

# Context Shapes Social Judgments of Positive Emotion Suppression and Expression

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It is generally considered socially undesirable to suppress the expression of positive emotion. However, previous research has not considered the role that social context plays in governing appropriate emotion regulation. We investigated a context in which it may be more appropriate to suppress than express positive emotion, hypothesizing that positive emotion expressions would be considered inappropriate when the valence of the expressed emotion (i.e., positive) did not match the valence of the context (i.e., negative). Six experiments ( $N = 1,621$ ) supported this hypothesis: when there was a positive emotion-context mismatch, participants rated targets who suppressed positive emotion as more appropriate, and evaluated them more positively than targets who expressed positive emotion. This effect occurred even when participants were explicitly made aware that suppressing targets were experiencing mismatched emotion for the context (e.g., feeling positive in a negative context), suggesting that appropriate emotional expression is key to these effects. These studies are among the first to provide empirical evidence that social costs to suppression are not inevitable, but instead are dependent on context. Expressive suppression can be a socially useful emotion regulation strategy in situations that call for it.

*Keywords:* context, emotion expression, emotion regulation, expressive suppression, positive emotion

Your smile is a messenger of goodwill. Your smile brightens the lives of all who see it. . . . As I leave for my office, I greet the elevator operator in the apartment house with a ‘Good morning’ and a smile, I greet the doorman with a smile. I smile at the cashier in the subway booth when I ask for change. As I stand on the floor of the Stock Exchange, I smile at people who until recently never saw me smile.

—Carnegie (1936)

In his seminal book *How to Win Friends and Influence People*, Dale Carnegie (1936) offers a recipe for success: Smile. Carnegie recommends applying this rule indiscriminately, and he is not alone in this view—lay intuition holds that expressing positive

emotion is a socially acceptable way to endear one’s self to other people. Yet, we also know that positive emotion expressions are not appropriate in every situation. Sometimes people laugh while experiencing trauma, smile at disgusting pictures, and giggle during solemn funeral services. To an outside observer, these positive emotion expressions may appear inappropriate, unwarranted, and just plain wrong. To maintain a positive impression such situations, it may be better for people to suppress the expression of inappropriate positive emotions. However, as an emotion regulation strategy, expressive suppression has received as much condemnation as smiling has received praise. The existing literature portrays expressive suppression as a maladaptive strategy with personal and social costs—a strategy to be avoided. We challenge this assumption, exploring the key role that *context* plays in shaping the social consequences of suppressing and expressing positive emotion.

## The Costs of Expressive Suppression

Emotions serve useful personal and social functions, but can also have dysfunctional and destructive effects (Frijda, 1986; Parrott, 2001). Thus, to reap the rewards of emotions while controlling the costs, it is necessary to be able to successfully regulate emotional experience and expression (Gross, 2002). In the process model of emotion regulation, James Gross (1998b, 2015) outlined strategies that can be used to regulate emotional reactions prior to emotion generation (i.e., antecedent-focused strategies) and after an emotional response has fully onset (i.e., response-focused strategies). Of the response-focused strategies, *expressive suppression*—a strategy that involves inhibiting the outward expression of emotional states—has attracted the most widespread research attention (Gross & Levenson, 1993; Webb, Miles, & Sheeran, 2012).

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Although suppression successfully prevents a person's feelings from showing, it leaves emotional experience mostly unchanged (Gross & Levenson, 1993; Kalokerinos, Greenaway, & Denson, 2015).

The consensus in the literature is that expressive suppression is generally dysfunctional: chronic suppressors experience and express less positive emotion and more negative emotion, and report reduced well-being (Gross & John, 2003; Nezlek & Kuppens, 2008). Excessive use of suppression is also a hallmark of certain mental health disorders, including anxiety and depression (Aldao, Nolen-Hoeksema, & Schweizer, 2010). In experimental studies, suppression leads to poorer memory for the suppressed event, increased negative emotion, and maladaptive profiles of physiological functioning (Gross & Levenson, 1993; Richards, 2004; Richards & Gross, 2000).

In addition to these personal costs, suppression also has negative social consequences. Chronic use of suppression has been linked with lower levels of social support, less interpersonal closeness, and lower relationship satisfaction (English & John, 2013; Gross & John, 2003; Srivastava, Tamir, McGonigal, John, & Gross, 2009). In the lab, dyads with one partner instructed to suppress demonstrate poorer communication, reduced rapport, and impaired relationship formation (Butler et al., 2003). However, more recently, some research has suggested that suppression of negative emotion does not always actively harm social relations—for example, among people who prioritize social harmony through an interdependent cultural worldview, suppression is not associated with social costs (Butler, Lee, & Gross, 2007) and can sometimes even improve relationship outcomes (Le & Impett, 2013). However, there has been no direct test of whether suppression of positive emotion will always have negative social effects. In sum, with few exceptions, the current literature appears to conclude that when it comes to emotion regulation, expressive suppression is a poor choice.

### The Benefits of Positive Emotion Expression

Just as expressive suppression has costs, emotion expression can have benefits. Emotion expression is a critical dimension of our social world, facilitating communication and affiliation (Parkinson, 2005). Emotion expression is associated with the development of intimacy, and helps to create open and communicative relationships characterized by emotional responsiveness (Graham, Huang, Clark, & Helgeson, 2008; Keltner & Kring, 1998). In particular, expressing positive emotion is associated with beneficial social outcomes (Lyubomirsky, King, & Diener, 2005). In research on person perception, targets who express more positive emotions are judged more positively on a number of dimensions, including friendliness and likability (Harker & Keltner, 2001; Lyubomirsky et al., 2005). This is likely because the expression of positive emotion signals a desire for affiliation, suggesting that the target is approachable and friendly (Harker & Keltner, 2001; Tickle-Degnen & Rosenthal, 1990).

So far this work has tended to examine generalities—on average, we prefer people who express positive emotion, and dislike those who suppress emotion. However, in daily life the social evaluation of emotional expression is not so inflexible—the context in which emotion expressions are made plays a critical role in how they are perceived. Despite this, there has been little research

examining the ways in which contextual factors may moderate the effectiveness of emotion regulation strategies, meaning that situations in which suppressing positive emotion may be a more appropriate strategy remain undiscovered.

### The Power of Context

Context matters in how people produce, interpret, and respond to emotions. This is the principle underlying the concept of display rules (Ekman & Friesen, 1975), which are guides for understanding how to manage the expression or inhibition of emotion in a given situation (Matsumoto, Yoo, Hirayama, & Petrova, 2005). The theory underlying display rules implies that it is necessary to regulate the expressive component of emotion in a context-dependent way. However, very little work has actually examined the role of context in moderating the social consequences of emotion regulation. It is relatively uncommon for research to compare the effects of emotion expression across different social settings (Van Kleef, De Dreu, & Manstead, 2010), and almost no research compares the effects of emotion regulation strategies, including suppression, across contexts. This is surprising, given that emotion regulation is often necessary to respond to the emotional demands of changing contexts.

Increasingly, researchers are recognizing this gap, and calling for work to investigate how contextual factors shape emotion regulation (Aldao, 2013; Bonanno & Burton, 2013). According to these researchers, although emotion regulation theory in principle recognizes the moderating impact of changing contextual demands, our empirical work has resulted in a more rigid conceptualization of beneficial and costly strategies. In this work, emotion regulation strategies tend to be put into “camps” of healthy versus unhealthy, adaptive versus maladaptive, and functional versus dysfunctional: a perspective that Bonanno and Burton (2013) refer to as the *fallacy of uniform efficacy*. In this largely noncontextual literature, expressive suppression has been cast as a particularly costly strategy.

### Emotion–Context Mismatch

Arguing against this characterization of expressive suppression, we suggest that, in certain contexts, it may actually be a socially beneficial strategy. In particular, research indicates that positive emotion expressions are penalized socially when expressed in contexts that are usually associated with negative emotional experiences. Direct evidence for this effect comes from the work of Szczurek, Monin, and Gross (2012). In this study, participants were shown targets expressing positive emotion, negative emotion, or neutral affect, and were told that these targets were responding to a set of positive, negative, or neutral pictures. The researchers found that targets who violated affective norms by expressing affect incongruent with the stimuli (e.g., positive affect in response to negative images), or neutral affect (i.e., no response to the stimuli), were judged more harshly than those displaying congruent affect, and participants responded to these incongruent targets with greater moral outrage. Most important to the current work, this effect was moderated by valence: incongruent affect was penalized more when the stimuli were negative than when they were positive. That is, displaying positive emotion in response to negative stimuli led to particularly harsh penalties, compared with displaying negative emotion in response to positive stimuli.

There is also indirect evidence for this contextual effect: for example, research by Ansfield (2007) showed that people who smiled while watching disgusting stimuli were liked less, and considered more socially inappropriate, than those who did not smile. In other work, people who smiled while making negative statements were rated as being less genuine than those who showed a more neutral expression (Krumhuber & Manstead, 2009). In a prisoner's dilemma game, people were significantly less likely to cooperate with a partner who expressed joy after defection (effectively betraying the participant; de Melo, Carnevale, Read, & Gratch, 2014). Taken together, this research demonstrates that expressing positive emotion in a negative context—a situation of *emotion-context mismatch*—is socially costly.

The existing work has established that expressing mismatched emotion can be socially costly, but has not explored how these costs can be counteracted. Exploring such methods is important, because there are many situations in which one may experience emotions that are mismatched with the situation, and thus face social censure: for example, feeling amusement in response to a funny memory during a serious business meeting; *schadenfreude* at another person's misfortune; or pride in personal success while a friend fails. We suggest that expressive suppression is an ideal strategy to implement in these situations of emotion-context mismatch, when the positive valence of the experienced emotion does not match the negative valence of the situational context. Suppression is highly effective at down-regulating the outward expression of emotion (Webb et al., 2012), and creating the appearance of neutrality. This is critical, because it is the outward expression of a mismatched emotion that has been shown to lead to social censure in negative contexts (Szczurek et al., 2012).

As we outlined earlier, the emotion regulation literature has liberally documented the pitfalls—social and otherwise—of expressive suppression. Yet, the previous research that has identified these pitfalls has assessed the effects of chronic suppression, regardless of whether people are using suppression in contextually appropriate ways (e.g., English & John, 2013; Gross & John, 2003), or has assessed suppression in situations in which people would probably not normally use this emotion regulation strategy. For example, Butler et al. (2003) had participants watch a negative film about World War 2 and discuss the film with an interaction partner. People who suppressed their negative emotions in the interaction received poorer social evaluations from their partners, and we suggest that this is most likely because their reaction appeared incongruent in a context where people might be expected to share and commiserate about their negative feelings (i.e., suppression here created an emotion-context mismatch). In the present research we make the first experimental test of this contextual hypothesis, examining whether expressive suppression of positive emotion is evaluated positively when employed in a situation of emotion-context mismatch, reversing the general findings that suppression is a socially costly and maladaptive strategy.

### The Present Research

In this work, we utilized stimuli in which targets expressed or suppressed positive emotion. To manipulate contextual valence we informed participants that the targets were in a positive or negative situation. This created an *emotion-context match* in the positive expression/positive context cell and an *emotion-context mismatch*

in the positive expression/negative context cell. We assessed the effects of emotion-context match and mismatch on perceived emotional appropriateness, social evaluations, and social affiliation. We hypothesized that in the case of an emotion-context mismatch (i.e., positive emotion, negative context), people who suppressed their emotions would be evaluated more positively than people who expressed their emotions. In the case of an emotion-context match (i.e., positive emotion, positive context) we hypothesized that, as in previous work, people who suppressed their emotions would be evaluated more negatively than people who expressed their emotions.

### Pilot Experiment 1: Development of Stimulus Set 1 (Undergraduates)

We created video stimuli of undergraduate student targets expressing or suppressing positive emotion, which were used in Experiments 1, 2, 3, and 6.

### Method

**Participants and design.** Participants were 32 first-year psychology students who participated in the experiment in exchange for partial course credit. The stimulus creation study employed a 3-level (emotion regulation: expression, suppression, control) between-subjects design. One participant withdrew consent and their video and survey responses were deleted, resulting in a final sample size of 31 (74.2% female,  $M_{\text{age}} = 19.42$ ,  $SD = 2.53$ ).<sup>1</sup>

**Procedure.** Participants were told that they would watch a film clip and complete a short videotaped interview. They provided written consent for their interview to be recorded and used in future studies, then watched a short positive film clip (detailed below), after which they were randomly assigned to an emotion regulation condition (detailed below). The experimenter then escorted participants to a separate room that contained an interviewer and recording equipment. Both the experimenter and the interviewer were blind to participant condition.

The interviewer asked participants three questions about the film clip they watched (e.g., “Could you explain who the main characters were and what happened in the video that you just watched?”) and four questions about themselves (e.g., “What is one of your life goals?”). After the interview, participants completed self-report measures including a manipulation check. Participants were then verbally debriefed then asked to provide a second written consent allowing their interview to be used in future studies.

### Materials and measures.

**Film stimuli.** Participants watched a clip from *Finding Nemo* (105 seconds), in which one of the main characters—a fish—tries to speak with a whale by making exaggerated whale noises: a clip that has been shown to elicit positive emotion but not negative emotion (Kalokerinos et al., 2015). Pilot testing indicated that this film clip elicited amusement, happiness, interest, and joy, and so we refer to positive emotion globally throughout this paper.

<sup>1</sup> As part of this data collection, we also randomly assigned a different set of participants ( $N = 30$ ) to view a negative film and record an emotion regulation video for use in another series of studies.

**Emotion regulation instructions.** Participants were randomly assigned to receive one of three sets of instructions. All three conditions were told they would complete an interview. This was all the information received by participants in the *control condition* ( $n = 10$ , 7 females), but participants in the other conditions received additional instructions. Instructions in the *suppression condition* ( $n = 10$ , 9 females) read:

We are interested in how people communicate without using emotional expression. It is really important during the interview that you behave in a way that the person asking you the questions won't know that you're feeling any emotion at all. Please try your best not to let your feelings show.

Instructions in the *expression condition* ( $n = 11$ , 7 females) read:

We are interested in understanding how people communicate their emotions to one another. It is really important during the interview that you behave in a way that the person asking the questions will know what emotions you're feeling. Please try your best to let your feelings show.

**Manipulation checks.** One item measured the degree to which participants felt they suppressed their emotions during the interview ("I hid my emotions during the interview") and one item measured the degree to which participants felt they expressed their emotions during the interview ("I expressed my emotions during the interview"). Both items were scored on a scale ranging from 1, *strongly disagree* to 7, *strongly agree*,  $\alpha = .91$ .<sup>2</sup>

**Behavioral coding.** This was conducted by three coders (two women and one man) who were unaware of the experimental hypotheses. Coders rated the targets in the video stimuli in terms of suppression, expression, and facial movement, scored on a scale ranging from 1 (*not at all*) to 7 (*a great deal*), and smiling behavior, recorded as the number of smiles made by each target. Reliability was good for all four variables (intraclass correlation coefficients: Suppression = .73, Expression = .85, Facial movement = .78, Smiling = .84).

**Computerized behavioral coding.** This was conducted using the iMOTIONS software package, which measures and quantifies facial expressions (iMOTIONS, n.d.). The software coded for specific facial expressions, which are reflective of particular emotions. We analyzed the stimuli to determine the amount of time targets displayed joy and facial neutrality to indicate positive emotion expression and suppression, respectively.

## Results and Discussion

**Manipulation check.** A one-way ANOVA revealed the expected main effect on suppression,  $F(2, 28) = 9.59$ ,  $p = .001$ ,  $\eta_p^2 = .41$ , such that participants in the suppression condition ( $M = 5.00$ ,  $SD = 1.49$ ) reported suppressing more than participants in the control condition ( $M = 2.80$ ,  $SD = 1.40$ ),  $p = .001$ , 95% CI<sup>3</sup> [0.92, 3.48], and the expression condition ( $M = 2.55$ ,  $SD = 1.29$ ),  $p < .001$ , 95% CI [1.21, 3.70], who did not differ significantly from one another,  $p = .679$ , 95% CI [-0.99, 1.50].

A one-way ANOVA on expression also showed the expected main effect,  $F(2, 28) = 6.34$ ,  $p = .005$ ,  $\eta_p^2 = .31$ , such that participants in the suppression condition ( $M = 3.00$ ,  $SD = 1.70$ ) reported expressing marginally less than participants in the control condition ( $M = 4.30$ ,  $SD = 1.70$ ),  $p = .066$ , 95% CI [-0.09, 2.69],

and significantly less than participants in the expression condition ( $M = 5.36$ ,  $SD = 1.12$ ),  $p = .001$ , 95% CI [1.00, 3.72]. These results revealed that the participants regulated their emotions in line with the experimental instructions.

**Behavioral coding.** The means and standard deviations for the behavioral coding are displayed in Table 1. The pattern of results indicated a successful manipulation of emotion regulation. Coders rated participants in the suppression condition as suppressing more than participants in the expression condition, and moving their faces less than participants in the expression condition and the control condition. They also rated participants in the suppression condition as expressing and smiling less than participants in the expression condition and the control condition, although these differences were not significant.

**Computerized behavioral coding.** The pattern of results obtained using the iMOTIONS software supported those of the coders. However, the differences between means were not significant, which is not surprising given the small sample size. Participants in the suppression condition showed greater facial neutrality than participants in the expression or control conditions. Participants in the suppression condition also showed less joy than participants in the expression condition, although were similar to those shown by participants in the control condition. Taken together, these results indicate that the videos are appropriate stimuli for manipulating emotion suppression and expression.

## Experiment 1

In this experiment, we used the videos generated in stimulus set 1 to assess social perceptions of positive emotion suppression. We manipulated context independently of targets' actual expression by telling raters that the target had watched either a positive or negative film. This manipulation created the necessary conditions for emotion-context match (i.e., expressing positive emotion after supposedly watching a positive film) and emotion-context mismatch (i.e., expressing positive emotion after supposedly watching a negative film).

We hypothesized that targets who expressed positive emotion in a positive context (reflecting an emotion-context match) would be rated as more appropriate than targets in the suppression and control conditions. However, we hypothesized that targets who *suppressed* positive emotion in a negative context (reflecting an emotion-context mismatch) would be rated as more appropriate than targets in the expression and control conditions.

## Method

**Participants and design.** Participants were 180 *Amazon Mechanical Turk* workers paid USD\$1.00 (42% women,  $M_{\text{age}} = 35.06$ ,  $SD_{\text{age}} = 12.49$ , range 19–77) in a 2 (participant context: positive vs. negative)  $\times$  3 (target emotion regulation: control vs. expression vs. suppression) between-subjects design. Perceived target appropriateness was the dependent variable.

<sup>2</sup> A second suppression manipulation check included three items adapted from Gross (1998a) and Gross and John (2003); for example, "During the interview, I controlled my emotions by not expressing them,"  $\alpha = .89$ . Both manipulation check scales showed the same results.

<sup>3</sup> Confidence intervals reported throughout are confidence intervals of the difference between means.

Table 1  
*Manipulation Check and Behavioral Coding of Stimulus Sets 1 and 2*

Variable	Stimulus set 1: Undergraduate students			Stimulus set 1 (reduced)		Stimulus set 2: Actors	
	Suppression targets	Control targets	Expression targets	Suppression targets	Expression targets	Suppression condition	Expression condition
<b>Behavioral coding</b>							
Perceived suppression	4.80 (.93) <sub>a</sub>	3.73 (1.57) <sub>ab</sub>	3.33 (1.37) <sub>b</sub>	5.17 (.43) <sub>a</sub>	2.08 (.42) <sub>a</sub>	5.25 (1.19) <sub>a</sub>	1.00 (.00) <sub>b</sub>
Perceived expression	2.63 (.87) <sub>a</sub>	3.83 (1.31) <sub>b</sub>	4.52 (1.30) <sub>b</sub>	2.00 (.27) <sub>a</sub>	5.75 (.69) <sub>b</sub>	1.88 (.63) <sub>a</sub>	6.75 (.29) <sub>b</sub>
Facial movement	2.43 (.77) <sub>a</sub>	3.57 (.86) <sub>b</sub>	3.79 (1.35) <sub>b</sub>	1.83 (.43) <sub>a</sub>	4.67 (1.19) <sub>b</sub>	1.88 (.63) <sub>a</sub>	7.00 (.00) <sub>b</sub>
Smiling behavior	3.73 (2.60) <sub>a</sub>	6.07 (5.16) <sub>a</sub>	6.91 (3.59) <sub>a</sub>	2.67 (1.19) <sub>a</sub>	8.50 (3.95) <sub>a</sub>	.38 (.75) <sub>a</sub>	4.88 (.25) <sub>b</sub>
<b>Computerized coding</b>							
Neutrality	40.10 (29.08) <sub>a</sub>	28.90 (29.27) <sub>a</sub>	28.73 (18.43) <sub>a</sub>	52.75 (38.85) <sub>a</sub>	18.50 (14.62) <sub>a</sub>	57.00 (19.61) <sub>a</sub>	12.00 (9.20) <sub>b</sub>
Joy	3.70 (8.04) <sub>a</sub>	3.40 (4.35) <sub>a</sub>	13.64 (19.63) <sub>a</sub>	6.75 (12.84) <sub>a</sub>	17.00 (22.91) <sub>a</sub>	21.50 (26.13) <sub>a</sub>	65.75 (27.94) <sub>b</sub>

*Note.* Columns with different subscripts indicate significant comparisons within each stimulus set. Manipulation checks scored on a scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*); behavioral coding scored on a scale ranging from 1 (*not at all*) to 7 (*a great deal*); smiling behavior coded as a count of the number of smiles observed; computerized coding reflects the amount of time targets displayed the respective expression out of the total time recorded as calculated by iMOTIONS software. Targets in stimulus set 1 ( $n = 31$ ) were different across conditions; actors in stimulus set 2 ( $n = 4$ ) performed in both conditions. Reduced stimulus set 1 ( $n = 8$ ) was used in Experiments 2, 3, and 6.

**Procedure and materials.** The target video stimuli created in stimulus set 1 were edited for use in the present study. First, because participants discussed the content of the film during the interview (therefore making it difficult to manipulate context valence), we muted the videos. In previous work, the presence versus absence of audio content did not impact social judgments of emotional expression (Kalokerinos, Greenaway, Pedder, & Margetts, 2014). Second, each video was edited to contain only the first minute of the interview, meaning that it contained the section in which targets discussed the film they watched. We chose to use these shortened stimuli since it allowed our participants to rate several videos without becoming fatigued, thus providing more reliable judgments across videos. It also allowed us to match the videos on length. We considered this video length appropriate as research indicates that people are able to make reliable interpersonal judgments in very short periods of time (Ambady & Rosenthal, 1992).

**Emotion context manipulation.** To manipulate emotion context, participants were randomly assigned to watch either a positive or negative film clip. The positive film clip was the same clip from *Finding Nemo* shown in stimulus set 1. The negative film clip was from *The Lion King* (126 seconds) in which the main character’s father dies: a clip that has been shown in previous studies to elicit negative emotion but not positive emotion (Kalokerinos et al., 2015). Participants were informed that the targets they would rate were discussing the film clip that participants had just watched. This created a *Positive Context* for the video when participants had watched the positive film clip and a *Negative Context* when participants had watched the negative film clip.

**Target emotion regulation manipulation.** Participants were then randomly assigned between-subjects to view a block of videos that contained targets in one of the three cells of Experiment 1: positive emotion *Expression*, *Suppression*, and *Control*. Because there were 10 or 11 video targets for each cell, having participants watch all videos would have made the study prohibitively long. Instead, we created two blocks of 5 to 6 targets for each of the three cells (expression vs. suppression vs. control).<sup>4</sup> Participants in each cell were randomly assigned to view one of the two target blocks. The videos were presented in a random order within each cell. Participants rated the targets on the dependent variables immediately after watching each video.

**Perceived suppression.** One item measured target suppression (“This person is suppressing their emotions”) scored on a scale ranging from 1, *strongly disagree* to 7, *strongly agree*.

**Appropriateness.** One item adapted from Ansfield (2007) measured perceived target appropriateness (“How appropriate was this person’s reaction to the video?”). The item was scored on a scale ranging from 1, *not at all* to 7, *very much*.

**Results**

**Manipulation check.** A  $2 \times 3$  ANOVA revealed the expected main effect of target emotion regulation,  $F(2, 174) = 6.72, p = .002, \eta_p^2 = .07$ , such that targets in the suppression condition were rated as suppressing significantly more ( $M = 4.19, SD = 0.76$ ) than targets in the control condition ( $M = 3.80, SD = 0.67$ ),  $p = .006, 95\% CI [0.12, 0.67]$ , and targets in the expression condition ( $M = 3.73, SD = 0.83$ ),  $p = .001, 95\% CI [0.21, 0.76]$ . This provided further evidence for the validity of our stimuli. There was no main effect of context,  $F(1, 174) = 0.57, p = .453, \eta_p^2 = .003$ , and no interaction,  $F(2, 174) = 2.16, p = .119, \eta_p^2 = .02$ .

**Appropriateness.** A  $2 \times 3$  ANOVA<sup>5</sup> revealed no significant main effects,  $F_s < 1.15, p_s > .284$ , but a significant interaction between emotion context and target emotion regulation,  $F(2, 174) = 17.81, p < .001, \eta_p^2 = .17$  (see Figure 1). Simple effect analyses were conducted to follow-up the effect of target emotion regulation in the positive and negative context conditions.

<sup>4</sup> Including block in the analyses did not influence the results reported below.

<sup>5</sup> In this design, video target was also a random factor. Thus, to supplement the traditional ANOVA analysis on appropriateness, we conducted a linear mixed model analysis, including intercepts for both participants and video targets as random effects. Modeling the random effect of video target allowed us to control for differences in the mean ratings of targets (Judd, Westfall, & Kenny, 2012). We conducted this analysis using the lme4 package in R (Bates, Mächler, Bolker, & Walker, 2015), with the addition of the lmerTest package to estimate  $p$  values using a Satterthwaite approximation for degrees of freedom (Kuznetsova, Brockhoff, & Christensen, 2013). To control for the effects of target gender, we fixed the effect of gender in this analyses. The outcomes of this analysis were substantively unchanged from those reported above using traditional ANOVA.

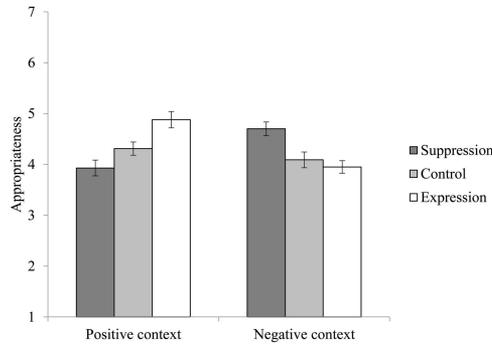


Figure 1. Perceived appropriateness of expressing and suppressing positive emotion as a function of context (Experiment 1).

**Positive context.** There was a significant effect of target emotion regulation in the positive context,  $F(2, 174) = 9.22, p < .001, \eta_p^2 = .10$ . Reflecting an emotion-context match, targets who expressed positive emotion in the positive context were perceived as more appropriate ( $M = 4.88, SD = 0.69$ ) than targets who suppressed positive emotion ( $M = 3.93, SD = 0.81, p < .001, 95\% CI [0.51, 1.39]$ ) or targets in the control condition ( $M = 4.31, SD = 0.65, p = .007, 95\% CI [0.16, 0.98]$ ). There was no significant difference between targets in the control condition and targets who suppressed positive emotion,  $p = .063, 95\% CI [-0.02, 0.78]$ .

**Negative context.** There was a significant effect of target emotion regulation in the negative context,  $F(2, 174) = 9.41, p < .001, \eta_p^2 = .10$ . Reflecting an emotion-context mismatch, targets who expressed positive emotion in the negative context were perceived as less appropriate ( $M = 3.95, SD = 0.88$ ), than targets who suppressed positive emotion ( $M = 4.70, SD = 0.74, p < .001, 95\% CI [-1.10, -0.39]$ ). Targets in the control condition ( $M = 4.09, SD = 0.78$ ) were also perceived as less appropriate than targets who suppressed positive emotion,  $p = .003, [-1.01, -0.21]$ . There was no difference in perceived appropriateness between targets in the control condition and targets who expressed positive emotion,  $p = .491, 95\% CI [-0.25, 0.53]$ .

## Discussion

This experiment provided initial evidence for the importance of contextual valence in judgments of targets who suppress positive emotion. As hypothesized, emotion-context match produced results similar to those seen in previous research: Targets who expressed positive emotion were rated as significantly more appropriate than suppressors and control targets who were not instructed to regulate positive emotion. However, in the negative context, targets who suppressed positive emotion were perceived as significantly more appropriate than expressers and control targets. With a simple context manipulation, we flipped the direction of the typical effect that people who suppress are evaluated less positively than people who express (Butler et al., 2003). This is the first empirical evidence that suppressing the expression of positive emotion can have social benefits in certain contexts.

Importantly, we included the uninstructed control condition in this experiment to evaluate against the effects of suppressing and expressing positive emotion. This enabled us to conclude that in positive contexts, expressing positive emotion is considered more

appropriate than both suppressing and behaving naturally in an uninstructed control condition, whereas in negative contexts, suppressing positive emotion is considered more appropriate than both expressing and behaving naturally. This indicates that it is actively suppressing and expressing positive emotion that produces these contextually dependent effects. Therefore, in the following experiments, we did not include a control condition, and instead focused on directly contrasting the expression and suppression conditions.

## Experiment 2

In Experiment 2 we aimed to replicate and advance the findings of Experiment 1 by using an extended dependent measure of emotional appropriateness, the Perception of Emotion Appropriateness Rating Scale (Warner & Shields, 2009). This measure allowed us to better understand the way in which suppression affected perceptions of emotional appropriateness. Warner and Shields (2009) argue that perceived emotional appropriateness is comprised of three factors: (a) expected emotions being present, (b) unexpected emotions being absent, and (c) emotions being displayed at the correct intensity.

In the case of a *positive emotion-context match* (i.e., positive emotion, positive context), expressing targets are displaying the positive emotion that is expected given the context. In contrast, suppressing targets are displaying contextually incongruent flat affect, and therefore not displaying the positive emotions expected given the context. Thus, we hypothesized that expressing targets would be rated as having significantly more appropriate emotions present and fewer appropriate emotions absent than suppressing targets.

In the case of *positive emotion-context mismatch* (i.e., positive emotion, negative context), expressing targets are displaying positive emotion that is unexpected given the context. In contrast, suppressing targets are displaying flat affect. Thus, we hypothesized that suppressing targets would be rated as having significantly more appropriate emotions present, but not necessarily significantly more appropriate emotions absent than expressing targets. This is because negative emotion will be absent for both expressing and suppressing targets. We did not expect emotional intensity to play a role in our results, since in creating the stimuli we did not manipulate the intensity of emotion expression or suppression.

In addition to this Extended Appropriateness scale, we included the one-item appropriateness measure from Experiment 1 to demonstrate the replicability of the results. Furthermore, to increase the strength of our target emotion regulation manipulation, based on the results of a pilot study, we used a reduced stimuli set, selecting the videos rated most expressive and suppressive from the larger stimuli set for use in this study.

## Method

**Participants and design.** Participants were 199 Amazon Mechanical Turk workers paid USD\$1.00 (52% women,  $M_{age} = 35.17, SD_{age} = 11.23, range 19-64$ ) in a 2 (participant context: positive vs. negative)  $\times$  2 (target emotion regulation: expression

vs. suppression) between-subjects design. Perceived target appropriateness was the dependent variable.

#### Procedure and materials.

**Participant context manipulation.** The experiment used the same procedures and manipulations as Experiment 1, except for a reduction in the stimuli set described below. Participants were randomly assigned to watch either a positive film clip to create a *Positive Context* or a negative film clip to create a *Negative Context*. As in Experiment 1, participants were told that the targets were discussing the same film that participants themselves watched.

**Target emotion regulation manipulation.** Participants then watched videos in the two emotion regulation cells: positive emotion *Expression* and *Suppression*. In this study, we used a refined version of stimuli set 1. Based on the results of a pilot study,<sup>6</sup> we selected four Expression videos and four Suppression videos for use in this study, so all participants within the same cell saw the same set of videos. Participants rated the targets on the dependent variables immediately after watching each video.

**Dependent measures.** In addition to the one-item measure of target appropriateness used in Experiment 1, emotion appropriateness was measured more fully using Warner and Shields (2009) Perception of Emotion Appropriateness Rating Scale (PEARS). This multidimensional scale measures appropriateness in relation to three factors, all scored on a 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*): *present emotions* (i.e., the appropriateness of emotions that were expressed, scored so that higher scores indicated more appropriate emotions were present; e.g., “I think the types of emotions the person felt were normal”,  $\alpha = .92$ ); *absent emotions* (i.e., key emotions that should have been expressed but were not, scored so that higher scores indicated more appropriate emotions were absent; e.g., “Some important emotions seemed to be missing from this person’s response”,  $\alpha = .96$ ); and *intensity of emotion* (i.e., the degree to which emotion was expressed, scored so that higher scores indicated greater emotional intensity; e.g., “The person was too emotional”,  $\alpha = .92$ ).

## Results

**Appropriateness.** A  $2 \times 2$  ANOVA<sup>7</sup> revealed a nonsignificant main effect of target emotion regulation,  $F(1, 198) = 0.60$ ,  $p = .440$ ,  $\eta_p^2 < .01$ , but a significant main effect of context,  $F(1, 198) = 14.38$ ,  $p < .001$ ,  $\eta_p^2 = .07$  ( $M_{positive} = 4.63$ ,  $SD = 1.14$  and  $M_{negative} = 4.00$ ,  $SD = 1.30$ ), that was qualified by a significant interaction,  $F(1, 198) = 24.93$ ,  $p < .001$ ,  $\eta_p^2 = .11$ . Simple effect analyses were conducted to follow-up the effect of target emotion regulation in the positive and negative context conditions. The cell means and standard deviations for this variable are displayed in Table 2.

**Positive context.** Reflecting an emotion-context match, targets who expressed positive emotion in the positive context were perceived as more appropriate than targets who suppressed positive emotion,  $F(1, 198) = 16.80$ ,  $p < .001$ ,  $\eta_p^2 = .08$ , 95% CI [0.49, 1.39].

**Negative context.** Reflecting an emotion-context mismatch, targets who expressed positive emotion were perceived as less appropriate, than targets who suppressed positive emotion,  $F(1, 198) = 8.81$ ,  $p = .003$ ,  $\eta_p^2 = .04$ , 95% CI [-1.14, -0.23].

**Appropriateness of emotion present.** A  $2 \times 2$  ANOVA revealed a nonsignificant main effect of target emotion regulation,  $F(1, 198) = 2.07$ ,  $p = .152$ ,  $\eta_p^2 = .01$ , but a significant main effect of context,  $F(1, 198) = 17.02$ ,  $p < .001$ ,  $\eta_p^2 = .08$  ( $M_{positive} = 4.12$ ,  $SD = 1.06$  and  $M_{negative} = 3.53$ ,  $SD = 1.02$ ), that was qualified by a significant interaction,  $F(1, 198) = 19.26$ ,  $p < .001$ ,  $\eta_p^2 = .09$ .

**Positive context.** Reflecting an emotion-context match, targets who expressed positive emotion were rated as having more appropriate emotions present ( $M = 4.51$ ,  $SD = 0.94$ ) than targets who suppressed positive emotion ( $M = 3.70$ ,  $SD = 1.02$ ),  $F(1, 198) = 17.15$ ,  $p < .001$ ,  $\eta_p^2 = .08$ , 95% CI [0.43, 1.20].

**Negative context.** Reflecting an emotion-context mismatch, targets who expressed positive emotion were rated as having less appropriate emotions present ( $M = 3.33$ ,  $SD = 1.03$ ) than targets who suppressed positive emotion ( $M = 3.74$ ,  $SD = 0.98$ ),  $F(1, 198) = 4.31$ ,  $p = .039$ ,  $\eta_p^2 = .02$ , 95% CI [-0.80, -0.02].

**Appropriateness of emotion absent.** A  $2 \times 2$  ANOVA revealed a significant main effect of target emotion regulation,  $F(1, 198) = 17.48$ ,  $p < .001$ ,  $\eta_p^2 = .08$  ( $M_{expression} = 3.47$ ,  $SD = 1.22$  and  $M_{suppression} = 4.14$ ,  $SD = 1.19$ ), and a significant main effect of context,  $F(1, 198) = 7.69$ ,  $p = .006$ ,  $\eta_p^2 = .04$  ( $M_{positive} = 3.58$ ,  $SD = 1.28$  and  $M_{negative} = 4.03$ ,  $SD = 1.19$ ), that was qualified by a significant interaction,  $F(1, 198) = 24.59$ ,  $p < .001$ ,  $\eta_p^2 = .11$ .

**Positive context.** Targets who suppressed positive emotion were rated as having more appropriate emotions absent ( $M = 4.32$ ,  $SD = 1.11$ ) than targets who expressed positive emotion ( $M = 2.87$ ,  $SD = 1.01$ ),  $F(1, 198) = 42.18$ ,  $p < .001$ ,  $\eta_p^2 = .18$ , 95% CI [1.01, 1.89].

**Negative context.** There was no significant effect of target emotion regulation in the negative context,  $F(1, 198) = 0.30$ ,  $p = .585$ ,  $\eta_p^2 < .01$ , 95% CI [-0.57, 0.32].

**Appropriateness of emotion intensity.** A  $2 \times 2$  ANOVA revealed a significant main effect of target emotion regulation,  $F(1, 198) = 12.59$ ,  $p < .001$ ,  $\eta_p^2 = .06$  ( $M_{expression} = 2.28$ ,  $SD = 0.82$  and  $M_{suppression} = 1.88$ ,  $SD = 0.78$ ), but no significant main effect of context,  $F(1, 198) = 0.05$ ,  $p = .833$ ,  $\eta_p^2 < .001$ , and no significant interaction,  $F(1, 198) = 1.31$ ,  $p = .254$ ,  $\eta_p^2 < .01$ .

## Discussion

This experiment replicated and extended the findings of Experiment 1. When using the same measure of appropriateness as Experiment 1, we found again that in a positive context, targets

<sup>6</sup> Participants in the pilot study ( $N = 60$ ;  $M_{age} = 33.13$ ,  $SD_{age} = 9.50$ , range 18–65, 43% female) were randomly assigned between-subjects to view a block of videos of targets expressing or suppressing their emotions, and to rate these targets on the same perceived suppression and expression items used in Experiment 1. These participants were simply asked to rate the targets: There was no manipulation of context. Based on these ratings, we selected the three most expressive females, and the one most expressive male (4 videos in total) for use in the expression condition, and the three most suppressive females, and the one most suppressive male (4 videos in total) for use in the suppression condition. We chose this target gender balance to make sure gender was not confounded across condition, and because it reflected the gender balance in the full stimulus set.

<sup>7</sup> Mixed model analyses were not conducted for this experiment, or the following experiments, as there were not enough video targets in the reduced stimulus set ( $N = 8$ ) to estimate a meaningful random effect of video target.

Table 2. *Cell Means, Standard Deviations (in Parentheses), and Meta-Analysis on Dependent Variables Across the Experiments*

Experiment	Appropriateness (single item)			Social evaluation			Social affiliation		
	Suppression	Expression	Effect size	Suppression	Expression	Effect size	Suppression	Expression	Effect size
Experiment 1	Experiment 1 also included a control condition; cell means and standard deviations in text								
Positive context	4.88 <sub>a</sub> (.69)	3.93 <sub>b</sub> (.81)	$d_z = 1.26$	—	—	—	—	—	—
Negative context	3.95 <sub>a</sub> (.88)	4.70 <sub>b</sub> (.74)	$d_z = -.91$	—	—	—	—	—	—
Experiment 2	Experiment 3 also included an additional appropriateness scale; cell means and standard deviations in text								
Positive context	4.15 <sub>a</sub> (1.11)	5.09 <sub>b</sub> (.98)	$d_z = .90$	—	—	—	—	—	—
Negative context	4.35 <sub>a</sub> (1.15)	3.66 <sub>b</sub> (1.36)	$d_z = -.55$	—	—	—	—	—	—
Experiment 3	Experiment 3 also included an additional appropriateness scale; cell means and standard deviations in text								
Positive context	3.70 <sub>a</sub> (1.02)	5.26 <sub>b</sub> (.99)	$d_z = 1.34$	4.60 <sub>a</sub> (.67)	5.46 <sub>b</sub> (.66)	$d_z = 1.41$	3.74 <sub>a</sub> (.58)	4.44 <sub>b</sub> (.58)	$d_z = 1.07$
Negative context	4.53 <sub>a</sub> (.89)	3.50 <sub>b</sub> (1.28)	$d_z = -.81$	5.07 <sub>a</sub> (.63)	4.75 <sub>b</sub> (.81)	$d_z = -.43$	4.14 <sub>a</sub> (.52)	3.92 <sub>b</sub> (.66)	$d_z = -.32$
Experiment 4	Experiment 5 was measured on a 0–8 scale, unlike the other experiments in which it was measured on a 1–7 scale								
Positive context	3.16 <sub>a</sub> (1.31)	5.65 <sub>b</sub> (.81)	$d_z = 1.44$	4.47 <sub>a</sub> (.74)	5.32 <sub>b</sub> (.56)	$d_z = .95$	3.70 <sub>a</sub> (.52)	4.45 <sub>b</sub> (.50)	$d_z = .92$
Negative context	4.61 <sub>a</sub> (1.05)	2.63 <sub>b</sub> (1.47)	$d_z = -1.17$	4.92 <sub>a</sub> (.77)	4.50 <sub>b</sub> (.81)	$d_z = -.35$	4.05 <sub>a</sub> (.55)	4.02 <sub>a</sub> (.67)	$d_z = -.03$
Experiment 5	Appropriateness in Experiment 5 was measured on a 0–8 scale, unlike the other experiments in which it was measured on a 1–7 scale								
Positive context	5.23 <sub>a</sub> (1.81)	6.37 <sub>b</sub> (1.59)	$d_z = .46$	—	—	—	3.96 <sub>a</sub> (.84)	4.58 <sub>b</sub> (.94)	$d_z = .47$
Negative context	5.65 <sub>a</sub> (1.84)	5.03 <sub>b</sub> (2.15)	$d_z = -.25$	—	—	—	3.96 <sub>a</sub> (.81)	4.16 <sub>b</sub> (.99)	$d_z = .15$
Experiment 6	Target felt positive								
Positive context	3.59 <sub>a</sub> (1.18)	5.47 <sub>b</sub> (.79)	$d_z = 1.37$	4.52 <sub>a</sub> (.62)	5.41 <sub>b</sub> (.63)	$d_z = 1.42$	3.68 <sub>a</sub> (.52)	4.51 <sub>b</sub> (.54)	$d_z = 1.52$
Negative context	4.28 <sub>a</sub> (1.10)	3.50 <sub>b</sub> (1.30)	$d_z = -.50$	4.88 <sub>a</sub> (.86)	4.69 <sub>b</sub> (.95)	$d_z = -.28$	4.00 <sub>a</sub> (.55)	3.96 <sub>a</sub> (.70)	$d_z = -.09$
Experiment 6	Target felt negative								
Positive context	3.89 <sub>a</sub> (1.12)	4.60 <sub>b</sub> (1.29)	$d_z = .48$	4.82 <sub>a</sub> (.54)	5.23 <sub>b</sub> (.54)	$d_z = .65$	3.86 <sub>a</sub> (.64)	4.21 <sub>b</sub> (.50)	$d_z = .75$
Negative context	4.74 <sub>a</sub> (.96)	3.74 <sub>b</sub> (1.29)	$d_z = -.71$	4.99 <sub>a</sub> (.60)	4.99 <sub>a</sub> (.68)	$d_z = .01$	4.02 <sub>a</sub> (.50)	4.09 <sub>a</sub> (.61)	$d_z = .11$
Meta-analysis ( $N = 1,621$ )	Random effects models, heterogeneity statistics ranged from 12.34 to 119.65, all $ps < .01$								
Positive context	$d = 1.02, z = 5.74, p < .001, CI [1.67, 1.37]$			$d = 1.12, z = 5.92, p < .001, CI [1.75, 1.49]$			$d = .95, z = 4.72, p < .001, CI [.55, 1.34]$		
Negative context	$d = -.68, z = 5.50, p < .001, CI [-.44, .92]$			$d = -.26, z = 2.58, p = .010, CI [0.06, .46]$			$d = -.04, z = .39, p = .699, CI [-.15, .22]$		

Note. Means with different subscripts indicate significant simple effects of target emotion regulation.  $d_s$  indicates standardized mean difference of a between-subjects effect.  $d_z$  indicates standardized mean difference of a within-subjects effect. Positive Cohen's  $d$  indicates expression greater than suppression; negative Cohen's  $d$  indicates suppression greater than expression.

who expressed positive emotion—reflecting an emotion-context match—were rated as more appropriate than targets who suppressed positive emotion. Inverting this predictable finding, in a negative context, targets who *suppressed* positive emotion were rated as more appropriate than targets who expressed positive emotion. This provided additional evidence supporting our hypothesis that suppression is a socially adaptive emotion regulation strategy in situations of emotion-context mismatch.

Moreover, a new appropriateness dependent variable provided insight into the reasons that suppressive targets are perceived as more appropriate under conditions of emotion-context mismatch. We found the expected disordinal interaction on the appropriateness of *present* emotions, that is, the degree to which targets showed emotion that was expected in the circumstances. In the positive context, targets who expressed positive emotion were perceived as having more expected emotions present than targets who suppressed positive emotion, suggesting that the positive emotions displayed were seen as appropriate for the context. In contrast, in the negative context, targets who expressed positive emotion were perceived as having less expected emotions present than targets who suppressed positive emotion, indicating that the positive emotions present in expressing targets were perceived as contextually inappropriate. In this case, the neutrality displayed by expressive suppression was seen as conveying more appropriate emotions.

Turning to appropriateness of *absent emotions*, in the positive context, targets who suppressed positive emotion were perceived as having more expected emotions absent than targets who expressed positive emotion, indicating that the expected positive emotions for this positive context were absent in the suppressing targets. Yet, in a negative context, targets who suppressed and expressed positive emotion did not differ in the degree to which they were perceived as missing key emotions (i.e., negative emotions) in their performance. The suppressing targets' neutral affect was not seen by participants as a display of the "correct" emotion for the context, suggesting that the neutrality of suppressing targets was not interpreted as negative emotion.

These findings combine to suggest that the effects observed on the general appropriateness variable in these experiments are primarily driven by the perceived appropriateness of the emotions *present* in the performance. In negative contexts, positive expressing targets are penalized because the positive emotions present in their display seem wrong for the occasion, and expressive suppression can counteract these social penalties by reducing the presence of these emotions.

### Experiment 3

Until now, we have focused our attention on perceived appropriateness. This variable is important in its own right, but also because it has implications for other social judgments such as likability and desire for affiliation (Butler et al., 2003; Shields, 2005). In Experiment 3 we extended our investigation of perceptions of appropriateness to social evaluations (possessing likable personality traits) and desire for affiliation with the target. We hypothesized that targets who expressed positive emotion in a positive context (reflecting an emotion-context match) would receive better social evaluations than targets who suppressed positive emotion. However, we hypothesized that targets who ex-

pressed positive emotion in a negative context (reflecting an emotion-context mismatch) would receive *worse* social evaluations than targets who suppressed positive emotion.

## Method

**Participants and design.** Participants were 145 *Amazon Mechanical Turk* workers paid USD\$1.75 (49.7% women,  $M_{\text{age}} = 35.54$ ,  $SD_{\text{age}} = 10.86$ , range 18–65) in a 2 (participant context: positive vs. negative)  $\times$  2 (target emotion regulation: expression vs. suppression) mixed design. One hundred and 50 participants were originally recruited, but five were excluded for failing one or more attention checks (see below for details).<sup>8</sup> Participant context was a between-subjects variable and target emotion regulation was a within-subjects variable. The dependent variables were perceived target appropriateness, social evaluations, and social affiliation.

### Procedure and materials.

**Participant context manipulation.** Participant context was manipulated as in Experiments 1 and 2. Participants were randomly assigned to watch either a positive film clip to create a *Positive Context* or a negative film clip to create a *Negative Context*. Participants were told that the targets in the muted videos were discussing the same film that participants themselves watched.

**Target emotion regulation manipulation.** Participants then watched the same refined video set used in Experiment 2. Unlike the previous experiment, the emotion regulation factor was within-subjects: Participants watched all eight videos of targets who *Expressed* and *Suppressed* positive emotion. The video blocks were counterbalanced so that half of the participants watched all expressive targets first and the other half of participants watched the suppressive targets first.<sup>9</sup> Participants rated the targets on the dependent variables immediately after watching each video.

**Appropriateness.** The same single item from the previous experiments measured perceived target appropriateness.

**Social evaluations.** As in Kalokerinos et al. (2014), evaluations of the target were assessed using 12 traits drawn from Anderson's (1968) list of personality traits rated on likability ("To what extent do you think the person in the video is: Aggressive / selfish / obnoxious / unkind / thoughtless / intelligent / friendly / nice / likeable / understanding / loyal / dependable") scored on a scale ranging from 1, *not at all* to 7, *very much*. The negative traits were reverse scored and averaged with the positive traits to create a scale of positive social evaluations,  $\alpha = .93$ .

**Social affiliation.** Participants responded to 11 statements (Côté, Kraus, Piff, Beermann, & Keltner, 2014) describing how they would think and behave during a hypothetical interaction with the target (e.g., "I would feel uncomfortable interacting with this person") and scored on a scale ranging from 1, *never* to 5, *always*. The negative items were reverse scored and averaged with the positive items to create a scale of desire for affiliation,  $\alpha = .96$ .

<sup>8</sup> In this study, and in all the studies reported in which we excluded participants based on failed attention checks, including these participants does not substantively change the results.

<sup>9</sup> In all studies that include this within-subjects manipulation of target emotion regulation there were no significant interactions with counterbalancing structure, indicating that the order in which participants viewed the videos made no difference to our key simple effects.

**Attention checks.** We embedded two attention checks in the questionnaire to ensure data quality—one in the block of expressive targets (“This is a test item. Please answer 7 for this item”), and the other in the block of suppressive targets (“This is a test item. Please answer 1 for this item”). Three participants failed one attention check, and two participants failed both attention checks, and all five of these participants were excluded from analyses.

## Results

The cell means and standard deviations for the analyses below are displayed in Table 2.

**Appropriateness.** A  $2 \times 2$  mixed ANOVA revealed significant main effects of target emotion regulation,  $F(1, 143) = 7.12, p = .008, \eta_p^2 = .05$  ( $M_{expression} = 4.38, SD = 1.44$  and  $M_{suppression} = 4.11, SD = 1.04$ ), and context,  $F(1, 143) = 10.58, p = .001, \eta_p^2 = .07$  ( $M_{positive} = 4.48, SD = 0.81$  and  $M_{negative} = 4.01, SD = 0.91$ ), that were qualified by a significant interaction,  $F(1, 143) = 164.25, p < .001, \eta_p^2 = .54$ . Simple effect analyses were conducted to follow-up the effect of target emotion regulation in the positive and negative context conditions.

**Positive context.** Reflecting an emotion-context match, targets who expressed positive emotion in the positive context were perceived as more appropriate than targets who suppressed positive emotion,  $F(1, 143) = 120.73, p < .001, \eta_p^2 = .46, 95\% CI [1.29, 1.85]$ .

**Negative context.** Reflecting an emotion-context mismatch, targets who expressed positive emotion were perceived as less appropriate, than targets who suppressed positive emotion,  $F(1, 143) = 51.13, p < .001, \eta_p^2 = .26, 95\% CI [-1.31, -0.74]$ .

**Social evaluations.** A  $2 \times 2$  mixed ANOVA revealed a significant main effect of target emotion regulation,  $F(1, 143) = 22.42, p < .001, \eta_p^2 = .14$  ( $M_{expression} = 5.10, SD = 0.82$  and  $M_{suppression} = 4.83, SD = 0.69$ ), but no main effect of context,  $F(1, 143) = 1.42, p = .235, \eta_p^2 = .01$ . There was a significant interaction,  $F(1, 143) = 108.65, p < .001, \eta_p^2 = .43$ .

**Positive context.** Reflecting an emotion-context match, targets who expressed positive emotion in the positive context were evaluated more positively than targets who suppressed positive emotion,  $F(1, 143) = 115.69, p < .001, \eta_p^2 = .45, 95\% CI [0.70, 1.02]$ .

**Negative context.** Reflecting an emotion-context mismatch, targets who expressed positive emotion were evaluated less positively, than targets who suppressed positive emotion,  $F(1, 143) = 16.07, p < .001, \eta_p^2 = .10, 95\% CI [-0.48, -0.16]$ .

**Social affiliation.** A  $2 \times 2$  mixed ANOVA revealed a significant main effect of target emotion regulation,  $F(1, 143) = 17.85, p < .001, \eta_p^2 = .11$  ( $M_{expression} = 4.18, SD = 0.67$  and  $M_{suppression} = 3.94, SD = 0.59$ ), but no main effect of context,  $F(1, 143) = 0.23, p = .482, \eta_p^2 < .01$ . There was a significant interaction,  $F(1, 143) = 68.47, p < .001, \eta_p^2 = .32$ .

**Positive context.** Reflecting an emotion-context match, targets who expressed positive emotion in the positive context elicited greater social affiliation than targets who suppressed positive emotion,  $F(1, 143) = 78.67, p < .001, \eta_p^2 = .36, 95\% CI [0.54, 0.80]$ .

**Negative context.** Reflecting an emotion-context mismatch, targets who expressed positive emotion elicited less social affilia-

tion, than targets who suppressed positive emotion,  $F(1, 143) = 8.14, p = .005, \eta_p^2 = .05, 95\% CI [-0.38, -0.07]$ .

## Discussion

Experiment 3 extends our findings beyond ratings of emotional appropriateness, providing the first direct evidence that when there is an emotion-context mismatch, suppressing the expression of positive emotion can have social benefits in the form of improved social evaluations and increased desire for interpersonal affiliation.

### Pilot Experiment 2: Development of Stimulus Set 2 (Actors)

In this study, we created a second stimulus set that was used in Experiments 4 and 5. Although stimulus set 1 had high ecological validity, it nevertheless introduced a potential confound: in creating the stimuli set, each target was randomly assigned to a single emotion regulation condition, and thus each emotion regulation condition contained different targets. To address this issue, we created stimulus set 2, using actors who recorded two separate videos in which they expressed and suppressed positive emotion. Thus, in this stimuli set, all targets appear in all conditions, eliminating any potential for a target-condition confound.

## Method

**Participants and design.** Participants were four actors with performance experience beyond a high-school level. The actors were young ( $M_{age} = 23.5$ , age range 20–29), Caucasian, and balanced in terms of gender (two male, two female). The stimulus creation study employed a 2-level (emotion regulation: expression, suppression) within-subjects design.

**Procedure.** The actors performed to a script to provide consistency across two recordings, although the final videos were muted for use in Experiments 4 and 5 (as in Experiments 1–3). The script described a situation in which the actor was a member of a group assignment. The actor was recounting the amusing behavior of a fellow group member. Thus, the actors were putting themselves in a positive situation. In the first recording, we instructed the actors to feel and express happiness while performing the script (*expression condition*). The actors were provided with time to practice their performance, and during this time they were asked to “get in character” to accurately experience and express the emotion. In the second recording, the actors were instructed to feel but not express happiness while performing the script (*suppression condition*). This condition was always recorded after the expression condition so that actors would still feel, but were asked not to express, the emotion. The actors provided written consent for their performance to be recorded and used in future studies. The recorded footage was reviewed and edited into a 20 second video that captured the desired emotion regulation strategy (expression vs. suppression).

**Behavioral coding.** Two coders (one woman and one man) who were unaware of the experimental hypotheses rated the stimuli. As for stimulus set 1, coders rated the targets in terms of suppression, expression, facial movement, and smiling behavior. Reliability was good for all four variables (correlations: Suppression = .87, Expression = .98, Facial movement = .93, Smiling = .95).

**Computerized behavioral coding.** As for stimulus set 1, we analyzed the stimuli using iMOTIONS to determine the amount of time targets displayed joy and facial neutrality.

## Results and Discussion

**Behavioral coding.** The means and standard deviations for the behavioral coding are displayed in Table 1. Coders rated actors in the suppression condition as suppressing more and showing less facial movement than actors in the expression condition. They also rated actors in the suppression condition as expressing and smiling less than actors in the expression condition.

**Computerized behavioral coding.** The pattern of results obtained using the iMOTIONS software supported those of the coders. Actors in the suppression condition showed greater facial neutrality than actors in the expression condition. Actors in the suppression condition also showed less joy than actors in the expression condition. These results indicate that the videos are appropriate stimuli for manipulating emotion suppression and expression.

### Experiment 4

In Experiment 4, we used the new actor stimulus set to demonstrate that our results replicate when targets are kept constant across conditions, and that our results generalize beyond the stimulus set used in Experiments 1 through 3. In addition, we addressed another potential confound in our results: because of the way we manipulated context in the initial experiments (i.e., using emotional film clips), it is as yet unclear whether *context* is the key moderating factor, or whether an affect induction alone is enough to produce these effects. Previous work has indicated that emotional states affect interpersonal judgments, with happier people rating targets more positively (Forgas & Bower, 1987), and so our context manipulation, in which participants watched a film that elicited positive or negative affect, had the potential to impact our dependent variables through affective changes.

To establish that these effects were not caused by affective changes brought on by the films used to establish context, we changed a key part of the context manipulation. Rather than having participants watch a positive or negative film themselves, we simply told participants that the targets had watched a positive or negative film. This provided a context manipulation that did not simultaneously manipulate participant affect. We hypothesized that removing this potential affect confound would not affect the results of Experiment 4. That is, we anticipated observing the same disordinal interaction and simple effects on observed in Experiments 1 through 3.

## Method

**Participants and design.** Participants were 96 first-year psychology students who completed the study in exchange for partial course credit (46% women,  $M_{\text{age}} = 19.17$ ,  $SD_{\text{age}} = 2.13$ , range 16–30) in a 2 (participant context: positive vs. negative)  $\times$  2 (target emotion regulation: expression vs. suppression) mixed design. Participant context was a between-subjects variable and target emotion regulation was a within-subjects variable. One hundred participants were recruited, but 4 were excluded for failing the attention checks (administered as per Experiment 3).

The dependent variables were perceived target appropriateness, social evaluations, and social affiliation.

### Procedure and materials.

**Participant context manipulation.** Rather than having participants watch a positive or negative film clip as in Experiments 1 through 3, context was manipulated in this study by describing the emotional content of the film clip. Participants in the *Positive Context* condition read that the targets had “just watched a very funny film clip,” and participants in the *Negative Context* condition read that the targets had “just watched a very sad film clip.” In both cases, participants were told that the targets were “talking about what happened in the film clip.”

**Target emotion regulation manipulation.** Participants then viewed one of four sets of four videos described in Stimulus Set 2, above. Each set was created so that participants would see each actor only once, but see two expressive and two suppressive videos (different actors expressing and suppressing in each set). Participants rated the targets on the dependent variables immediately after watching each video.

**Dependent measures.** Target appropriateness, social evaluations ( $\alpha = .85$ ) and social affiliation ( $\alpha = .91$ ) were measured in the same way as Experiment 3.

## Results

The cell means and standard deviations for the analyses below are displayed in Table 2.

**Appropriateness.** A  $2 \times 2$  ANOVA revealed a nonsignificant main effect of target emotion regulation,  $F(1, 94) = 2.12$ ,  $p = .149$ ,  $\eta_p^2 = .02$ , but a significant main effect of context,  $F(1, 94) = 21.68$ ,  $p < .001$ ,  $\eta_p^2 = .19$  ( $M_{\text{positive}} = 4.40$ ,  $SD = 0.66$  and  $M_{\text{negative}} = 3.62$ ,  $SD = 0.95$ ), that was qualified by a significant interaction,  $F(1, 94) = 162.75$ ,  $p < .001$ ,  $\eta_p^2 = .63$ .

**Positive context.** Reflecting an emotion-context match, targets who expressed positive emotion in the positive context were perceived as more appropriate than targets who suppressed positive emotion,  $F(1, 94) = 98.94$ ,  $p < .001$ ,  $\eta_p^2 = .51$ , 95% CI [1.99, 2.99].

**Negative context.** Reflecting an emotion-context mismatch, targets who expressed positive emotion were perceived as less appropriate, than targets who suppressed positive emotion,  $F(1, 94) = 65.23$ ,  $p < .001$ ,  $\eta_p^2 = .41$ , 95% CI [−2.47, −1.49].

**Social evaluations.** A  $2 \times 2$  ANOVA revealed a no main effects of target emotion regulation,  $F(1, 94) = 3.90$ ,  $p = .051$ ,  $\eta_p^2 = .04$  or context,  $F(1, 94) = 3.27$ ,  $p = .074$ ,  $\eta_p^2 = .03$ . There was a significant interaction,  $F(1, 94) = 34.18$ ,  $p < .001$ ,  $\eta_p^2 = .27$ .

**Positive context.** Reflecting an emotion-context match, targets who expressed positive emotion in the positive context were evaluated more positively than targets who suppressed positive emotion,  $F(1, 94) = 29.96$ ,  $p < .001$ ,  $\eta_p^2 = .24$ , 95% CI [0.54, 1.16].

**Negative context.** Reflecting an emotion-context mismatch, targets who expressed positive emotion were evaluated less positively, than targets who suppressed positive emotion,  $F(1, 94) = 7.66$ ,  $p = .007$ ,  $\eta_p^2 = .08$ , 95% CI [−0.72, −0.12].

**Social affiliation.** A  $2 \times 2$  ANOVA revealed a significant main effect of target emotion regulation,  $F(1, 94) = 16.70$ ,  $p < .001$ ,  $\eta_p^2 = .15$  ( $M_{\text{expression}} = 4.23$ ,  $SD = 0.63$  and  $M_{\text{suppression}} = 3.88$ ,  $SD = 0.56$ ), but no significant main effect of context,  $F(1,$

98) = 0.27,  $p = .606$ ,  $\eta_p^2 < .01$ . There was a significant interaction,  $F(1, 94) = 19.86$ ,  $p < .001$ ,  $\eta_p^2 = .17$ .

**Positive context.** Reflecting an emotion-context match, targets who expressed positive emotion in the positive context elicited greater social affiliation than targets who suppressed positive emotion,  $F(1, 94) = 35.75$ ,  $p < .001$ ,  $\eta_p^2 = .28$ , 95% CI [0.50, 1.000].

**Negative context.** There was no significant effect of target emotion regulation in the negative context,  $F(1, 94) = 0.07$ ,  $p = .792$ ,  $\eta_p^2 < .01$ , 95% CI [-0.28, 0.21].

## Discussion

This study provided evidence that an affect induction is not sufficient to explain the results of emotion-context match and mismatch observed in Experiments 1–3.<sup>10</sup> Even when participants themselves did not watch a negative film, they still evaluated targets who expressed positive emotion in this context as less appropriate and less likable than targets who suppressed positive emotion. We did not observe the same effect on desire for affiliation in the negative context revealed in Experiment 3. However, given that positive emotion expression serves as a strong affiliative signal (Harker & Keltner, 2001), it is still notable that we found that targets who suppressed positive emotion in this context elicited a similar desire for affiliation as targets who expressed positive emotion.

## Experiment 5

In Experiment 4, we observed the expected emotion match and mismatch effects with a more subtle manipulation of context. In Experiment 5, we aimed to replicate and extend this finding by altering the context manipulation to describe a more ecologically valid scenario. In this experiment, we manipulated the context to be positive or negative by telling participants that the targets in the videos were having a friendly conversation with another person (i.e., a socially positive situation) or an argument with another person (i.e., a socially negative situation). We hypothesized, as in the previous experiments, that targets who expressed positive emotion in a socially positive context (reflecting an emotion-context match) would receive better social evaluations than targets who suppressed positive emotion. However, we hypothesized that targets who expressed positive emotion in a socially negative context (reflecting an emotion-context mismatch) would receive worse social evaluations than targets who suppressed positive emotion.

## Method

**Participants and design.** Participants were 805<sup>11</sup> Amazon Mechanical Turk workers paid USD\$0.85 (51% women,  $M_{\text{age}} = 36.16$ ,  $SD_{\text{age}} = 12.39$ , range 18–76) in a 2 (participant context: positive vs. negative)  $\times$  2 (target emotion regulation: expression vs. suppression) mixed design. Participant context was a between-subjects variable and target emotion regulation was a within-subjects variable. The dependent variables were perceived target appropriateness and social affiliation.

### Procedure and materials.

**Participant context manipulation.** Experiment 5 used a written manipulation of context that described the situation in the

video as socially positive or socially negative. Participants in the *Positive Context* condition read that “the people in these film clips are having a friendly conversation with someone”, and participants in the *Negative Context* condition read that “the people in these film clips are having an argument with someone.”

**Target emotion regulation manipulation.** Participants viewed the same set of videos described in Experiment 4. Participants rated the targets on the dependent variables immediately after watching each video.

**Dependent measures.** Target appropriateness and social affiliation ( $\alpha = .75$ ) were measured in the same way as Experiment 3, although appropriateness was scored in this study on a scale ranging from 0, *not at all appropriate*, to 8, *very appropriate*, rather than on a 1 to 7 scale as in the other studies. Unlike Experiments 3 and 4, we did not measure social evaluations in this study.

## Results

The cell means and standard deviations for the analyses below are displayed in Table 2.

**Appropriateness.** A  $2 \times 2$  ANOVA revealed a significant main effect of target emotion regulation,  $F(1, 803) = 9.05$ ,  $p = .003$ ,  $\eta_p^2 = .01$  ( $M_{\text{suppression}} = 5.44$ ,  $SD = 1.84$  and  $M_{\text{expression}} = 5.69$ ,  $SD = 2.01$ ), and a significant main effect of context,  $F(1, 803) = 21.83$ ,  $p < .001$ ,  $\eta_p^2 = .03$  ( $M_{\text{positive}} = 5.80$ ,  $SD = 1.18$ ,  $M_{\text{negative}} = 5.34$ ,  $SD = 1.57$ ). There was a significant interaction,  $F(1, 803) = 101.17$ ,  $p < .001$ ,  $\eta_p^2 = .11$ . Simple effect analyses were conducted to follow-up the effect of target emotion regulation in the positive and negative context conditions.

**Positive context.** Reflecting an emotion-context match, targets who expressed positive emotion in the positive context were perceived as more appropriate than targets who suppressed positive emotion,  $F(1, 803) = 84.43$ ,  $p < .001$ ,  $\eta_p^2 = .10$ , 95% CI [0.90, 1.39].

**Negative context.** Reflecting an emotion-context mismatch, targets who expressed positive emotion were perceived as less appropriate than targets who suppressed positive emotion,  $F(1, 803) = 25.13$ ,  $p < .001$ ,  $\eta_p^2 = .03$ , 95% CI [-0.86, -0.38].

**Social affiliation.** A  $2 \times 2$  ANOVA revealed a significant main effect of target emotion regulation,  $F(1, 803) = 79.56$ ,  $p < .001$ ,  $\eta_p^2 = .09$  ( $M_{\text{expression}} = 4.37$ ,  $SD = 0.99$  and  $M_{\text{suppression}} = 3.96$ ,  $SD = 0.83$ ), and a significant main effect of context,  $F(1, 803) = 22.98$ ,  $p < .001$ ,  $\eta_p^2 = .03$  ( $M_{\text{positive}} = 4.27$ ,  $SD = 0.60$ ,  $M_{\text{negative}} = 4.06$ ,  $SD = 0.65$ ). There was a significant interaction,  $F(1, 803) = 21.69$ ,  $p < .001$ ,  $\eta_p^2 = .03$ .

<sup>10</sup> We conducted another experiment in an effort to rule out affect induction as an alternative explanation, not reported here due to space constraints. In this experiment, participants watched a positive or negative film, but were told that the targets had watched and were describing a nature documentary (hence removing the context manipulation from the experiment). We did not observe the pattern of results described in Experiments 1 through 4, indicating again that affective state was not a key driver of the effects. The results of this study are available from the authors on request.

<sup>11</sup> We collected a larger sample in this study to test for potential interactions between gender and our independent variables. Our analyses revealed no significant interactions between context or target emotion regulation and either target or participant gender.

**Positive context.** Reflecting an emotion-context match, targets who expressed positive emotion in the positive context elicited greater social affiliation than targets who suppressed positive emotion,  $F(1, 803) = 91.15, p < .001, \eta_p^2 = .10, 95\% \text{ CI } [0.49, 0.75]$ .

**Negative context.** There was a significant, although weaker, effect in the negative context such that targets who expressed positive emotion also elicited greater social affiliation than targets who suppressed positive emotion,  $F(1, 803) = 9.19, p = .003, \eta_p^2 = .01, 95\% \text{ CI } [0.07, 0.32]$ .

## Discussion

Experiment 5 replicated and extended our previous findings with a new, more ecologically valid, manipulation of context. As expected, and mirroring the results in previous studies, we found that in a positive context, targets who expressed positive emotion were perceived as more appropriate than targets who suppressed positive emotion. However, this established finding was reversed when the context was negative. As in Experiment 4, we did not find the predicted disordinal interaction on desire for affiliation. Rather, in both positive and negative contexts, participants reported wanting to affiliate more with targets who expressed rather than suppressed positive emotion.

## Experiment 6

In Experiments 1 through 5, we found that in negative contexts, targets who suppressed positive emotion were rated more positively than targets who expressed positive emotion. One possible explanation for this finding is that participants infer a particular *emotional experience* based on a target's expression or suppression: although all of the targets were experiencing positive emotion, and were instructed to express or suppress this positive emotion, it is not clear whether the participants in these studies actually perceived these attempts at suppression. Hence, participants may assume that a target who is expressing positive emotion in a negative context is feeling a contextually inappropriate emotion, and that a target who is suppressing positive emotion in a negative context is feeling a contextually appropriate emotion. We have hypothesized throughout this paper that expressive reactions are driving these effects, but have yet to determine the role of inferred emotional state. A more conservative test of our hypothesis would be to show that participants still rate targets who suppress positive emotion in negative contexts more positively even when those targets are known to be feeling a contextually inappropriate emotion (i.e., positive emotion). The main aim of Experiment 6 was to test this conservative hypothesis.

To test this hypothesis, we orthogonally manipulated perceptions of targets' emotion expression and emotion experience. In Experiment 6, in addition to manipulating context and target emotion regulation, we also separately manipulated perceived felt emotion by telling participants that the targets reported feeling positive or negative at the time of recording. Thus, in addition to manipulating the match between the expressed emotion and the situation, we also manipulated the match between the experienced emotion and the situation. Focusing on a key simple effect, we hypothesized that targets who were described as feeling *positive* emotion in a *negative* context would still be rated more positively

if they suppressed that emotion, compared with expressing it. That is, when a target's experience does not match the context, we hypothesized that they would still receive social benefits from suppressing the expression of that mismatched emotion. Put more broadly, we did not expect that manipulating emotion experience would change the results observed in our previous experiments: what matters is the emotion *expressed* by the target.

## Method

**Participants and design.** Participants were 196 Amazon Mechanical Turk workers paid USD\$2.00 (41.8% women,  $M_{\text{age}} = 33.82, SD_{\text{age}} = 9.58, \text{range } 18\text{--}65$ ) in a 2 (participant context: positive vs. negative)  $\times$  2 (target emotion regulation: expression vs. suppression)  $\times$  2 (target felt emotion: positive vs. negative) mixed design. Two hundred and one participants were originally recruited, but five were excluded for failing attention checks administered in the same way as in Experiment 3. Participant context and target felt emotion were between-subjects variables and target emotion regulation was a within-subjects variable. The dependent variables were perceived target appropriateness, social evaluations, and social affiliation.

### Procedure and materials.

**Participant context manipulation.** Participant context was manipulated using the same videos as Experiments 1 and 2. Participants were randomly assigned to watch either a positive film clip to create a *Positive Context* or a negative film clip to create a *Negative Context*. Participants were told that the targets in the muted videos were discussing the same film that participants themselves watched.

**Target emotion regulation manipulation.** Participants then watched the same videos used in Experiments 2 and 3: participants watched eight videos of targets who *Expressed* and *Suppressed* positive emotion in a counterbalanced order. Participants rated the targets on the dependent variables immediately after watching each video.

**Target felt emotion manipulation.** The perceived emotional experience of the targets was manipulated using a feeling thermometer ostensibly completed by the targets at the time of recording. Participants were shown an example of two feeling thermometers at the beginning of the study representing a person who was experiencing positive emotion (depicted with a smiley face and a thermometer that was close to full) and a person who was experiencing negative emotion (depicted with a frowning face and a thermometer that was close to empty). We had two different versions of each of these thermometers (four thermometers in total) that showed slightly different "fill levels" to avoid suspicion among participants that too many targets reported the same amount of felt emotion on the thermometer. In the *Felt Positive* condition, all targets were presented alongside thermometers that showed they were experiencing positive emotion at the time of recording. In the *Felt Negative* condition, all targets were presented alongside thermometers that showed they were experiencing negative emotion at the time of recording.

**Manipulation check.** The effectiveness of the target felt emotion manipulation was assessed with two items assessing perceived positive emotion ("How happy/amused do you think this person is feeling?",  $\alpha = .91$ ) and two items assessing perceived negative

emotion (“How sad/upset do you think this person is feeling?”,  $\alpha = .95$ ).

**Dependent measures.** Target appropriateness, social evaluations ( $\alpha = .90$ ), and social affiliation ( $\alpha = .96$ ) were measured in the same way as Experiment 3.

## Results

**Manipulation checks.** A  $2 \times 2 \times 2$  ANOVA revealed the expected main effect of target felt emotion on perceived positive emotion,  $F(1, 192) = 54.82, p < .001, \eta_p^2 = .22$ , such that targets who were described as feeling positive were perceived as feeling more positive ( $M = 4.33, SD = 0.74$ ) than targets who were described as feeling negative ( $M = 3.55, SD = 0.79$ ). There were also significant main effects of target emotion regulation,  $F(1, 192) = 482.44, p < .001, \eta_p^2 = .72$  ( $M_{expression} = 4.77, SD = 1.03$  and  $M_{suppression} = 3.10, SD = 0.99$ ) and context,  $F(1, 192) = 16.02, p < .001, \eta_p^2 = .08$  ( $M_{positive} = 4.14, SD = 0.78$  and  $M_{negative} = 3.71, SD = 0.89$ ), but no significant interactions,  $F_s < 2.61, p_s > .108$ .

A  $2 \times 2 \times 2$  ANOVA revealed the expected main effect of target felt emotion on perceived negative emotion,  $F(1, 192) = 11.61, p = .001, \eta_p^2 = .06$ , such that targets who were described as feeling positive were perceived as feeling less negative ( $M = 2.39, SD = 0.95$ ) than targets who were described as feeling negative ( $M = 2.81, SD = 0.84$ ). There were also significant main effects of target emotion regulation,  $F(1, 192) = 208.60, p < .001, \eta_p^2 = .52$  ( $M_{expression} = 2.15, SD = 0.92$  and  $M_{suppression} = 3.06, SD = 1.11$ ) and context,  $F(1, 192) = 22.94, p < .001, \eta_p^2 = .11$  ( $M_{positive} = 2.33, SD = 0.89$  and  $M_{negative} = 2.91, SD = 0.85$ ), but no significant interactions,  $F_s < 1.54, p_s > .216$ .

**Appropriateness.** A  $2 \times 2 \times 2$  ANOVA revealed a significant three-way interaction,  $F(1, 192) = 5.23, p = .023, \eta_p^2 = .03$ . The two-way interaction between context and target emotion regulation was significant both when targets were described as feeling positive emotion,  $F(1, 192) = 78.52, p < .001, \eta_p^2 = .46$ , and when they were described as feeling negative emotion,  $F(1, 192) = 34.80, p < .001, \eta_p^2 = .26$ .

**Target felt positive: Positive context.** There was a significant effect of target emotion regulation in the positive context when targets were described as feeling positive emotion,  $F(1, 192) = 81.82, p < .001, \eta_p^2 = .47, 95\% \text{ CI } [1.47, 2.30]$ . Reflecting an emotion-context match, targets who expressed positive emotion were rated as *more* appropriate than targets who suppressed positive emotion.

**Target felt positive: Negative context.** There was a significant effect of target emotion regulation in the negative context when targets were described as feeling positive emotion,  $F(1, 192) = 12.98, p = .001, \eta_p^2 = .12, 95\% \text{ CI } [-1.21, -0.35]$ . Reflecting an emotion-context mismatch, targets who expressed positive emotion were rated as *less* appropriate than targets who suppressed positive emotion.

**Target felt negative: Positive context.** There was a significant effect of target emotion regulation in the positive context when targets were described as feeling negative emotion,  $F(1, 192) = 12.35, p = .001, \eta_p^2 = .11, 95\% \text{ CI } [0.61, 1.11]$ . Reflecting an emotion-context match, targets who expressed positive emotion were rated as *more* appropriate than targets who suppressed positive emotion.

**Target felt negative: Negative context.** There was a significant effect of target emotion regulation in the negative context when targets were described as feeling negative emotion,  $F(1, 192) = 23.07, p < .001, \eta_p^2 = .19, 95\% \text{ CI } [-1.42, -0.59]$ . Reflecting an emotion-context mismatch, targets who expressed positive emotion were rated as *less* appropriate than targets who suppressed positive emotion.

**Social evaluations.** A  $2 \times 2 \times 2$  ANOVA revealed a significant three-way interaction,  $F(1, 192) = 13.62, p < .001, \eta_p^2 = .07$ . The two-way interaction between context and target emotion regulation was significant both when targets were described as feeling positive emotion,  $F(1, 192) = 66.54, p < .001, \eta_p^2 = .41$ , and when they were described as feeling negative emotion,  $F(1, 192) = 10.65, p = .002, \eta_p^2 = .10$ .

**Target felt positive: Positive context.** There was a significant effect of target emotion regulation in the positive context when targets were described as feeling positive emotion,  $F(1, 192) = 94.30, p < .001, \eta_p^2 = .50, 95\% \text{ CI } [0.71, 1.08]$ . Reflecting an emotion-context match, targets who expressed positive emotion were evaluated *more* positively than targets who suppressed positive emotion.

**Target felt positive: Negative context.** There was a significant effect of target emotion regulation in the negative context when targets were described as feeling positive emotion,  $F(1, 192) = 3.96, p = .050, \eta_p^2 = .04, 95\% \text{ CI } [-0.38, -0.01]$ . Reflecting an emotion-context mismatch, targets who expressed positive emotion were evaluated *less* positively than targets who suppressed positive emotion.

**Target felt negative: Positive context.** There was a significant effect of target emotion regulation in the positive context when targets were described as feeling negative emotion,  $F(1, 192) = 22.43, p < .001, \eta_p^2 = .19, 95\% \text{ CI } [0.24, 0.58]$ . Reflecting an emotion-context match, targets who expressed positive emotion were evaluated *more* positively than targets who suppressed positive emotion.

**Target felt negative: Negative context.** There was no significant effect of target emotion regulation in the negative context when targets were described as feeling negative emotion,  $F(1, 192) < 0.01, p = .981, \eta_p^2 < .01, 95\% \text{ CI } [-0.18, 0.18]$ .

**Social affiliation.** A  $2 \times 2 \times 2$  ANOVA revealed a significant three-way interaction,  $F(1, 192) = 12.43, p = .001, \eta_p^2 = .06$ . The two-way interaction between context and target emotion regulation was significant both when targets were described as feeling positive emotion,  $F(1, 192) = 64.85, p < .001, \eta_p^2 = .41$ , and when they were described as feeling negative emotion,  $F(1, 192) = 4.97, p = .028, \eta_p^2 = .05$ .

**Target felt positive: Positive context.** There was a significant effect of target emotion regulation in the positive context when targets were described as feeling positive emotion,  $F(1, 192) = 121.52, p < .001, \eta_p^2 = .56, 95\% \text{ CI } [0.68, 0.98]$ . Reflecting an emotion-context match, targets who expressed positive emotion elicited greater social affiliation than targets who suppressed positive emotion.

**Target felt positive: Negative context.** There was no significant effect of target emotion regulation in the negative context when targets were described as feeling positive emotion,  $F(1, 192) = 0.34, p = .560, \eta_p^2 < .01, 95\% \text{ CI } [-0.20, 0.11]$ .

**Target felt negative: Positive context.** There was a significant effect of target emotion regulation in the positive context when

targets were described as feeling negative emotion,  $F(1, 192) = 15.94, p < .001, \eta_p^2 = .14, 95\% \text{ CI } [0.18, 0.53]$ . Reflecting an emotion-context match, targets who expressed positive emotion elicited greater social affiliation than targets who suppressed positive emotion.

**Target felt negative: Negative context.** There was no significant effect of target emotion regulation in the negative context when targets were described as feeling negative emotion,  $F(1, 192) = 0.55, p = .459, \eta_p^2 < .01, 95\% \text{ CI } [-0.25, 0.11]$ .

## Discussion

Experiment 6 orthogonally manipulated perceptions of target emotional experience and emotional expression, and demonstrated that the social benefits of suppression observed in Experiments 1 through 5 did not occur solely because participants inferred a particular emotional experience in the target. We replicated our previous results both when participants were told that the targets were experiencing positive emotion, and when participants were told that the targets were experiencing negative emotion. Even when participants were told that targets' *experienced* emotion (e.g., positive) was mismatched with the context (e.g., negative), when there was *expressed* emotion-context mismatch, suppressing targets were still rated as more appropriate and evaluated more positively than expressing targets. These results demonstrate that expressive suppression is a useful social strategy when one's emotion does not match the context. It is effective even when other people infer that one's emotional experience may be mismatched: what matters most is the emotion expressed.

It is important to note there was a three-way interaction on all three dependent variables, indicating that felt emotion does play some role. This interaction was driven by the simple effects in the felt positive emotion condition, primarily because the difference between expressing and suppressing targets was particularly large when expressing targets were perceived to be experiencing positive emotion (and therefore were seen as expressing *genuine* positive emotion). This indicates that, as has been established in previous research, there are social benefits to concordance between positive emotion expression and experience (Mauss et al., 2011), and to authentically expressing felt emotion (English & John, 2013).

Overall, this experiment provided evidence that our experiments speak specifically to expressive suppression as a strategy. We observed the benefits of suppression in situations of emotion-context mismatch, even when we made participants aware that the target was suppressing a mismatched experience (e.g., felt positive emotion in a negative context), rather than simply experiencing the correct emotion for a context (e.g., felt negative emotion in a negative context). Thus, our findings are not simply another example of the social consequences of non-normative emotional expression (Ansfield, 2007; Szczyrek et al., 2012), but indicate that even when other people *know* that suppression is taking place, it is still a beneficial social strategy in situations of context mismatch.

## Meta-Analysis

A summary of the results across the six experiments is presented in Table 2. We conducted a meta-analysis on these results using a

random effects model to assess the average effect size (Borenstein, Hedges, Higgins, & Rothstein, 2005). All heterogeneity statistics [Q] were significant, thus recommending the use of a random effects model (Shadish & Haddock, 1994). For each experiment, we calculated the Cohen's *d* effect size of the effect of expressing compared with suppressing positive emotion in both positive and negative contexts. We did this for each of the three main dependent variables: perceived appropriateness, social evaluations, and social affiliation.

**Positive context: Emotion-context match.** Overall, results revealed that in positive contexts, it is better to express than suppress positive emotion. Targets who did so were perceived as more appropriate (average  $d = 1.02, p < .001$ ), evaluated more positively (average  $d = 1.12, p < .001$ ), and elicited greater social affiliation (average  $d = 0.95, p < .001$ ). These effects were large in size.

**Negative context: Emotion-context mismatch.** The results in negative contexts suggested that overall, it is better to suppress than express positive emotion. Targets who did so were perceived as more appropriate (average  $d = 0.68, p < .001$ ), and evaluated more positively (average  $d = 0.26, p = .010$ ). These effects were small to moderate in size. However, suppressing targets not elicit greater social affiliation (average  $d = 0.04, p = .699$ ) than expressing targets.

## General Discussion

In this research, we investigated the social perceptions of positive emotion suppressors and expressers when the target's positive emotion matched the positive valence of the situation (i.e., showing emotion-context match) and when the target's positive emotion did not match the negative valence of the situation (i.e., showing emotion-context mismatch). We created two sets of video stimuli featuring targets expressing and suppressing positive emotion. In Experiments 1 and 2, we manipulated contextual valence to create emotion-context match and mismatch, and had participants evaluate the appropriateness of the expressing and suppressing video targets. In Experiments 3 through 6, we expanded the social outcomes to assess trait social evaluations and desire for affiliation. Finally, we conducted a meta-analysis examining these effects across all six experiments ( $N = 1,621$ ).

As hypothesized, when there was an emotion-context match, we found the results typical of previous work on expression and suppression: participants rated targets who expressed positive emotion more positively, as more appropriate, and felt more affiliative toward the targets than those who suppressed positive emotion. However, in the case of an emotion-context mismatch, these effects were flipped: Participants rated targets who *suppressed* positive emotion more positively, and as more appropriate. We replicated these effects across two different stimuli sets, and three different manipulations of contextual valence, suggesting that these effects are both robust and generalizable.

We found an exception to this pattern of results on ratings of desire for affiliation. We found consistently across the studies that in a positive context, targets who expressed positive emotion elicited greater desire for affiliation than targets who suppressed positive emotion. This finding fits with a robust line of research demonstrating that people who express positive emotion tend to experience affiliation benefits (Lyubomirsky et al., 2005). How-

ever, this established effect disappeared under conditions of emotion-context mismatch: the meta-analysis revealed that there were no significant differences between expressing and suppressing targets in ratings of desire for affiliation. Although we did not find complete reversal of the positive emotion-affiliation effect, it is nevertheless notable that we were able to eliminate this effect, given that positive emotion generally serves as a strong affiliative signal (Harker & Keltner, 2001).

Importantly, Experiment 6 indicated that the results observed here are a function of active expressive suppression: even when participants were aware that targets were suppressing experienced positive emotion in negative contexts, we still found that expressive suppression led to more positive social evaluations. Hence, this research goes above and beyond work demonstrating that expressing positive emotion in negative contexts can have social costs (Ansfield, 2007; Szczurek et al., 2012) to demonstrate that expressive suppression can be effectively engaged to counteract these social costs. In all, these experiments demonstrate that contextual valence plays a key role in how people judge emotion suppressers, and reinforce the need to better understand the role that contextual factors play in moderating the typical effects of emotion regulation.

### Suppression Is Not an Inherently Maladaptive Strategy

These experiments also indicate that, despite its bad reputation, suppression is a useful strategy when applied in a contextually appropriate manner. The findings provide empirical support for Bonanno and Burton's (2013) fallacy of uniform efficacy—suppression is not always maladaptive and can, in certain contexts, be socially beneficial. This suggests a need for the field to move beyond a conceptualization of “hero” and “villain” emotion regulation strategies to identify the moderating factors that determine when each strategy will be socially functional and dysfunctional.

Our findings extend previous work suggesting that suppression is not a maladaptive strategy for *all people*—those from Asian cultures (Butler et al., 2007), and those high in interdependence (Le & Impett, 2013) do not experience the same costs of suppression—by demonstrating that suppression is not a maladaptive strategy in *all situations*. Given that it is generally an effective strategy in reducing emotional expression (Webb et al., 2012), and it is implemented late in the emotion-generation process (Gross, 1998a), suppression is likely to be a beneficial social strategy in many situations in which the context does not match emotional experience. However, selective and contextually appropriate implementation of suppression is key—it is clear from a large body of research that the chronic use of suppression is maladaptive (e.g., Gross & John, 2003; Srivastava et al., 2009). Previous work has found that people who are able to flexibly implement expression and suppression strategies show better psychological functioning over time (Westphal, Seivert, & Bonanno, 2010), and future research could establish whether these expressively flexible people are also able to best identify and respond to situations of context mismatch.

Of course, expressive suppression may not always be an ideal strategy in situations of emotion-context mismatch. Expressive suppression targets the expressive dimension of emotion, but not emotional experience, and accordingly, does not generally down-regulate emotional experience (Kalokerinos et al., 2015). Thus, we

propose that expressive suppression constitutes an ideal strategy in situations in which one wishes to down-regulate emotion expression and not emotional experience. We hypothesize that this is particularly likely in cases of positive emotion-context mismatch like those examined in our experiments, as participants generally report being motivated to experience pleasant positive mood states (Augustine, Hemenover, Larsen, & Shulman, 2010). However, we propose that expressive suppression is likely to be a less effective strategy when aiming to regulate expression *and* experience in line with the context. In this situation, a strategy like cognitive reappraisal, which effectively down-regulates both emotion expression and experience (Webb et al., 2012), may be a more adaptive choice. Hence, it is likely that the appropriate emotion regulation strategy will also depend on one's emotion goals and motives in a given context (Tamir, 2016).

### Limiting Conditions and Future Directions

As with all research, there are features of this work that limit the conclusions we can draw. First, we did not include negative emotion expression in our design. We chose to focus on positive emotion for several reasons, the primary reason being because there is a clear body of research indicating that positive emotion expression is generally a good social strategy (Lyubomirsky et al., 2005), whereas the research on negative emotion is not so clear. Perceptions of negative emotion expressers seem to vary at the level of the specific emotion (e.g., sadness vs. anger; Tiedens, 2001), and could not be uniformly called costly or beneficial. Thus, the clear impact of a contextual manipulation could be more clearly observed on positive emotion expressions. Second, in general, positive emotion is understudied relative to negative emotion. This is something that we believe should be addressed particularly in work on social emotion regulation, given the importance of positive emotion expression in forming impressions and developing relationships.

It is also important to note that the size of the effects in negative contexts, where suppressers were rated more positively than expressers, were small to moderate in size. However, the size of the effects in positive contexts, where expressers were rated more positively than suppressers, were large in size. That is, appropriately deployed expression seems to net more of a social gain than appropriately deployed suppression. We believe that this is because rating suppressers more positively counteracts the natural and common inclination for people to believe that positive emotion expression is appropriate and likable. Given that the effect works against this general assumption regarding the benefits of expressing positive emotion, we think it is important that we consistently found evidence of social benefits to *suppressing* positive emotion in negative contexts.

In addition, we observed consistent medium-sized effects of suppression in negative contexts on appropriateness, however the effects on social evaluations, although consistent, were only small in size, and there was no overall effect on affiliation. We speculate that these differences in effect size occur because of the inherent strength of positive emotion as an affiliative signal (Harker & Keltner, 2001): effects of context on the variables more closely linked with affiliative intent (affiliation and social evaluations) were smaller than the effects on appropriateness, which is less clearly tied to affiliation. To better establish the effects of context

on social variables tied more tightly to affiliative intent, we believe it will be necessary to develop a manipulation of context that is strong enough to match the strength of the manipulation of positive emotion expression. We hope that future work will establish interactive lab paradigms that can better meet this challenge.

Finally, although this research has made important inroads in identifying social benefits to suppression under specific conditions, we did not test for mediators that may explain *why* the effect occurs. Research demonstrating the social costs of suppression has established two key mediators. First, suppressers are less responsive to their interaction partners (Butler et al., 2003). Second, suppressers feel and appear more inauthentic (English & John, 2013; Impett et al., 2012). It is interesting to speculate on whether these two mediators might be relevant to our results. We could not test the role of responsiveness in our paradigm, as there was no interaction between targets and participants, nor was there an interaction between two targets that could be rated by the participants. However, it is possible that in cases of emotion-context mismatch in which the target and participant interact, engaging in suppression could be seen as a form of emotional responsiveness. It will therefore be important to determine whether our effects replicate in a paradigm involving interpersonal interactions, and whether responsiveness plays a mediating role in this case. Authenticity is more directly relevant to our paradigm, particularly in relation to Experiment 6, which demonstrated that there are social benefits to suppression even when emotional “inauthenticity” (i.e., a lack of correspondence between emotion expression and experience) is highlighted for participants. Le and Impett (2013) have demonstrated that suppression can be engaged in authentically to serve relational goals: perhaps in our experiments, participants believed targets were engaging in suppression for authentic reasons. Of course, this discussion is necessarily speculative, and such ideas remain to be tested.

## Conclusions

Increasingly, researchers are calling for a better understanding of context in emotion regulation research (Aldao, 2013; Bonanno & Burton, 2013), but thus far empirical work that includes contextual factors has been limited. Emotion regulation is a relatively young but rapidly growing field (Gross, 2015). An emerging challenge for the literature is to begin to move beyond generalities and broad statements about which regulation strategies are adaptive and maladaptive, and to adopt a more nuanced understanding of when and why certain strategies may be beneficial or not. This work begins to investigate the important role of context in emotion regulation, providing concrete evidence that suppression is not always a socially maladaptive emotion regulation strategy. In fact, in situations in which one's emotions do not match the context, suppressing those emotions is considered more appropriate than expressing them. In this research, minor manipulations of context valence completely changed how expressers and suppressers were evaluated, flipping the well-established social effects of positive expression and suppression. These findings demonstrate that Dale Carnegie's advice may not always be worth following: your smile is not always a messenger of goodwill, and smiling is not a strategy that should be applied indiscriminately. Rather, it is important to be contextually sensitive, and to respond in a way that fits the situation, even if that requires suppressing the expression of emotion.

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