Emotion

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Integration of Negative Emotional Experience Versus Suppression: Addressing the Question of Adaptive Functioning

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Integrative emotion regulation is defined as the ability to experience negative emotions, explore their sources, and use this exploration for volitional regulation of behavior. Empirical research on integrative regulation is quite scarce and relies mainly on self-reports. The present research comprised 2 studies exploring the behavioral, emotional, and cognitive consequences of integrative emotion regulation and suppression of emotion, in relation to a fear-eliciting film. Study 1 examined associations between emotion regulation types (self-reported) and defensive versus nondefensive emotional processing (coded from postfilm open-ended written texts) in 80 Israeli college students. In Study 2, we manipulated the emotion regulation types by assigning 120 Israeli college students to integrative, suppressive, and control (neutral) conditions and exposing them twice to the same fear-eliciting film, 72 hr apart. We hypothesized that in the second exposure to the film, participants who were instructed to practice integrative regulation would benefit more than participants in the other 2 groups in terms of lower arousal level related to an experience of fear (measured by skin conductance, physical observation, and self-report) and better cognitive capacity (on a recall test). In general, the results supported our hypotheses. In comparison to suppression, integrative regulation was associated with less defensive written expression in the first study and with lower arousal and better cognitive recall in the second study. Hence, current outcomes provide some support for the assumption that taking interest in and accepting one's negative emotions is linked with less defensive processing of negative experiences and with better functioning.

Keywords: emotion regulation, integration, suppression, self-determination theory

Health practitioners, theorists, and researchers have long grappled with the challenge of how individuals can successfully regulate their negative emotions like fear, anxiety, and anger. Although advances have emerged in this research area (e.g., Gross & Thompson, 2007; Saarni, Campos, Camras, & Witherington, 2006; Thompson & Meyer, 2007), important questions remain. The current research addressed the question of adaptive emotion regulation and hypothesized that integration of negative emotions (i.e., taking interest in one's emotions) would be functionally more beneficial than suppression of negative emotions on various measures of behavioral, emotional, and cognitive functioning. This research is anchored primarily in the self-determination theory (SDT; Deci & Ryan, 2008) conception of emotion regulation.

SDT-Based Conception of Three Styles of Emotion Regulation and Their Correlates

SDT (Deci & Ryan, 2008; Grolnick, Deci, & Ryan, 1997; Ryan & Deci, 2000) distinguishes between three regulatory styles characterizing all areas of human functioning: relatively autonomous and integrated modes, relatively controlled and fragmented (nonautonomous) modes, and absence of regulation (and motivation). Specifically with regard to regulating negative emotions, Ryan, Deci, Grolnick, and La Guardia (2006), and Roth, Assor, Niemiec, Ryan, and Deci (2009) have proposed a distinction between three styles: *integrative, controlling, and disregulated.*

In *integrative regulation*, people are able to experience negative emotions. They view negative emotions as important sources of information, attempt to understand these emotions' sources, and use these understandings as a guide for adaptive and intentional regulation of action. As a result, integrative regulation of negative emotions is posited as enabling relatively effective functioning in many domains, particularly in close relationships. Specifically, because integrative regulation is based on a tolerant, accepting, and interested stance toward negative emotions, it presumably allows people to disclose personal difficulties and ask for help

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from friends and partners, to listen empathically when others disclose negative emotions, and to negotiate interpersonal conflicts in an open yet nonaggressive way (Roth & Assor, 2012).

In *controlling regulation*, people consistently and rigidly try to ignore, hide, and suppress negative emotions because such emotions are experienced as threatening and dangerous. Although the suppression of negative emotions can help people to continue working under stressful conditions, it is likely to impair their capacity to disclose personal difficulties, to listen to such difficulties, and more generally to deal effectively with intense negative emotions that are part of many close relationships (Roth & Assor, 2012).

In the case of *disregulation*, people are unable to manage their negative emotions and consequently feel overwhelmed and are unable to continue functioning effectively. This type of regulation is assumed to be particularly maladaptive because it undermines people's capacity to perform their everyday tasks and work. In addition, difficulties in managing and regulating negative emotions impede engagement in intimate behaviors, which require tolerance of and openness to negative emotions (Roth & Assor, 2012).

Research based on theoretical perspectives other than SDT has examined modes of regulating or responding to negative emotions that resemble these disregulating and controlling regulation styles. For example, Block and Block (1980) described overcontrolling and undercontrolling styles, and Gross and John (2003) defined and assessed suppressive regulation in a way that resembled controlling regulation, with one difference. Whereas controlling regulation in SDT involves attempts to both avoid and hide emotional experiences, Gross and John focused on the hiding aspect—suppression of behavioral expression of the emotion.

In contrast, a survey of the literature revealed no published empirical research identifying a mode for regulating negative emotions that clearly corresponds to SDT's conception of integrative regulation, other than Roth et al. (2009) and Roth and Assor (2012). Block and Block (1980) did assess a flexible mode of ego resiliency, defined as a balance between overcontrol and undercontrol, which is somewhat similar to the SDT concept of integrative regulation. However, the ego-resiliency concept does not refer explicitly to people's perceptions and internal responses to their emotions, but rather relates mainly to the extent that people can flexibly suppress and express these emotions.

Other constructs that are strongly linked with the concept of emotional integration are mindfulness (Chambers, Gullone, & Allen, 2009) and acceptance (Hayes, Strosahl, & Wilson, 1999), which are defined as nonjudgmental awareness about the present moment's experience. Emotional integration shares an important aspect of mindfulness in terms of receptive awareness of the emotional experience, but it also involves a second aspect: the incorporation of the emotional experience with other aspects of the self (i.e., needs, values, aspirations) while considering the situational circumstances (Ryan et al., 2006). Thus, the first aspect of integrative regulation, which correspondence with mindfulness (i.e., a nonjudgmental receptive awareness of experience), may facilitate the second aspect of self-integration (i.e., integrating the emotional experience with other aspects of the self) by minimizing defensive, automatic, and impulsive reactions. This may allow volitional actions "that are informed by abiding needs, values, and feelings and their fit with situational options and demands" (Brown, Ryan, & Creswell, 2007, p. 223).

In sum, none of the concepts examined in extant research on emotion regulation appears to fully capture the notion of integrative regulation as conceptualized in SDT. In particular, only a few studies addressed the importance of allowing oneself to feel negative emotions or of attempting to understand the reasons and meanings behind these emotions. As seen next, the first of the two available research publications that directly explored integrative emotion regulation (Roth, Assor, Niemiec, Ryan, & Deci, 2009) focused mainly on antecedents of emotion regulation and less so on their outcomes, and the second published study (Roth & Assor, 2012) examined outcomes in a specific domain, namely, the capacity for intimacy. Moreover, both of these research designs were correlational in nature, based solely on self-reports.

Past Findings: Correlates of Integrative and Controlling Regulation of Emotions

Roth et al. (2009) conducted two studies focusing on antecedents of regulation types among ninth graders. Findings indicated that controlling parenting (parental conditional regard; Roth, 2008) predicted controlling regulation, whereas autonomy-supportive parenting predicted integrative regulation of anger and anxiety through adolescents' sense of choice in their attempts to manage those negative emotions. Roth and Assor (2012) replicated these findings, and in line with the view that integrative regulation is particularly adaptive in the area of intimate relations, examined the emotion regulation types' associations with a capacity for intimacy. Findings revealed that integrative regulation was positively associated with appropriate disclosure of personal difficulties in close relations, empathic listening, and support of one's intimate partner; in contrast, controlling regulation demonstrated a particularly strong negative association with disclosure of personal difficulties and with provision of support for a partner who was expressing difficulty. Thus, attempts to suppress one's own emotions may involve attempts to avoid situations that may elicit any negative emotions, possibly resulting in impaired capacity to support a partner in need.

Another line of research identified the possible costs of expressive suppression and controlling regulation (both characterized by attempts to suppress behavioral expressions of emotions) in relation to social, behavioral, and cognitive functioning. For example, Srivastava, Tamir, McGonigal, John, and Gross's (2009) study of social challenges in the transition to college demonstrated that expressive suppression predicted lower social support, less closeness to others, and lower social satisfaction. In addition, Butler et al. (2003) found that interacting with a partner who was instructed to suppress emotional behavioral expression was more stressful than interacting with partner who acted naturally. Interestingly, Gross and Levenson (1993) and Gross (1998) found that despite the lower levels of behavioral (facial) expression characterizing their participants in the expressive suppression condition, these participants did show higher levels of emotional arousal (measured by physiological response and self-reports) and lower levels of cognitive functioning in comparison to a control (no-regulation) group.

Hence, the scant research conducted so far on integrative regulation was correlational in nature and focused specifically on

intimacy, whereas the present research explored a variety of outcomes of emotional integration in an experimental setting and used physiological and behavioral measures in addition to self-reports.

Current Research Objectives

Two studies were conducted to explore emotional, behavioral, and cognitive consequences of fear suppression and integration in relation to the defensive quality of participants' written expression (Tausczik & Pennebaker, 2010), level of fear-related emotional arousal (based on physiological measures, self-report, and facial coding), and a recall test. Thus, whereas Roth and Assor (2012) found an advantage for integrative regulation in relation to the capacity for intimacy based on self-reports, the present two studies explored the existence and adaptability of integrative regulation based mainly on behavioral measures. Study 1 was correlational and focused on the associations between the regulatory styles and the defensive quality of participants' written expression (Pennebaker, 2004) following a fear-eliciting event. Study 2 experimentally tested the different emotion regulation styles in terms of adaptive emotional, behavioral, and cognitive functioning. The SDT conceptualization of integrative regulation is not restricted to fear regulation; however, instead of eliciting a vague experience of general negative mood we preferred to elicit a specific negative emotion that has been extensively explored and for which reliable means exist to elicit it in ethically acceptable fashion (Rottenberg, Ray, & Gross, 2007).

Study 1

If integrative emotion regulation is an important regulatory capacity, it should be reflected in participants' behavior subsequent to an emotion-eliciting event. Study 1 tested the associations between the self-reported measures of suppressive (controlled) and integrative regulation (Roth et al., 2009; Roth & Assor, 2012) and the quality of participants' written expression (Tausczik & Pennebaker, 2010). Written expression was coded as defensive versus nondefensive regulation (Weinstein & Hodgins, 2009) based on participants' open-ended written texts after viewing a short fear-eliciting film clip (*The Silence of the Lambs,* Utt, Saxon, Bozman, & Demme, 1991).

To identify defensiveness in written expression after the fear-eliciting film, we focused on four linguistic categories deriving from Pennebaker and his colleagues' research (e.g., Pennebaker, 2004; Tausczik & Pennebaker, 2010) on various linguistic representations of mental states that elucidate underlying processes. We selected the following four written indicators of nondefensive emotional processing: *self-referencing* terms, *cognitive processing* words, *negative-emotion* terms, and the usage of *past tense*.

Past research found that written expression that involves *self-referencing* terms indicates a nondefensive response, where the writer reveals a sense of ownership or engagement in the threatening experience (Newman, Pennebaker, Berry, & Richards, 2003). Likewise, lack of self-referencing indicates the writer's dissociation from or defense against the written material. Other research (Pennebaker, Mayne, & Francis, 1997; Tausczik & Pennebaker, 2010) emphasized the important role of causal words (e.g., "because," "effect," "hence") and insight words (e.g., "think," "know," "consider") as a *cognitive processing* mechanism that indicates more complicated language and reflects processing of the emotional event. Pennebaker et al. (1997) found that increased utilization of these cognitive word categories led to better health improvement. Boals and Klein (2005) suggested that the use of causal words after traumatic events helps create causal explanations to organize participants' thoughts. In addition, the usage of prepositions (e.g., "to," "with") is also indicative of more complex language, thereby depicting more complex and concrete information about the topic (Tausczik & Pennebaker, 2010). Also, the use of emotion terms has been found to be accurately related to the emotional experience. For example, positive-emotion words are used in relation to positive events, and negative-emotion words are used in relation to negative events (Kahn, Tobin, Massey, & Anderson, 2007). Furthermore, use of emotion words indicates greater immersion in a traumatic event (Holmes et al., 2007). Finally, an event that was already processed or worked through is likely to be discussed in the *past tense* (Pasupathi, 2007).

Hence, we hypothesized that self-reports of an integrative regulation style—an attempt to take interest in one's emotions and to understand what one is feeling and why—would correlate more strongly with nondefensive written expression than would a suppressive regulation style. This hypothesis coincides with past findings on associations between receptive attention to one's experiences and less ego-defensive responsivity under threat (Brown, Ryan, Creswell, & Niemiec, 2008). Thus, we hypothesized that in comparison to participants who use suppressive (controlled) regulation, those who use integrative regulation would exhibit more self-referencing terms, more past tense verbs, and more words reflecting complex cognitive mechanisms. In addition, we hypothesized that suppressive regulation would be associated with fewer negative-emotion words than integrative regulation, especially the word "anxiety" or "fear." Although the main goal of Study 1 was to compare suppressive regulation and integrative regulation in relation with the quality of written expression, we also included the disregulation scale in the analyses. As described earlier, Roth and Assor (2012) found disregulation to be associated with a low capacity for intimacy. We hypothesized that disregulation would be linked with more defensive writing in comparison to integrative regulation. In addition, we hypothesized that disregulation would correlate with the usage of negative-emotion words.

Method

Participants and procedure. The Study 1 sample consisted of 80 Israeli college students (mean age 23.22 years, $SD = 1.87$; 54% female) who volunteered to participate in the study for credit in their introductory psychology course. Power analysis (Cohen, Cohen, West, & Aiken, 2003) based on three predictors and a sample size of 80 revealed a power level of .82. On arrival, participants were seated in a well-lit 6 m $\times$ 6 m room. They were informed that the experiment dealt with emotion. First, each participant was asked to respond individually to a set of three questionnaires focusing on his or her emotion regulation style (the integrative emotion regulation, suppression, and disregulation measures). Then, the participant was asked to watch a short film clip (*The Silence of the Lambs*) that had been previously validated

as eliciting fear (Rottenberg et al., 2007). The film was shown on a 23-in. screen at a distance of 1.5 m. A postfilm questionnaire was administered to verify that fear was elicited, and then the participant was asked to describe in writing for 7 min his or her experience while viewing the film. The study was approved by the ethical review board at Ben-Gurion University of the Negev.

Measures.

Integrative emotion regulation. This 6-item scale is an elaboration of the 4-item scale used by Roth et al. (2009). The scale measures the extent to which participants try to understand what they feel and why, in situations that may elicit fear, together with the extent to which they believe that exploration of negative emotions can help to understand oneself. Participants rated items such as "I examine my fears in order to understand their sources" or "Exploring my fears can help me understand important things about myself" along a 7-point Likert scale ranging from *not true at all* (1) to *very true* (7). Cronbach's alpha was .79.

Suppression. This 4-item subscale from the Emotion Regulation Questionnaire (Gross & John, 2003) focuses on the extent to which participants try to hide their emotions (suppression of emotional expression). Participants rated items such as "When I'm feeling negative emotions, I make sure not to show them" along a 7-point Likert scale ranging from *not true at all* (1) to *very true* (7). Cronbach's alpha was .80.

Disregulation. This scale from Roth et al. (2009) measures the extent to which participants experience fear as overwhelming and as impairing their ability for task-oriented functioning. Participants rated items such as "When I'm afraid or feel anxious I can't concentrate on other things I have to do" along a 7-point Likert scale ranging from *not true at all* (1) to *very true* (7). Cronbach's alpha was .86.

Defensive and nondefensive written expression. Subsequent to the film, the participants were instructed as follows:

> For the next 7 min, you are being asked to write the very deepest thoughts and feelings you had while watching the film. In your writing we would like you to really let go and explore your deepest emotions and thoughts. All of your writing will be completely confidential.

Participants wrote in Hebrew, and the text underwent back-and-forth translation to English. The English translation was analyzed by the Linguistic Inquiry and Word Count (LIWC; Pennebaker, Booth, & Francis, 2007; Tausczik & Pennebaker, 2010), which is a text-analytic software that counts specific words or specific categories of words in text (Pennebaker, 2004). The LIWC was used to count the frequency of self-referencing terms, past tense, complex cognitive mechanisms (causal and insight words, prepositions), and appearance of negative-emotion words.

Fear elicitation. Per Rottenberg, Ray, and Gross (2007), participants viewed a short film clip (3.29 min in length) taken from *The Silence of the Lambs*. To validate that the film indeed elicited fear in the participants, they completed a questionnaire (Gross & Levenson, 1993, 1997) assessing fear level after viewing the film. The postfilm questionnaire used one item embedded into a 15-item set with 14 distractors (amusement, anger, confusion, contempt, disgust, embarrassment, fear, guilt, happiness, interest, joy, pride, sadness, shame, and surprise). Participants rated the extent to which they had experienced each emotion while viewing the film, on a 9-point Likert scale ranging from *not at all* (0) to *extremely* (8) taken from Rottenberg et al. (2007). As found by others (Gross & Levenson, 1995; Philippot, 1993), the film clip did activate fear ($M = 3.79$, $SD = 1.38$) together with a high level of interest ($M = 4.97$, $SD = 1.90$) and surprise ($M = 3.59$, $SD = 2.23$). No other specific emotions were activated to the same extent. Comparison of means for the 15 emotions revealed significant differences between these three experiences (i.e., fear, interest, and surprise) and the other 12 emotions in which they were embedded. Nine percent of the sample (seven participants) reported that they had seen the film in the past.

Results and brief discussion. In line with past research (Roth et al., 2009; Roth & Assor, 2012), the low relations among the three regulatory styles indicated the distinctions between them. Correlations (Pearson *r* values) were −.21 between integrative and suppressive regulation ($p = .06$; two-tailed), .04 between integrative regulation and disregulation (*ns*), and −.02 between suppression and disregulation (*ns*).

Table 1 presents results of multiple regression analysis (beta coefficients) in which each of Pennebaker's four categories of defensive and nondefensive expression was regressed on the three regulatory styles. In line with hypotheses, self-referencing associated positively only with integrative regulation (although marginally significantly), whereas this category revealed significant negative unique associations with both of the other regulatory styles. Thus, only integrative regulation involved a tendency to reference oneself in first-person singular, reflecting a willingness to "own" or engage oneself in the threatening experience.

Likewise, cognitive mechanisms designated by causal and insight words demonstrated a positive significant unique effect (beta coefficient) only with integrative regulation, not with the other two regulatory styles. Cognitive mechanisms reflect an attempt to process the experience. Regarding the third studied cognitive mechanism, usage of prepositions associated significantly in a negative direction with suppressive regulation, whereas its correlation with integrative regulation was close to zero. Like causal and insight words, prepositions depict complex language, indicat-

Table 1
Multiple Regressions: Unique Associations (Beta Coefficients) Between the Three Emotion Regulation Styles and the Four Linguistic Categories in Study 1

Regulatory style	Self-referencing (first-person singular)	Complex cognitive mechanisms		Past tense	Negative-emotion words
		Causal & insight words	Prepositions		
Integrative regulation	.16†	.22*	.03	.23*	.00
Suppressive regulation	−.22*	−.07	−.31**	−.24*	−.32**
Disregulation	−.20*	.00	−.12	−.11	.14

† $p < .10$. * $p < .05$. ** $p < .01$.

ing that writers who use them offer more multifaceted and sometimes more concrete information.

In addition, the only significant positive unique association with past tense emerged for integrative regulation, whereas it showed a significant negative association with suppressive regulation. Increased use of past tense suggests that the writer was discussing an event that had already been processed, disclosed, and worked through.

Finally, only one significant unique association emerged for usage of negative-emotion words in the text: a negative association with suppressive regulation. Thus, in written expression of an emotional experience, the attempt to suppress its expression involves avoidance of words naming those negative emotions. This finding validates the concept and the measure of suppressive regulation; hence, participants who reported that they try to cover their negative emotions also unconsciously revealed this tendency through their written texts about their emotional experiences. As described earlier, the attempt to hide and avoid negative emotions was defined by SDT as controlling regulation (Roth et al., 2009).

In sum, in line with our hypotheses, integrative regulation involved less defensiveness in written expression of emotional experience, manifested as greater utilization of self-referencing, more complex cognitive mechanisms that reflect an attempt to process and understand the experience, and more frequent use of past tense. On the other hand, a suppressive regulatory style involved more defensiveness in written expression, as manifested by more infrequent use of self-referencing, prepositions, past tense, and negative-emotion words. For disregulation, the results were less consistent. This regulatory style's negative correlation with self-referencing terms suggested more defensiveness in written expression, but no other significant associations emerged except a weak tendency to include more negative-emotion words in the text.

Study 2

This second study explored emotional, behavioral, and cognitive consequences of emotion regulation styles by manipulating them instead of focusing on individual differences. Thus, Study 2 offered the first empirical attempt to manipulate integrative regulation in an experimental setting, aiming to identify a mode for regulating negative emotions that clearly corresponds to SDT's conception of integrative regulation (Roth et al., 2009; Roth & Assor, 2012; Ryan et al., 2006) and to explore its consequences.

We hypothesized that asking participants to take interest in their emotions and explore them during a fear-eliciting event (i.e., prompting participants' integrative regulation) would protect them from negative emotional, behavioral, and cognitive reactions to a second exposure to the same stimulus 72 hr later. We did not predict an advantage for the integrative emotion regulation style in the first session itself because integrative regulation in the short-term may be emotionally demanding. Research has demonstrated that the benefits of nondefensive emotional responses may not be immediately apparent (see Mendolia & Kleck, 1993; Weinstein & Hodgins, 2009). Thus, we expected that the experience of integrative regulation at first exposure would "immunize" participants from the negative emotional, behavioral, and cognitive effects of fear at the second exposure, presumably because of better regulatory efforts at first exposure. We utilized multiple measures of the negative consequences of fear, including level of arousal related to the fear experience (measured by skin conductance, facial expression/body movements, and self-reports) and cognitive capacity as reflected in a recall test.

We hypothesized that asking participants to suppress the behavioral expression of their experience during first exposure to a fear-eliciting event would show no such immunizing effects at second exposure. Unlike integrative regulation, suppression of observable physically expressive behavior may shift one's attention toward the task of hiding one's emotional experience, and this task may distract one from fully processing the stimulus, which in turn may impair one's capacity to recall specific details related to the stimulus. We focused on expressive suppression as a proxy for controlling regulation because of the straightforward manipulations that were used extensively and successfully in the last two decades (see, e.g., Gross, 1998; Gross & Levenson, 1993)

Method

Participants. Participants comprised 120 undergraduate students recruited at Ben-Gurion University in Israel (four participants were excluded because of incomplete self-report data). Power analysis revealed that significant effects, assuming a medium effect size ($\eta^2 \geq .06$) and power of .80, required a sample size of 120 (Cohen et al., 2003). Students visited the Motivation and Emotion Lab for two individual sessions held 72 hr apart and were paid \$15. Mean age was 24.9 years ($SD = 2.09$), and 60% were female. The participants signed a consent form, were assured of confidentiality, and were told that they could stop the experimental procedure at any time. Participants were assigned randomly to one of the three conditions: suppressive regulation ($n = 40$), integrative regulation ($n = 39$), or control ($n = 38$), and no significant differences emerged among the three groups on age or gender using Chi-Square tests. We excluded 18 participants from the skin conductance level (SCL) analyses who had an unstable baseline or inconsistent signal due to dry electrodes. Thus, in relation to SCL the analyses were based on $n = 32$, 34, and 33 for suppression, integration, and control conditions, respectively. Power analysis (Cohen et al., 2003) based on 98 participants revealed a power of .76. The study was approved by the ethical review board at Ben-Gurion University of the Negev.

Experimental procedures. The experimental script (including the self-report measures, films, and recall test) was generated by E-Prime programming software (Schneider, Eschman, & Zuccolotto, 2002). In addition, the Observer XT software (Zimmerman, Bolhuis, Willemsen, Meyer, & Noldus, 2009) was used to integrate and synchronize the E-Prime script, the video cameras (observations of participants' physical behavior), and the physiological data.

Each participant was seated in a comfortable chair in a 6 m $\times$ 6 m room that contained a window of darkened glass (which connected to an adjoining observation room). The experimenter (of the same participant's gender) informed the participant that "we were interested in learning more about emotions" and that the experiment would be videotaped. Physiological sensors measuring skin conductance were attached, the experimenter left the room, and then the participant completed several self-report measures of demographic information and current mood (Gross & Levenson,

1993, 1997). The questionnaires, the instructions, and the films were presented on a 23-in. screen placed 1.5 m from the participant that used a computer keyboard. The procedure followed common procedures in the field (e.g., Gross & Levenson, 1993, 1997). Thus, after the self-report measures, a white screen was shown for 2 min to help the participant adjust to the experimental setting, and the participant was asked to use this time to "clear your mind from all thoughts, feelings, and memories." Next, the participant reported on his or her current mood (Gross & Levenson, 1993, 1997) and then received the following onscreen instructions: "We will now be showing you a short film clip. It is important to us that you watch the film carefully, but if you find the film too distressing just say 'stop'" (Gross & Levenson, 1997). Subsequent to these instructions, the participant watched a 1-min neutral nature film (*Alaska's Wild Denali*; Rottenberg et al., 2007). The participant then completed again the Gross and Levenson (1993, 1997) emotional inventory to assess his or her emotional reactions during the nature film.

Next, the fear-eliciting film (3.29 min from *The Silence of the Lambs*; Rottenberg et al., 2007) was presented. Preceding the film, each participant received one of three sets of instructions, as determined by his or her random assignment to one of the three conditions: suppression, integration, or control. For participants in the control group ($n = 37$), the foregoing instructions were repeated. Participants in the suppression group ($n = 40$) received the following instructions per Gross and Levenson (1993, 1997):

> We will now be showing you a short film clip. Please watch the film clip carefully, but if you find the film too distressing, just say "stop." This time, if you have any feelings as you watch the film clip, please try your best not to let those feeling show. In other words, as you watch the film clip, try to behave in such a way that a person watching you would not know you were feeling anything. Watch the film clip carefully, but please try to behave so that someone watching you would not know that you are feeling anything at all.

Participants in the integrative regulation group ($n = 39$) received the following instructions developed for the purpose of the current study:

> We will now be showing you a short film clip. Please watch the film clip carefully, but if you find the film too distressing, just say "stop." This time, while you watch the movie try to take interest in your emotions; thus, while watching try to understand what you are really feeling and why. Please watch the video very carefully and try to be attentive to your emotions.

Subsequent to the film, each participant was asked to report on his or her emotions during the film viewing, and to respond to a manipulation check.

All participants returned to the lab 72 hr later and underwent the same procedure with one addition: After viewing the fear-eliciting film and completing the self-report of emotional experiences during viewing, a free recall test was presented. Each session lasted for about 20 min.

Measures.

Demographic questionnaire. Participants provided information on age, sex, major of study, and year of study.

Self-reported emotional experience. At the beginning of each session and after viewing each film, participants received the same 15-item set as in the postfilm questionnaire utilized in Study 1 (Gross & Levenson, 1993, 1997): amusement, anger, confusion, contempt, disgust, embarrassment, fear, guilt, happiness, interest, joy, pride, sadness, shame, and surprise. Per Gross and Levenson (1997), participants were asked to rate the greatest amount of each emotion they had felt while viewing each of the two films, on a 9-point Likert scale ranging from *not at all* (0) to *extremely* (8) taken from Rottenberg et al. (2007). Twelve of the participants (10.3%) reported that they had seen the film in the past.

Physiological arousal. Fear response characterized by sympathetic activation that among other physiological responses involves increase in SCL (Kreibig, Wilhelm, Roth, & Gross, 2007). Continuous recording of SCL was measured by Mindware Technologies' (Gahanna, OH) BioLab acquisition software and hardware, in accordance with Society for Psychophysiological Research Guidelines (Boucsein et al., 2012), with two Ag/AgCl electrodes placed on the palmer surface of the middle phalanx of the first and third fingers of the nondominant hand. The second-by-second SCL values were averaged for the two epochs of the baseline and the fear-eliciting film in each session. A difference score was calculated by subtracting the baseline mean SCL from the value obtained during the fear-eliciting film.

Observation of physical behavior. Two video cameras were placed behind darkened glass, one using close-up focus to record the participant's facial behavior and one recording a wider shot of upper body movement. Later, three coders (who were blind to participants' assigned experimental condition) used the Observer XT coding software to code the participants' emotional expressions offline. Per Gross and Levenson (1993, 1997), we measured mouth movements, gaze shifts, body movements, face touching, and overall estimation of fear expression. Interraters reliabilities were calculated as the mean of correlations among the three coders. The base rate of gaze shifts was too low to allow adequate reliability. In addition, the overall estimation of fear expression was dropped because it did not reach adequate reliability. Mouth movements, body movements, and face touching were all frequency measures converted to events per minute, demonstrating adequate reliability coefficients ranging from .75 to .93. For analyses we computed one physical behavioral measure comprising the sum score of the three body and face movements. A change score was calculated by subtracting the sum score of movements during the baseline (neutral film) from the sum score of movements during the fear-eliciting film. Thus, higher score indicates higher restlessness and discomfort.

Cognitive recall. At the end of the second session, participants completed a 12-item multiple-choice test developed for the purpose of this study. Items required recall of specific details from *The Silence of the Lambs* film clip (e.g., "What was the name of the male character?" or "What was the color of the detective's jacket?"). One item was dropped because the correct answer was too vague. Hence, scores ranged from 0 to 11, with higher scores indicating better recall.

Conditions' manipulation check. In order to verify that participants adhered to the differing instructions in the three groups, at the end of the first session participants completed two items. Using a 9-point Likert scale ranging from *very often* (8) to *never* (0), participants in all three groups rated (a) the extent to which they tried to understand what they really felt during *The Silence of the Lambs* film, and (b) the extent to which they tried to hide their emotions during *The Silence of the Lambs* film.

Results

Manipulation checks. We verified the film's efficacy in eliciting fear as well as the three sets of instructions' efficacy in eliciting integrative regulation, suppression, and neutral processing of the emotions aroused by the film.

Efficacy of stimulus films. We checked the efficacy of *The Silence of the Lambs* film in eliciting fear compared to the neutral film, based on self-report, SCL, and behavioral observation.

Self-report. Participants' self-reported fear levels, as rated on the postfilm questionnaire "fear" item embedded in distractor items, were significantly higher during the fear-eliciting *The Silence of the Lambs* than during the neutral *Alaska's Wild Denali* both in Session 1, *Lambs*: $M = 2.90$, $SD = 2.27$; *Alaska*: $M = 0.20$, $SD = 0.57$; $t(116) = 12.97$, $p < .00$, and in Session 2, *Lambs*: $M = 1.78$, $SD = 1.85$; *Alaska*: $M = 0.37$, $SD = 1.14$; $t(116) = 8.00$, $p < .00$. In addition, as found in Study 1, alongside fear, the short film clip from *The Silence of the Lambs* also activated interest ($M = 3.52$, $SD = 1.97$ in Session 1; $M = 2.92$, $SD = 2.24$ in Session 2) and surprise ($M = 2.58$, $SD = 2.37$ in Session 1; $M = 1.22$, $SD = 2.01$ in Session 2). No other specific emotions were elicited to the same extent as these three experiences.

Skin conductance. To avoid an instruction effect for the two films, we tested whether SCL increased from the baseline to the fear-eliciting film stimulus among participants in the control group. As expected, the control participants showed significantly higher SCL during the fear-eliciting *The Silence of the Lambs* than during the neutral *Alaska's Wild Denali* both in Session 1, *Lambs*: $M = 9.60$ μsiemens, $SD = 5.49$; *Alaska*: $M = 8.02$ μsiemens, $SD = 5.68$; $t(38) = 4.68$, $p < .01$, and in Session 2, *Lambs*: $M = 7.84$ μsiemens, $SD = 5.89$; *Alaska*: $M = 7.03$ μsiemens, $SD = 4.66$, $t(37) = 2.04$, $p < .05$.

Observed physical behavior. Again, to avoid an instructions effect, we analyzed the film's effectiveness in eliciting behavioral manifestations of negative emotion (facial and body movements) only for the control condition. Hence, participants did not differ on the combined score of movements (mouth movements, body movements, and face touching) between the two films. This finding seems to corroborate previous findings showing that, unlike disgust (Gross & Levenson, 1993), fear-eliciting films do not generate increases in facial muscle movements (Reynaud, El-Khoury-Malhame, Blin, & Khalfa, 2012).

Efficacy of the three conditions' instructions. The conditions' manipulation check item asked participants at the end of Session 1 to rate the extent to which they tried to understand what they really felt while watching *The Silence of the Lambs* film. Replies verified that participants in the integrative condition did adhere to instructions. Participants in the integrative regulation condition reported the highest attempt to explore their emotional experience ($M = 5.57$, $SD = 1.61$) in comparison with the suppression group ($M = 4.08$, $SD = 2.20$) and the control group ($M = 3.32$, $SD = 2.38$). The differences were significant, $F(2, 113) = 10.56$, $p < .00$. Planned contrasts revealed significant differences between the integrative regulation condition and the other two conditions: $t(113) = 4.52$, $p < .00$ for the comparison with the control group and $t(114) = 3.12$, $p < .00$ for the comparison with the suppression group.

Data from the conditions' manipulation check item that asked participants at the end of Session 1 to rate the extent to which they tried to hide their emotions while watching *The Silence of the Lambs* film verified that the participants in the suppression condition also did adhere to instructions. Participants in the suppression condition reported the highest attempts to hide their emotions ($M = 4.62$, $SD = 2.30$) in comparison with the control group ($M = 1.41$, $SD = 1.80$) and the integrative group ($M = 1.97$, $SD = 2.15$). The differences were significant, $F(2, 113) = 27.62$, $p < .00$. Significant differences emerged between the suppression condition and the other two conditions: $t(114) = 5.58$, $p < .00$ for the comparison with the integrative regulation group, and $t(114) = 6.88$, $p < .00$ for the comparison with the control group.

Another manipulation check was to verify that participants in the suppression condition showed less observable physically expressive behavior in the first session. The differences were not significant, $F(2, 113) = 1.46$, $p = .24$, although the trend was in line with expectations (suppression: $M = 0.65$, $SD = 0.69$; control: $M = 1.10$, $SD = .76$; integrative: $M = 0.84$, $SD = 0.66$).

Main analyses. We hypothesized that the intensity of the fear experience would be lower at second exposure to the fear-eliciting film for all three conditions, but we expected this reduction to be larger for the integrative regulation group, presumably because of better regulatory efforts at first exposure to the same stimulus. Thus, we conducted a two-way analysis of variance (ANOVA) with condition as the between-subjects factor and session as the within-subjects factor. Fear intensity was measured by self-report, physiology, and observed physical behavior; therefore we conducted analysis for each measure separately. Recall that 10.3% of the participants had seen the fear-evoking film in the past. It is important to note that the following results did not change when we controlled for this variance.

Self-report. Participants were asked to report their experience of fear during the fear-eliciting film in each session. The main effect for condition was not significant, but, as expected, we found a reduction in participants' experience of fear between the two sessions, $F(1, 113) = 33.74$, $p < .00$; $p\eta^2 = .23$. (The descriptive statistics are presented in Table 2). Thus, regardless of the condition to which participants were assigned, they reported higher fear

Table 2
Means (and Standard Deviations) of Self-Reported Fear, Skin Conductance Level (SCL), and Observed Behavior by Condition and Time in Study 2

	Self-reported fear			SCL			Behavior		
	Integration	Suppression	Control	Integration	Suppression	Control	Integration	Suppression	Control
Session 1	2.80 (2.29)	3.09 (2.56)	2.76 (2.20)	.91 (1.33)	2.04 (1.53)	2.11 (1.75)	.84 (.66)	.65 (.69)	1.10 (.66)
Session 2	1.03 (1.32)	2.04 (2.17)	2.16 (1.98)	.70 (2.18)	.75 (1.14)	1.67 (2.46)	.67 (.60)	.61 (.68)	1.03 (.76)

in the first session ($M = 2.90$, $SD = 2.27$) in comparison with the second session ($M = 1.78$, $SD = 1.85$). Furthermore, in line with this study's main hypothesis, the interaction between condition and time (sessions) was marginally significant with a moderate effect size, $F(2, 113) = 2.86$, $p = .06$; $p\eta^2 = .07$. As seen in Figure 1, the reduction in fear experience was stronger for the integrative condition (Session 1: $M = 2.80$, $SD = 2.29$; Session 2: $M = 1.03$, $SD = 1.32$) in comparison with the suppression condition (Session 1: $M = 3.09$, $SD = 2.56$; Session 2: $M = 2.04$, $SD = 2.17$) and in comparison with the control group (Session 1: $M = 2.76$, $SD = 2.20$; Session 2: $M = 2.16$, $SD = 1.98$). Analysis of simple interactions revealed that the difference in the magnitude of fear reduction over time between the integrative condition and the control group was significant, $F(1, 70) = 5.47$, $p < .05$; $p\eta^2 = .081$, and the difference between the integrative and suppressive conditions was marginally significant, $F(1, 78) = 3.10$, $p < .08$; $p\eta^2 = .048$.

Because the fear-evoking film also elicited interest and surprise, we conducted the same analysis for these two experiences as well. The only significant effect was found for time. Thus, we found a reduction in participants' experiences from Session 1 to Session 2, both for interest, $F(1, 113) = 7.21$, $p < .00$, $p\eta^2 = .09$, and for surprise, $F(1, 113) = 9.06$, $p < .00$, $p\eta^2 = .07$. No other effects were significant, although the results for surprise reflected the same trend found for fear. That is, the reduction from Session 1 to Session 2 for integrative regulation was stronger than the reduction for the suppression and control conditions (for integration in Session 1: $M = 2.47$, $SD = 2.46$; Session 2: $M = 1.29$, $SD = 2.10$; for suppression in Session 1: $M = 2.53$, $SD = 2.4$; Session 2: $M = 1.64$, $SD = 1.91$; for control in Session 1: $M = 2.25$, $SD = 2.22$; Session 2: $M = 1.92$, $SD = 1.82$). Despite the trend, the interaction term was not significant, with a small effect size: $F(2, 113) = 1.1$, $p = .34$, $p\eta^2 = .02$.

Physiology (SCL). We hypothesized that the results of the SCL would replicate the self-report data found for fear, showing a stronger SCL reduction from Session 1 to Session 2 for the integrative regulation condition. First, we computed a change score for each session by deducting the SCL score at baseline from the SCL score during the fear-eliciting film. We hypothesized no significant SCL changes in Session 1, and we expected that effective integrative regulatory efforts in the first session would result in lower SCL in the second session. Unexpectedly, comparison of SCL among groups in Session 1 revealed a significant difference, $F(2, 95) = 4.5$, $p < .05$, $p\eta^2 = .11$ (see descriptive statistics in Table 2). Moreover, comparison between the integrative condition ($M = 0.91$, $SD = 1.33$) and the other two conditions (suppression: $M = 2.04$, $SD = 1.53$; control: $M = 2.11$, $SD = 1.75$) revealed that participants' mean SCL change between films was significantly lower for the integrative condition compared with the other two conditions, $t(82) = 2.98$, $p < .01$.

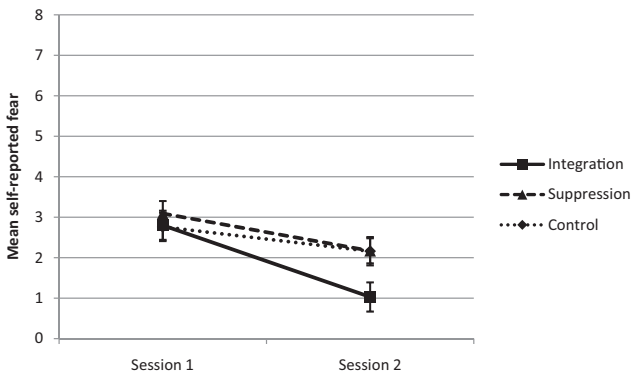

Figure 1. Change in self-reported level of fear arousal among three groups in Study 2.

Next, we conducted a two-way ANOVA for mean SCL change scores, with condition as the between-subjects factor and time as the within-subjects factor. We found a significant time effect (Session 1: $M = 1.73$, $SD = 1.64$; Session 2: $M = 1.07$, $SD = 2.18$), $F(1, 80) = 5.34$, $p < .05$; $p\eta^2 = .07$, and a significant condition effect (integration: $M = .82$, $SD = 1.23$; suppression: $M = 1.38$, $SD = 1.14$; control: $M = 1.88$, $SD = 1.51$), $F(2, 80) = 4.29$, $p < .05$; $p\eta^2 = .11$. Contrary to our hypothesis, the interaction between condition and time was not significant, suggesting that SCL was lower in the second session than the first for all three conditions. This finding may be attributed to the low SCL score obtained for integration in the first session, which did not allow for a large reduction in Session 2.

Behavior (face/body movements). Unlike the hypotheses regarding the self-reports and physiological measures, we hypothesized that in both sessions, behaviorally, the participants in the suppression condition would show fewer overt physical signs of negative emotions and restlessness compared to the other two groups. As reported earlier (for manipulation check), the pattern of results was in line with the hypothesis, but the differences among groups were not significant. (Descriptive statistics are presented in Table 2.)

Recall test. We hypothesized that the best recall (at the end of the second session) would be shown by the participants in the integrative condition because they were expected to be more relaxed and free to process the content of the film stimulus due to better regulatory efforts made in the first session. Mean correct response scores on the multiple-choice recall test were 6.72 ($SD = 1.45$) for the integrative condition, 5.97 ($SD = 1.74$) for the suppressive condition, and 6.46 ($SD = 1.28$) for the control condition. Whereas the comparison among groups was only marginally significant, $F(2, 113) = 2.50$, $p < .08$, $p\eta^2 = .05$, the specific comparison between integrative and suppressive conditions was significant, $t(114) = 2.15$, $p < .05$. Hence, as expected, asking participants to take interest in their emotions in the first session resulted in better cognitive recall than asking participants to suppress the expression of their emotions.

Discussion

Two studies were conducted to test the behavioral, emotional, and cognitive consequences of emotional integration and expressive suppression (a proxy of controlled regulation). Study 1 supported the hypothesis that integration of emotional experiences should predict less defensive written expression of fear experiences, whereas the reverse would be true for suppression of emotional experiences. In Study 2, we manipulated the emotion regulation types and examined the hypothesis that integrative regulation at first exposure to a fear-eliciting film would "immunize" participants at second exposure to the same stimulus 72 hr

later. By "immunize" we meant that these participants who tried to integrate their negative experiences would demonstrate a significantly lower emotional arousal level when facing the fear-eliciting film a second time as well as better memory of the film's details, in comparison with their counterparts who tried to suppress their emotional expression or a control group.

In general, the results supported the immunization hypothesis in relation to the experience of fear. As expected, all participants reported lower emotional arousal when exposed a second time to the fear-eliciting film, but this reduction was significantly larger for the participants in the integrative regulation condition. Research on suppression of emotional arousal that relies solely on self-reports may be vulnerable to the charge that results stem largely from experimenter demands (Ray, McRae, Ochsner, & Gross, 2010). Importantly, the present findings rule out this possible bias because those participants who were asked to suppress their emotional experience reported higher self-reported fear arousal in the second session than the participants who were asked to take interest in their emotions. The findings were less conclusive regarding our hypothesized similar pattern of results for SCL, a physiological measure of sympathetic activation. We hypothesized that SCL would decrease during the second viewing of *The Silence of the Lambs* compared with the first for participants in all three conditions but that this reduction would be more remarkable for the integrative condition. Surprisingly, participants in the integrative condition already showed a lower level of skin conductance in Session 1 (significantly lower than in the other two conditions), which may have prevented meaningful reduction in the second session. To our knowledge, this is the first time that SCL has been measured in relation to integrative regulation instructions focusing on fear elicited by a film; thus, interpretation of this finding is not trivial. It is possible that, unlike in the suppression and control groups, the integrative group's instructions to actively take interest in their emotions provided legitimization for these participants to feel negative emotions despite being recorded in the presence of unfamiliar people (research assistants) in an unfamiliar setting. These instructions to actively explore emotions may have freed the participants of disquieting or agitating concerns about experiencing and disclosing their film-induced fear in public (based on norms for expressing fear outwardly), thereby perhaps resulting in lower physiological arousal. Of course, this finding should be replicated and explored on a larger scale.

Finally, in line with our hypothesis, processing of emotional experiences in an integrative way led to participants' better recall at second exposure to the fear-eliciting film. Thus, the current results supported our prediction that participants' tolerant, accepting, and interested stance toward their own negative emotions when first encountering a frightening stimulus—with the intention of understanding what and why they felt as they did, even if those feelings were difficult—seemed to later free those individuals to pay better attention to detail when encountering that stimulus again and to better recall those details, whereas individuals who attempted to intentionally hide emotional experience at their first encounter showed no such cognitive benefit later. This and other findings suggested that by integrating those emotions initially elicited by *The Silence of the Lambs* film at first viewing, participants could later react more calmly (lower emotional arousal) during a second viewing, which may have allowed them to be more attentive to the stimulus and process it better. This corroborates the SDT conceptualization of integrative regulation of negative emotions as enabling relatively effective functioning in many domains, which was previously supported for functioning in close relationships (Roth & Assor, 2012) and was currently found for cognitive functioning too. The findings of the first study seem to be in line with this reasoning because a nondefensive processing may result in openness to the experience and better processing of the emotional stimulus.

The present findings on the benefits of integrating emotional experiences for reducing level of arousal and improving cognitive functioning may hold implications for daily life and for psychotherapeutic treatments. In daily life, people may encounter a variety of stimuli that elicit negative emotions. Focusing intentional efforts on the processing of those emotions in an integrative way may diminish the emotional and functional costs of repeated exposure to the same (or similar) stimulus. Several well-known therapeutic approaches are in congruence with these findings. For example, prolonged exposure therapy (Foa, 2006), although based on theoretical considerations other than SDT, treats persons with posttraumatic stress disorder by means of imaginary exposure to the traumatic event that involves emotional engagement during the exposure (Jaycox, Foa, & Morral, 1998). Clinical studies demonstrated the effectiveness of exposure for those patients who engaged emotionally with their traumatic memories (Foa, Hembree, & Rothbaum, 2007; Jaycox et al., 1998). Hence, given traumatized individuals' difficulties in emotionally engaging with such memories, Foa and her colleagues developed specific procedures for enhancing engagement (see, e.g., Jaycox & Foa, 1996).

Yet, empirical evidence for the processes underlying effective attentiveness to emotional experiences is quite scarce (Brown et al., 2007). Likewise, the present research does not provide a clear explanation for these processes. We hypothesized that integrative regulation at first exposure to a frightening stimulus would be beneficial at second exposure because of better regulatory capacities attained during the first experience. Indeed, Study 1 provided some indication that integrative regulation was associated with less defensive processing of fear, and Study 2 demonstrated that integrative regulation had some benefits in terms of emotional arousal and cognitive capacity; however, future research would do well to test defensive and nondefensive processing as mediators of the relations between the regulation types and their outcomes. This approach will provide direct evidence for the processes underlying the effects of integrative regulation.

A large body of research has demonstrated the costs associated with emotional suppression (Gross, 2013; John & Gross, 2007). However, SDT does not conceptualize adaptive emotion regulation in terms of the amount of specific responses to emotional cues (responses such as suppression or expression), but rather in terms of the extent to which these responses are accompanied by a sense of volition and choice. Thus, it may be adaptive to suppress emotions in specific circumstances. For example, during an emergency situation parents may try to hide their terror to help their children stay calm, or a teacher who had a serious dispute with the school principal may try to hide inner turmoil from pupils. However, after class the teacher may choose to express frustration with a colleague and ask for advice, and the parent may choose to express the traumatic experience with a spouse, best friend, or therapist. This flexibility, reflected in different responses to the same emotional stimulus in different situations, is hypothesized to

derive from people's ability to experience negative emotions. A tolerant, accepting, and interested stance toward emotions allows regulation that is based on choice and volition. Thus, integrative regulation is not about expression or suppression, but about volitional responses informed by one's needs, values, aspirations, and situational considerations (as opposed, e.g., to consistent suppression of negative emotions because such emotions are perceived as threatening and dangerous). In this research, we manipulated integrative emotion regulation by asking participants to take interest in their emotional experience. Future research would do well to explore the relation of this phenomenon to the flexibility and volition one expresses during and after the emotional experience.

Furthermore, as described earlier, the SDT-based conceptualization of integrative regulation involves two aspects: first, an interested and accepting stance toward emotions that may correspond with the nonjudgmental receptive attention toward one's experience conceptualized as mindfulness (Brown et al., 2007) and acceptance (Hayes et al., 1999), and, second, an integration of the emotional experience with other aspects of the self (needs, values, goals, and so on). Although Study 1 used a self-report measure that captured both aspects, Study 2 manipulated only the first aspect (". . . take interest in your emotions . . . try to understand what you are really feeling and why"). Thus, future research should manipulate both aspects in an attempt to differentiate their effects on relevant emotional and behavioral outcomes.

It is of interest to discuss the present findings in relation to the process model conceptualized by Gross and his colleagues (Gross, 2013; Gross & John, 2003), which is one of the most influential approaches in the field of emotion regulation. The present findings regarding expressive suppression are in line with this rich body of research that has distinguished between antecedent-focused emotion regulation and response-focused emotion regulation. Antecedent-focused strategies occur prior to full activation of response tendencies, whereas response-focused strategies occur after an emotion is already in progress. Expressive suppression is defined as response-focused because individuals' emotional experience is already underway when they attempt to hide it; their response tendencies have already been generated (Gross & John, 2003). It seems that integrative regulation, like mindfulness and acceptance, is a response-focused emotion regulation practice, but, unlike suppression, does not involve an attempt to control or stifle the experience. Instead, it involves an attempt to experience the emotion fully, and then to integrate the experience with other aspects of one's self. Thus, although expressive suppression involves modulation of the expressive behavior without changing the subjective emotional experience (Campbell-Sills, Barlow, Brown, & Hofmann, 2006), integrative regulation involves paying attention to the emotional experience and processing it, a response that may have a positive influence at second exposure to the same emotion-evoking situation.

The SDT conception of emotion regulation is not restricted to fear experiences; therefore, we would expect the same pattern of results for other negative experiences. Notably, the self-reported data revealed that, alongside fear, the film elicited surprise and interest. For surprise, the trend was quite similar to the fear findings, in which the reduction of surprise over time tended to be higher for integrative regulation than for the other two conditions, although those differences were not significant. These results were not replicated in relation to interest, however, for which only the reduction in interest over time was significant. Perhaps the suppression participants' distraction from processing the film may not have affected their experience of general interest because they did grasp the general script, which may have resulted in lower interest at second exposure to the film. However, surprise may involve perceptions of more subtle cues in the script and thereby may be expected to exert the same pattern of results as fear.

Despite the current research's advantage of exploring types of emotion regulation through both, an individual differences approach and an experimental approach, our research has several limitations. First, this exploration of a novel regulation type on a small scale requires more research to replicate and expand the present findings. Especially important is the examination of various other emotional, cognitive, and behavioral outcomes. Second, the current hypotheses were tested in relation to fear that was elicited by a film clip. In comparison with other negative emotions elicited in this way (e.g., disgust), fear involves less facial expression and muscle movement, making behavioral observation more difficult (Reynaud et al., 2012). Therefore, future research should test these hypotheses in relation to other emotions.

In sum, the present studies seemed to pinpoint the advantage of emotional integration and interest in relation to fear experiences. People who practiced higher integrative regulation were less defensive in writing retrospectively about the frightening event, and when exposed a second time to the same event they were less emotionally stimulated and recalled the event's details better. We do not claim that suppression is necessarily problematic because its use is context-related, but we do claim that individuals' ability to volitionally choose how to process emotion may predict adaptive functioning. Future research should provide further support for this claim.

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