friendly service display as compared to a neutral service display during service interactions (Luong 2005). This implies that a friendly service display might be able to mitigate customers' negative emotions effectively, while this might not be as effective for a neutral service display. In light of this, we propose the following hypothesis:

H3a: After viewing lower (higher) levels of employee positive emotional displays during service recovery,

there is a (no) difference in customers' negative emotions at NE2 between customers experiencing higher levels of employee negative emotional displays and customers experiencing lower levels of employee negative emotional displays.

H3b: Customers experiencing higher levels of employee positive emotional displays during service recovery should exhibit no significant difference between their negative emotions at NE0 and NE2, compared to customers experiencing lower levels of employee positive emotional displays during service recovery, who should exhibit a significant difference between their negative emotions at NE0 and NE2.

Previous literature has well documented the individual differences in susceptibility to emotional contagion due to differences in gender, culture, personality, occupation, and so on. For example, Hatfield et al. (1994) proposed that gender influences one's susceptibility to emotional contagion, i.e., females appear to be more susceptible to emotional contagion than males are. They further explained that females are socialized in such a way that they are more sensitive to others' emotional displays as compared to males. Doherty et al. (1995) further provided empirical evidence supporting the results of Hatfield et al. (1994). They also found that people in various occupations (e.g., students, marines and physicians) differ in their susceptibilities to emotional contagion. Specifically, their results revealed that physicians' susceptibilities to emotional contagion are the highest, followed by those of marines and students, respectively. Hatfield et al. (1994) suggested that individual differences in susceptibility to emotional contagion eventually influence the effects of emotional contagion in the sender and receiver interactions. Verbeke (1997) further found that salespersons who are more sensitive to the emotions of their customers could perform better and incur higher risks of burnout in a sales organization. Accordingly, we conjecture that, in our setting, customers with higher susceptibilities to emotional contagion will report a greater change in their negative emotions than those having lower susceptibilities to emotional contagion in the processes of both negative and positive emotional contagion. That is, susceptibility to emotional contagion has a positive moderation effect on the relationship between customers' negative emotions and employees' negative (positive) emotional displays during service failure (recovery).

H4: Susceptibility to emotional contagion increases the effect of employees' negative (positive) emotional displays on customers' negative emotions during service failure (recovery).

Research methodology

Stimuli development

Bateson and Hui (1992) suggested that photographic slides and videotapes have ecological validity for testing subjects' emotions as environmental simulations in the service setting. Dallimore et al. (2007) also used video vignettes to investigate the existence and extent of negative emotional contagion from complaining customers to employees during an episode of service failure. In this study, we adopt a scenario role-play-based experimental design to examine the occurrence and impact of multiple emotion contagions on customers' negative emotional levels in a service failure and recovery encounter. In particular, four videotapes were produced to represent four conditions in our study: (A) a lower employee negative emotional display during service failure followed by a lower employee positive emotional display during service recovery, (B) a higher employee negative emotional display during service failure followed by a lower employee positive emotional display during service recovery, (C) a lower employee negative emotional display during service failure followed by a higher employee positive emotional display during service recovery, and (D) a higher employee negative emotional display during service failure followed by a higher employee positive emotional display during service recovery.

The prior literature suggests that the restaurant industry is suitable for service marketing research involving service failure and recovery encounters (e.g., Boulding et al. 1993; Smith and Bolton 1998). In our study, customers were exposed to a scenario describing a service failure and recovery encounter in a restaurant. More specifically, four friends (two males and two females) who had not seen each other for several years went to have lunch in a high-profile restaurant that they had never patronized before. They were seated at a table and the waitress came to take their order. During the service failure, customers urged the waitress to deliver the order after they waited for a long time, and the waitress presented higher or lower negative emotional displays. Subsequently, the manager tried to recover the service failure caused by the waitress. The manager brought the customers their ordered food and presented higher or lower positive emotional displays (see Fig. 2 for the design of service interactions).[2]

[2] Note that the picture in Fig. 2a is a general illustration of the service interactions in our study. It is not a snapshot of the videotape that subjects had been watching during the experiment. In the videotape, the camera focused on the facial expressions and movements of the manager and waitress.

a An Illustration of Service Interactions

b Actor of the Waitress

c Actor of the Manager

Fig. 2 Design of service interactions in a restaurant

Four student actors were recruited and trained to play the customers in our study based on their experience patronizing restaurants and their interest in acting. The waitress and manager were selected directly from the restaurant on the basis of their performances in the auditions and rehearsals of the experiment (see Fig. 2b and c for actor pictures of the waitress and manager, respectively). To make the scenario more realistic, a standardized procedure was developed for each of the four treatment conditions. First, to minimize the effect of their appearances on the experimental results, both the manager and the waitress had ordinary appearances (e.g., physical attractiveness, power and status). In addition, the same actors performed the roles of the manager, waitress and customers in each of the four conditions.

Second, we used acting instructions to tell the actors for the waitress and manager what was the right initial emotional level for them. In addition, Andrade and Cohen (2007) suggested that an individual could be exposed to some external stimulus to stimulate his or her true emotion (positive or negative emotion), such as listening to cheerful (sorrowful) music, reading humorous (sad) stories, etc. Thus in line with their findings, we chose the information that was directly related to employees' daily living and working experiences as emotional stimuli. Specifically, when the waitress was required to display negative emotion, we presented negative information to her, including phrases such as "It is too crowded in the restaurant and I am extremely tired," "I am really frustrated because I was just blamed by the manager," and "It is difficult for me to bear the crudeness from the customers at that table", etc. In contrast, when the manager was asked to display positive emotion, we presented positive information to her, including phrases such as "I just received the bonus from the boss, so I should perform well," "My boyfriend just gave me a bunch of flowers to say happy birthday to me, so I am very happy now," and "Everything goes well and I am happy," etc.

Third, for the extent of the negative or positive emotional display manipulation, the two actors who were portraying the waitress and manager received a large (small) amount of stimulating information as described above in the higher (lower) level emotional display condition. After both actors received the information, they were allowed to take some time to stimulate the corresponding emotional levels. Meanwhile, the experimenter and assistants further helped stimulate the actors' emotions with vocalizations and movements. For example, to stimulate higher negative emotional levels for the waitress, the researchers would blame her by imitating her manager. In addition, to ensure more natural and accurate performances, the researchers reviewed each segment of the videotape whenever it was filmed. The researchers carefully assessed the extent of the actors' emotional displays and identified distinctions between higher and lower levels of their emotional displays through face validity judgment. We continued this process until both the actors portraying the waitress and the manager as well as researchers were satisfied with their performances.

Finally, all of the conditions were filmed in exactly the same manner, i.e., the camera focused on the facial expressions and movements of the manager and waitress. It took about 1 week to edit the four videotapes (coded videotapes (A)–(D), corresponding to the four treatment conditions, respectively), with narrations added into the soundtrack of each videotape. Three doctoral students who were aware of the purpose of this study were recruited to review the videotapes repeatedly and qualitatively comment on the effect of emotional displays by the manager and waitress as well as the effect of other control variables in this study. Based on the comments, the videotapes were further edited and they were then satisfactory as the stimulus materials required for the experiment.

Sample and procedures

We conducted the experiment in a laboratory which consisted of four cubicles. In each cubicle, there was a

chair coupled with a desk, having a computer and stereo headphones on it. In addition, the computer in each cubicle was used to play one of the four videotapes. Each participant had his or her own private cubicle during the course of the experiment.

In total, 260 students participated in this study. They were randomly recruited via advertisements posted on the main campus of a prestigious university in China. Each participant received a small gift at the completion of the experiment as an incentive for participation. Among those subjects, the number of males was exactly the same as of the number of females. On average, they aged 20.8 years old (standard deviation=0.8 years). In addition, they were randomly assigned to one of the four treatment conditions based on the specific videotape that they chose, with 65 subjects in each group.

We followed a standardized approach to collect the data. First, when students arrived at the laboratory, they were provided with the general instructions of the study. From the instructions, they understood that they were going to be answering a questionnaire after watching a videotape and that their individual questionnaire responses were only collected for the sole purposes of our study. The questionnaire is provided in the Appendix. Next, four participants would sign up for each time slot. They were guided into the laboratory by two assistants who had received formal training for the experiment. Third, each participant was asked to choose a videotape scenario randomly between the four videotapes, and the student was directed to the correct cubicle to answer the pretest questions before starting to watch the videotape. We also reminded the participants that they should try their best to put themselves in the position of the customers on the video they were about to watch. Finally, the videotape was played through a computer for each subject. Participants completed the survey and received a gift after they watched the video. In addition, when participants finished the entire experiment, they were instructed not to discuss the study with others.

Measures

Customers' negative emotions

Customers' negative emotions were assessed based on eight negative affect items, which were adapted from the negative affect scale of the Positive Affect and Negative Affect Scale (PANAS; Watson et al. 1988). This approach of self-reported emotional levels has been used in prior literature to investigate the process of primitive emotional contagion in the service setting (Dallimore et al. 2007; Luong 2005; Pugh 2001).[3] Since some negative affect items from the PANAS scale (e.g., "scared") were not appropriate for use in the setting of service failure and recovery, we first pre-designed a set of various negative affect items using those appropriate ones from the PANAS scale (e.g., "distressed," "afraid," "irritable," etc.) and other relevant ones. Before the formal experiment, we conducted an interview with six undergraduate students. They were asked to watch the video scenarios. After this they were told to choose those that they were most likely feeling from the set of negative affect items. Finally, eight negative affect items with more than four votes each were selected ("upset," "angry," "awkward," "irritable," "displeased," "afraid," "distressed," and "disgusted"). Participants were asked to rate how each of the eight negative affect items described their emotion at T0, T1 and T2 (on a seven-point Likert-type scale, 1=very strongly disagree to 7=very strongly agree). The eight items demonstrated high internal consistency reliability for measuring customers' negative emotions at T0, T1 and T2, respectively (α=0.93, 0.82, and 0.97).

Susceptibility to emotional contagion

The measure of customer susceptibility to emotional contagion was adapted from the works of Omdahl and O'Donnell (1999) and Verbeke (1997). Participants were asked to rate, on a seven-point Likert-type scale, how much they agreed or disagreed with the eight statements, including "I feel happy when someone is smiling at me," "I feel displeased when I see that someone is not in the mood," "I am very keen to capture the emotional changes of other people," etc. The scale had high internal consistency reliability (α=0.84).

Realism checks of baseline emotional levels and video scenarios

Keller et al. (2003) suggested that participants' emotional levels before an experiment affect the validity of an experiment. Thus, it is necessary to measure the participants' emotions before the experiment. In our study, participants were asked to listen to cheerful music for 45 s in front of the computer before the experiment. This would help participants relax. Then participants were asked to rate their emotional levels on a seven-point Likert-type scale in response to four statements at the very beginning of

[3] Note that Dallimore et al. (2007) used both mimicry observations (e.g., facial or body language responses) and the self-reported PANAS scale (i.e., cognitive responses) to examine the process of emotional contagion in the service setting.

the questionnaire, with phrases such as "I am in a good mood," "I am happy when answering the questions," "I am feeling good," and "I am displeased."[4] We found that on average, participants' emotions before the experiment scored 4.37 (SD=1.06). Furthermore, the ANOVA results did not reveal any significant difference in the participants' emotions across the four groups prior to the beginning of the experiment.

To test for the realism of the video scenarios, participants were asked to answer two relevant questions in the last part of the post-test survey based on a seven-point Likert-type scale. On average, participants scored 5.16 (SD=0.83) when answering the first question, which was "To what extent are you familiar with the situations in the video?" and 4.69 (SD=1.65) when answering the second question of "Do the same/similar situations happen frequently in your life?" Thus, the student participants generally considered the circumstances in the video to be realistic. An ANOVA test further indicated that there was no significant difference in the ratings across the four groups. This implied that many students were familiar with service failure and recovery encounters in a restaurant. Therefore, it was appropriate to use students to test the hypotheses in this study.

In addition, during the experiment, participants were encouraged to put themselves in the customers' positions as shown in the video scenarios. In particular, at T0 and T1, participants were asked to answer the question "To what extent could you imagine yourself as the customers in the video scenarios?" based on a ten-point Likert-type scale. The results suggest that respondents could take on the role of the customers in the restaurant during the experiment (M=8.07, SD=2.59 at T0; M=7.68, SD=2.45 at T1). Pairwise comparisons did not reveal a significant difference between the two ratings at different time spots (p=.21). This further supported the fact that the video situations were seen as familiar and realistic for the participants.

Manipulation checks

In this experiment, two variables were manipulated, including the waitress' negative emotional display (higher or lower) during the service failure and the manager's positive emotional display (higher or lower) during the service recovery. As discussed before, to examine the manipulation effect, the experimenter invited three doctoral students to watch the four video scenarios and then asked them about their feelings with respect to the differences between the scenarios. The qualitative assessment of the three doctoral students on the levels of emotional displays by the waitress and manager was consistent with what was anticipated.

To examine further the manipulation of emotional displays by the waitress and manager, an emotional display scale was used in this study (adapted from the Displayed Emotion Index in Rafaeli and Sutton 1989). Participants were asked to rate the extent of the negative emotional display by the waitress on a seven-point Likert-type scale in response to three statements, including "I think that the waitress looks down on me in an aloof way," "I think that the waitress is arrogant and does not care about me," and "I think that the waitress frowns at me and looks clearly impatient." Similarly, participants were asked to rate the extent of the positive emotional display by the manager on a seven-point Likert-type scale in response to three statements, including "I feel comfortable watching the manager's authentic and natural smile," "I am impressed by the manager's nice tone and thoughtful expressions in her eyes," and "I am happy to see that the manager smiles at me several times." The two scales demonstrated relatively high internal consistency reliability (α=0.71, 0.97). The results of manipulation checks are provided in Table 1. Using a one-way ANOVA test, the success of the manipulation checks was established for the negative emotional display by the waitress (F=37.67, p<.001) and positive emotional display by the manager (F=257.62, p<.001). Specifically, those who watched the lower negative emotional display video rated the waitress to be showing a lower level of negative emotion (M=5.00, SD=0.93) relative to the higher negative emotional display (M=5.61, SD=0.67). In contrast, those who viewed the higher positive emotional display video rated the manager as showing a higher level of positive emotion (M=3.34, SD=1.42) relative to the lower positive emotional display (M=5.87, SD=1.08).

Reliability and validity assessment

We conducted a confirmatory factor analysis with all of the multi-item measures in this study. It was found that the

Table 1 Manipulation checks: means and ANOVA results

			F value
The extent of the waitress' negative emotional displays	Lower	5.00 (0.93)	37.67***
	Higher	5.61 (0.67)	
The extent of the manager's positive emotional displays	Lower	3.34 (1.42)	257.62***
	Higher	5.86 (1.08)	

Standard deviations are shown in parentheses. Values with the superscript *** are significantly different from each other at p<.001

[4] Similar to customers' negative emotion items, we pre-designed a set of statements of emotional states by referring to the PANAS scale. Before the formal experiment, we interviewed six undergraduate students by asking them which statements could describe their current emotional states well among the set of predesigned statements. Finally, the above four statements received the most votes from them and so were selected to form the pre-questionnaire questions.

scale items loaded on the constructs appropriately, including customers' emotions prior to the beginning of the experiment, customers' negative emotions at T0, T1 and T2, the waitress' negative emotional display, the manager's positive emotional display, and susceptibility to emotional contagion. More specifically, the average variance extracted was greater than.60 for each construct, and each composite reliability measure was greater than.80. Since the *t*-value was significant at $p<.01$ with respect to each construct, our results provided support for convergent validity (Hennig-Thurau et al. 2006). In addition, the squared correlations between each pair of constructs were smaller than the average variance explained for the constructs, which provided support for discriminant validity (Hennig-Thurau et al. 2006). Therefore, our results suggest the acceptable reliability, convergent validity, and discriminant validity of the measures in our study.

Results

Negative and positive emotional contagions

The results reveal that participants had lower levels of negative emotion at T0 ($M=2.02$, SD=0.81). A one-way ANOVA further indicated that there was no significant difference in participants' negative emotions (NE0) among the four groups at T0 ($p<.05$).

To test Hypothesis 1, we checked the change in customers' negative emotions (NE1–NE0) through the process of negative emotional contagion during service failure. A two-way mixed between-within ANOVA was conducted to examine this issue. The waitress negative emotional display (lower or higher) was the between-subject factor and the participants' negative emotions were the within-subject variable. The ANOVA results showed that there was a significant main effect for the waitress negative emotional display ($F(1,255)=9.15$, $p=.003$, partial $\eta^2=.04$), i.e., higher levels of the waitress' negative emotional displays evoked a greater level of customers' negative emotions. Table 2 shows that customers' negative emotions increased by 2.78 in the lower waitress emotional display condition, while the value for the increase in customers' negative emotions was 3.22 in the higher waitress negative emotional display condition. In addition, there was a significant difference in the change in customers' negative emotions (NE1–NE0) between the two conditions, although there was no significant difference in customers' negative emotions (NE0) in either condition at T0. Therefore, Hypothesis 1 is supported, i.e., through the process of negative emotional contagion, customers tended to report higher levels of negative emotions after they received a higher negative emotional display from employees, relative to a lower negative emotional display.

Similarly, we tested Hypothesis 2 by studying the decrease in customers' negative emotions (NE1–NE2) through the process of positive emotional contagion during service recovery. Accordingly, we performed a two-way mixed between-within ANOVA with the manager's positive emotional display (lower or higher) as the between-subject factor. Again, customers' negative emotions were the within-subject variable. The ANOVA results indicated a significant main effect for the manager's positive emotional display ($F(1,247)=9.15$, $p<.001$, partial $\eta^2=.24$). This implies that higher levels of the manager's positive emotional displays reduced customers' negative emotions more. From Table 2, it can be observed that customers' negative emotions decreased by 0.94 in the lower manager positive emotional display condition as compared to 2.49 in the higher manager positive emotional display condition. More importantly, the difference in customers' negative emotional change was found to be significant between the two conditions. Thus, Hypothesis 2 is also supported, as customers experienced greater decreases in negative emotions after receiving high-level service recovery compared to low-level service recovery.

To test Hypotheses 3a, we analyzed customers' negative emotions across the four groups of participants throughout the experiment, as shown in Fig. 3a and b. Note that on average, participants' negative emotions at NE0 were around 2.00 for each of the four groups (there was no significant difference among them). Figure 3a illustrates the dynamic change in customers' negative emotions in both Groups A and B,[5] after viewing a manager's lower positive emotional display. There was a significant difference in customers' negative emotions at NE2 between the two groups ($M=4.23$ for Group A, $M=3.75$ for Group B, $p=.017$). In contrast, Fig. 3b shows that there was no significant difference in customers' negative emotions at NE2 between the other two groups ($M=2.65$ for Group C, $M=2.48$ for Group D, $p=.412$), after receiving a manager's lower positive emotional display. Thus, H3a is supported.

In addition, for the participants experiencing the manager's lower positive emotional displays, there was a significant difference between their negative emotions at

[5] Group A represents the group of participants who were exposed to the waitress' low negative emotional display and the manager's low positive emotional display. Group B represents the group of participants who were exposed to the waitress' high negative emotional display and the manager's low positive emotional display. Group C represents the group of participants who were exposed to the waitress' low negative emotional display and the manager's high positive emotional display. Group D represents the group of participants who were exposed to the waitress' high negative emotional display and the manager's high positive emotional display.

Table 2 ANOVA results for customers' negative emotions

		Increase in customers' negative emotions (NE1–NE0)	Decrease in customers' negatives emotion (NE1–NE2)
The extent of the waitress' negative emotional displays	Lower	2.78*** (1.06)	–
	Higher	3.22*** (1.20)	–
The extent of the manager's positive emotional displays	Lower	–	0.94*** (1.29)
	Higher	–	2.49*** (1.44)

Standard deviations are shown in parentheses. Values with the superscript *** are significantly different from each other at $p<.001$

NE0 (2.07) and NE2 (4.05, paired samples test, $t=17.03$, $p<0.001$), which is consistent with H3b. However, we found the same result for the participants experiencing the manager's higher positive emotional displays, i.e., customers' negative emotions at NE0 (1.97) and NE2 (2.56) also differed from each other (paired samples test, $t=5.01$, $p<0.001$). This is not consistent with H3b. Furthermore, it is interesting to find that for the participants experiencing the manager's higher positive emotional displays, their final negative emotions (NE2) were closer to their initial negative emotion (NE0) as compared to their counterparts experiencing lower positive emotional displays during service recovery (i.e., NE2–NE0=0.565 and 1.998 for the participants experiencing higher and lower positive emotional displays by the manager, respectively). The results from the ANOVA revealed that the difference was significant ($F(1,248)=77.73$, $p<.001$, partial $\eta^2=.24$). This implies that during service recovery, higher levels of employee positive emotional displays are more effective in mitigating customers' negative emotions than lower levels of employee positive emotional displays. Therefore, we provide partial support for H3b.

Moderation effect of susceptibility to emotional contagion

To test Hypothesis 4, through the K-means cluster analysis,[6] participants were first clustered into two groups in terms of the degree of susceptibility to emotional contagion, with a higher susceptibility group ($M=4.91$, 193 subjects) and a lower susceptibility group ($M=3.53$, 67 subjects).

The moderation effect of susceptibility to emotional contagion was examined with the regression analysis and Chow test (Antonides et al. 2002). More specifically, we first developed linear regression models for both the higher and lower susceptibility groups, in which the change in customers' negative emotions was the dependent variable, the waitress' negative emotional display or the manager's positive emotional display was the independent variable. Table 3 presents the results from the regression analyses. Specifically, in the process of negative emotional contagion, the change in customers' negative emotions was significantly related to the waitress' negative emotional display for both the higher and lower susceptibility groups ($p<.05$). The coefficient of the waitress' negative emotional display for the higher susceptibility group (0.42) was greater than that for the lower susceptibility group (0.36). Furthermore, through a Chow test, we found a significant difference between the regression model for the higher susceptibility group and the regression model for the lower susceptibility group ($F(2,260)=6.92$, $p<.01$). That is, participants with a higher susceptibility to emotional contagion reported a greater increase in their negative emotions than customers with a lower susceptibility to emotional contagion did during the process of negative emotional contagion.

Similarly, from Table 3, we can see that in the process of positive emotional contagion, the change in customers' negative emotions was also significantly associated with the manager's positive emotional display for both the higher and lower susceptibility groups ($p<.001$). The coefficient of the manager's positive emotional display for the higher susceptibility group (0.54) was greater than that for the lower susceptibility group (0.45). Again, the Chow test indicated a significant difference between the two regression models for the higher and lower susceptibility groups ($F(2,260)=7.33$, $p<.01$). That is, participants with a higher susceptibility to emotional contagion reported a greater decrease in their negative emotions than customers with a lower susceptibility to emotional contagion did during the process of positive emotional contagion. Therefore, based on the results above, Hypothesis 4 is supported.

Discussion

In this paper, we mainly study the dynamic impact of multiple sequential emotional contagions on customers' negative emotions in service encounters, specifically, during service failure and subsequent recovery interactions. Our results provide several theoretical and managerial implications for research in service marketing.

[6] A K-means cluster analysis attempts to identify relatively homogeneous groups of cases based on selected characteristics using an algorithm that can handle large numbers of cases.

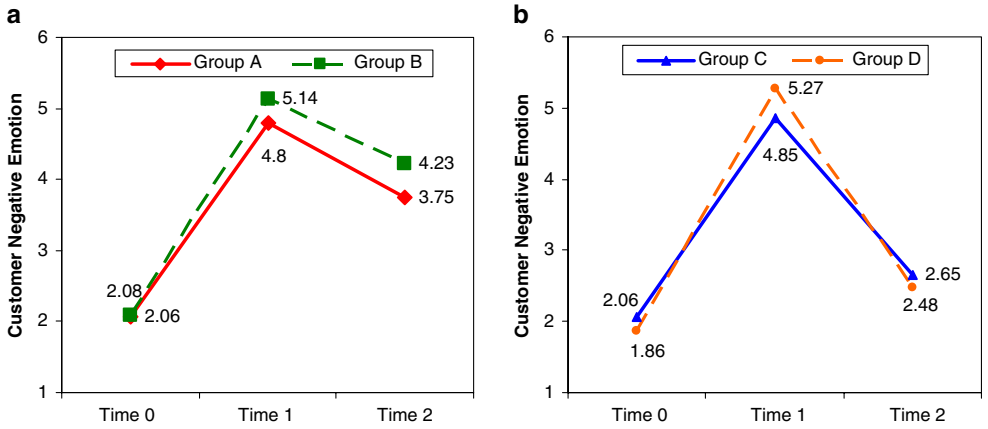

Fig. 3 Changes in customer negative emotion across four groups. Group A (Exposed to the waitress' lower negative emotional display and the manager's lower positive emotional display). Group B (Exposed to the waitress' higher negative emotional display and the manager's lower positive emotional display). Group C (Exposed to the waitress' lower negative emotional display and the manager's higher positive emotional display). Group D (Exposed to the waitress' higher negative emotional display and the manager's higher positive emotional display)

Theoretical implications

First, in addition to Luong (2005), our study further provides empirical evidence on the significant effect of employees' positive emotional displays on customers' negative emotions during service interactions, i.e., customers report a decrease in their negative emotions when they view a positive emotional display from employees during service recovery. This is in contrast to the prevalent notion of positive and negative emotion as independent constructs in the literature (Costa and McCrae 1980; George 1998; Liu et al. 1992; Watson et al. 1988). Although we did not examine customers' positive emotions through the process of the waitress' negative emotional contagion in this study, our findings clearly document the interrelatedness between positive and negative emotion in the service setting.

Second, this study shows that through the process of negative emotional contagion, customers' negative emotions increase significantly with employees' negative emotional displays, i.e., the stronger the employee negative emotional displays, the higher the increase in customers' negative emotions is. In the service industry, employee negative emotional displays can be easily perceived by customers. Consequently, customers' emotion will be influenced when they receive employees' negative emotional displays. This is important since it has been well documented in the literature that customers' emotional levels play an important role in their satisfaction with services (Holbrook and Batra 1987; Oliver 1993; Smith and Bolton 2002; Westbrook 1987; Westbrook and Oliver 1991). On the other hand, it has also been found that through the process of positive emotional contagion, customers' negative emotions could be greatly mitigated by employees' positive emotional displays, i.e., the stronger the employees' positive emotional displays, the greater the decrease in customers' negative emotions is. Hennig-Thurau et al. (2006) found that positive emotional displays have a significant impact on the change in customers' positive emotions. Our work further suggests that positive emotional displays play an important role in changing customers' negative emotions, which complements the finding of Hennig-Thurau et al. (2006).

Third, this paper shows that, with respect to the degree of susceptibility to emotional contagion, higher susceptibility customers always show a significantly greater change in their negative emotions when viewing employees' negative or positive emotional displays than their lower susceptibility counterparts. We also examined gender differences in susceptibility to emotional contagion and found a significant difference between female (M=4.82) and male respondents (M=4.26, p<.001). This is consistent with the findings of Doherty et al. (1995), i.e., women are more susceptible to emotional change. A further investigation revealed that gender differences influenced the moderation effect of susceptibility to emotional contagion in this study, i.e., the moderation effect of susceptibility to emotional contagion was observed for the female respondents, but not for the male respondents.[7] Thus, the results of the moderating effects of susceptibility to emotional contagion further imply that, during service failure and recovery encounters, there is a significantly greater change in negative emotions for female customers than for male customers in our study. Therefore, this finding could apply to future research that studies emotional contagion during service interactions since susceptibility to emotional contagion is a general psychological variable (rather than demographic variables such as gender). For example, if

[7] We are grateful to an anonymous referee for this suggestion.

Table 3 Regression results of the moderation effect of susceptibility to emotional contagion

	Negative emotional contagion			
	Increase in customers' negative emotions (NE1–NE0)			
	Lower susceptibility group (R^2=0.07)		Higher susceptibility group (R^2=0.08)	
	Coefficient	*t*	*Coefficient*	*t*
Constant	0.12	1.45	−0.39	−2.74**
The waitress' negative emotional displays	0.36	3.97***	0.42	2.15*
	Positive emotional contagion			
	Decrease in customers' negative emotions (NE1–NE2)			
	Lower susceptibility group (R^2=0.25)		Higher susceptibility group (R^2=0.36)	
	Coefficient	*t*	*Coefficient*	*t*
Constant	−0.52	−2.95**	0.12	1.38
The manager's positive emotional displays	0.45	4.51***	0.54	10.93***

*p<.05, **p<.01, ***p<.001

future studies identify that a segment of customers is more susceptible to emotional contagion than another segment of customers is, our findings suggest that this might lead to a difference in the change of customers' emotional levels between those two customer segments in the service setting.

Managerial implications

First, one of the interesting findings of this study is that customers' final negative emotions can be greatly deceased when they watch higher levels of employees' positive emotional displays in service recovery. This implies that, in the service setting, higher levels of employee positive emotional displays play an important role in customers' negative emotional arousal, which can in turn improve customers' evaluations of service. Verbeke (1997) found that a salesperson's ability to infect others with his or her emotion (also called "emotional intelligence") is an asset for a sales organization since emotional intelligence can lead to high performance. Therefore, service firms should hire those employees who can appropriately provide higher levels of positive emotional displays.

Second, the marketing literature documented the "service recovery paradox," suggesting that very successful service recoveries in response to a service failure may lead to higher levels of customers' satisfaction than initial levels of satisfaction prior to the service failure (Smith and Bolton 1998; Tax et al. 1998). In this study, we provide a similar test in service failure and recovery encounters with respect to customers' negative emotions. Our results show that although higher levels of employee positive emotional displays are able to greatly mitigate customers' negative emotions during service recovery efforts, customers' final negative emotions (at NE2) cannot completely return to their initial levels of negative emotions (at NE0). That is, the "service recovery paradox" did not occur for customers' negative emotions in the setting of our study. This finding suggests that in service failure, employee negative emotional displays can be quickly perceived by customers, and in turn deeply hurt customers. Therefore, service firms should pay close attention to employees' (negative) emotional displays during service interactions, since it is quite difficult to fully mitigate the potential harm caused to customers.

Third, our results suggest that service firms should provide effective training to their frontline service employees so that they can display proper positive emotions during service encounters. Hochschild (1983) introduced the concept of "emotional labor", which refers to employees' emotional regulation to display expected emotional norms to customers and promote organizational goals. Our study shows that only higher levels of employee positive emotional displays are relatively effective in mitigating customers' negative emotions in service failure and recovery encounters. However, it is not easy for a frontline employee to maintain a positive emotional display for a long time during service interactions. For example, employees are likely to become more and more impatient due to working pressures and fatigue as they continuously provide services to customers. Consequently, there is a significant gap between their current emotions and the appropriately displayed emotions that are required for serving customers. Hochschild (1983) argues that the separation of experienced and expressed emotions could lead to emotional dissonance. Therefore, managers of a service firm should be considerate of their frontline employees and pay more attention to employees' real-time emotional levels through effective communication.

Limitations and future research

This study has its limitations. First, Dallimore et al. (2007) considered the influence of gender differences in the process of emotional contagion in a service failure

encounter. Specifically, from the employees' perspective, they proposed that employees who are exposed to angry male consumers report greater levels of negative emotional levels than those who are exposed to angry female consumers do. In our study, employees (i.e., the waitress and manager) were both females during an episode of service failure and recovery. This is appropriate since female employees are prevalent in the restaurant industry. It would be interesting to extend our research to other service encounters in which male and female employees are commonly observed. Second, we used student subjects in this study. Our results indicate that students were quite familiar with the service failure and recovery scenarios in a restaurant described in the videotapes. However, there might be some difference between students and other customer segments, though we believe that it does not make the student samples less appropriate for our study.

Third, our study indicates that service firms should be aware of the differences in the influence of employees' emotional displays on customers with different degrees of susceptibility to emotional contagion. The prior literature suggests that there is a difference in the emotional expressions between eastern and western cultures (Dickson et al. 1998; Kagan et al. 1994; Russell 1995). For example, Russell (1995) suggested that people from eastern countries can control their emotions better than those from western countries. Kagan et al. (1994) provided behavioral and physiological evidence that Chinese people tend to have less emotional responses than white people do. This implies that people from western cultures are more willing to display their emotions on their face, while people from eastern culture like to hide their emotions internally (Dickson et al. 1998). Therefore, it could be argued that the study's use of Chinese respondents might constitute a conservative test of the emotional contagion process, compared to results that might be obtained using respondents from Western cultures.

Emotional contagion represents a complicated psychological process in service encounters. In this study, we chose to study a service failure and recovery encounter in which customers experienced negative emotional displays first and then positive emotional displays from employees. However, the change in customers' negative emotions could be different if the two emotional contagion processes were reversed; for example, customers first experienced the process of positive emotional contagion from employees with positive emotional displays and then the process of negative emotional contagion from employees with negative emotional displays. On the other hand, all of the service failures in our study were associated with employee negative emotional displays. It is possible that a service failure occurs with employee positive emotional displays. What will be the impact on the subsequent service recovery if the employee displays positive emotions in the service failure?[8] It would be interesting to examine these issues in future research.

In this study, the recovery was made by the manager rather than the service employee. But this is not always the case in service settings. For example, in the United States, the recovery is often done by the service employee. It could be expected that there would also be a decrease in customers' negative emotions if the service employee made the recovery efforts. However, since customers still have fresh memories on the employee negative emotional displays during service failure, it is very likely that the recovery by the employee could not be as effective as that by the manager. More empirical research is needed to examine the emotional contagion process in which the service failure and recovery are both made by the service employee.

As suggested in Dallimore et al. (2007), emotional contagion is an interactive process between employees and customers, and customers' negative emotions could also be contagious to employees. Employees have to display positive emotions even if they receive negative emotional contagion from customers, which may lead to serious emotional disorders and work pressures. Future research can take the employees' perspective and investigate the relationship between employees' emotional levels and their job satisfaction during a service failure and recovery encounter.

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Appendix: Questionnaire

Thank you for participating in our study. Please imagine yourself to be the customers in the videotape and answer the questions in the questionnaire carefully based on your true feelings of watching the videotape. The questions in this questionnaire have NO right or wrong answers. This information is being collected for the sole purposes of this questionnaire. Results will be reported in an aggregated form and we will not share your individual responses for any purpose.

[8] We are grateful to an anonymous referee for this suggestion.

The following set of statements is about your current emotional level. Please indicate the extent to which you agree or disagree with each statement by checking the box in each row.

	very strongly disagree	strongly disagree	disagree	don't know	agree	strongly agree	very strongly agree
I am in a good mood.	☐	☐	☐	☐	☐	☐	☐
I am happy when answering the questions.	☐	☐	☐	☐	☐	☐	☐
I am feeling good.	☐	☐	☐	☐	☐	☐	☐
I am displeased.	☐	☐	☐	☐	☐	☐	☐

Part I

One day, four friends (two males and two females) who have not seen each other for several years, go to lunch together in a high-profile restaurant. None of them have patronized this restaurant before. Please watch the first part of the video and answer the following questions.

To what extent, could you imagine yourself as the customers in the videotape? Please rate on a 1–10 scale, where 1 is "absolutely yes" and 10 is "absolutely no."

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐

The following set of statements is about your current emotional level. Please indicate the extent to which you agree or disagree with each statement by checking the box in each row.

	very strongly disagree	strongly disagree	disagree	don't know	agree	strongly agree	very strongly agree
I am upset.	☐	☐	☐	☐	☐	☐	☐
I am angry.	☐	☐	☐	☐	☐	☐	☐
I am awkward.	☐	☐	☐	☐	☐	☐	☐
I am irritable.	☐	☐	☐	☐	☐	☐	☐
I am displeased.	☐	☐	☐	☐	☐	☐	☐
I am afraid.	☐	☐	☐	☐	☐	☐	☐
I am distressed.	☐	☐	☐	☐	☐	☐	☐
I am disgusted.	☐	☐	☐	☐	☐	☐	☐

Part II

The four customers are seated at the reserved table. They are urging the waitress to deliver the order after they have been waiting for a long time (e.g., more than 10 min). Please watch the second part of the video and answer the following questions.

The following set of statements is about your feelings towards the waitress's service. Please indicate the extent to which you agree or disagree with each statement by checking the box in each row.

	very strongly disagree	strongly disagree	disagree	don't know	agree	strongly agree	very strongly agree
I think that the waitress looks down on me in an aloof way.	☐	☐	☐	☐	☐	☐	☐
I think that the waitress is arrogant and does not care about me.	☐	☐	☐	☐	☐	☐	☐
I think that the waitress frowns at me and looks clearly impatient.	☐	☐	☐	☐	☐	☐	☐

The following set of statements is about your current emotional level after watching the waitress's service. Please indicate the extent to which you agree or disagree with each statement by checking the box in each row.

	very strongly disagree	strongly disagree	disagree	don't know	agree	strongly agree	very strongly agree
I am upset.	☐	☐	☐	☐	☐	☐	☐
I am angry.	☐	☐	☐	☐	☐	☐	☐
I am awkward.	☐	☐	☐	☐	☐	☐	☐
I am irritable.	☐	☐	☐	☐	☐	☐	☐
I am displeased.	☐	☐	☐	☐	☐	☐	☐
I am afraid.	☐	☐	☐	☐	☐	☐	☐
I am distressed.	☐	☐	☐	☐	☐	☐	☐
I am disgusted.	☐	☐	☐	☐	☐	☐	☐

To what extent, could you imagine yourself to be the customers in the videotape? Please rate on a 1–10 scale, where 1 is "absolutely yes" and 10 is "absolutely no."

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐

Part III

A few minutes later, the manager of the restaurant brings the customers their ordered food. Please watch the third part of the video and answer the following questions.

The following set of statements is about your feelings towards the manager's service. Please indicate the extent to which you agree or disagree with each statement by checking the box in each row.

	very strongly disagree	strongly disagree	disagree	don't know	agree	strongly agree	very strongly agree
I feel comfortable watching the manager's authentic and natural smile.	☐	☐	☐	☐	☐	☐	☐
I am impressed by the manager's nice tone and thoughtful expressions in her eyes.	☐	☐	☐	☐	☐	☐	☐
I am happy to see that the manager smiles at me several times.	☐	☐	☐	☐	☐	☐	☐

The following set of statements is about your current emotional level after watching the manager's service. Please indicate the extent to which you agree or disagree with each statement by checking the box in each row.

	very strongly disagree	strongly disagree	disagree	don't know	agree	strongly agree	very strongly agree
I am upset.	☐	☐	☐	☐	☐	☐	☐
I am angry.	☐	☐	☐	☐	☐	☐	☐
I am awkward.	☐	☐	☐	☐	☐	☐	☐
I am irritable.	☐	☐	☐	☐	☐	☐	☐
I am displeased.	☐	☐	☐	☐	☐	☐	☐
I am afraid.	☐	☐	☐	☐	☐	☐	☐
I am distressed.	☐	☐	☐	☐	☐	☐	☐
I am disgusted.	☐	☐	☐	☐	☐	☐	☐

To what extent, are you familiar with the situations in the video? Please rate on a 1–7 scale, where 1 is "very unfamiliar" and 7 is "very familiar."

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐

Do the same/similar situations happen frequently in your life? Please rate on a 1–7 scale, where 1 is "never" and 7 is "very frequently."

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐

Part IV

The questions in this part are not related to the videotape scenario above. This information is being collected for the sole purposes of this study.

Please read the following set of statements carefully and indicate the extent to which you agree or disagree with each statement by checking the box in each row.

	very strongly disagree	strongly disagree	disagree	don't know	agree	strongly agree	very strongly agree
I feel happy when someone is smiling at me.	☐	☐	☐	☐	☐	☐	☐
I feel displeased when I see that someone is not in the mood.	☐	☐	☐	☐	☐	☐	☐
I can't help getting excited when watching touching scenarios.	☐	☐	☐	☐	☐	☐	☐
I am very keen to capture the emotional changes of other people.	☐	☐	☐	☐	☐	☐	☐
It makes me irritated immediately when I see other people's provoking expressions.	☐	☐	☐	☐	☐	☐	☐
I am very concerned about emotional changes of other people.	☐	☐	☐	☐	☐	☐	☐
It makes me happy to stay together with the people I like.	☐	☐	☐	☐	☐	☐	☐
It makes my heart beat fast when I see people quarreling furiously.	☐	☐	☐	☐	☐	☐	☐

Please answer the following questions on your demographic information. This information is being collected for the sole purposes of this study.

Gender: ☐ Male ☐ Female

Age: _____ years

Thank you very much for your participation.

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