The Ability To Regulate Emotion Is Associated With Greater Well-Being, Income, and Socioeconomic Status

Stéphane Côté
University of Toronto

Anett Gyurak
University of California, Berkeley, and Stanford University

Robert W. Levenson
University of California, Berkeley

Are people who are best able to implement strategies to regulate their emotional expressive behavior happier and more successful than their counterparts? Although past research has examined individual variation in knowledge of the most effective emotion regulation strategies, little is known about how individual differences in the ability to actually implement these strategies, as assessed objectively in the laboratory, are associated with external criteria. In two studies, we examined how individual variation in the ability to modify emotional expressive behavior in response to evocative stimuli is related to well-being and financial success. Study 1 showed that individuals who can best suppress their emotional reaction to an acoustic startle are happiest with their lives. Study 2 showed that individuals who can best amplify their emotional reaction to a disgust-eliciting movie are happiest with their lives and have the highest disposable income and socioeconomic status. Thus, being able to implement emotion regulation strategies in the laboratory is closely linked to well-being and financial success.

Keywords: emotion regulation, emotional intelligence, well-being, income

Individual variation in cognitive abilities, such as language and mathematics, has been shown to relate strongly to a number of important life criteria, including performance at school and at work (Kuncel, Hezlett, & Ones, 2004; Schmidt & Hunter, 1998). Research in recent years has suggested that there is also important variation among individuals in emotional abilities (see Mayer, Roberts, & Barsade, 2008; and Mayer, Salovey, & Caruso, 2008, for reviews). In particular, the ability to regulate emotions reflects variation in how well people adjust emotional responses to meet current situational demands (Gross & Thompson, 2007; Salovey & Mayer, 1990). Equipped with this ability, individuals can aptly modify which emotions they have, when they have them, and how they experience and express them (Gross, 1998). This ability is arguably one of the most critical elements of our emotion repertoire, and it is the focus of the present research.

Past research has begun to examine whether individual variation in the ability to regulate emotions is associated with various criteria. This research has found that variation in *knowledge* of how to best regulate emotions—whether people know the rules of emotion regulation—is associated with well-being, close social relationships, high grades in school, and high job performance (e.g., Côté & Miners, 2006; Lopes, Salovey, Côté, & Beers, 2005; MacCann & Roberts, 2008). The measures used in these studies assess the degree to which people *know* how to best manage emotions. Specifically, they reflect how closely respondents' judgments of how to best regulate emotion in hypothetical scenarios match the judgments of experts. For instance, the Mayer–Salovey–Caruso Emotional Intelligence Test (MSCEIT; Mayer, Salovey, & Caruso, 2002) asks respondents to rate the effectiveness of a series of strategies to manage emotions in several hypothetical scenarios, and their responses are compared with those provided by expert emotion researchers.

Notwithstanding the importance of knowing how to best manage emotions, knowledge does not fully represent the domain of emotion regulation ability. People who know the best strategies may not implement them well. The distinction between knowledge and the ability to implement is established in the larger literature on intelligence (cf. Ackerman, 1996), and it is also theoretically useful to describe emotional abilities. For example, a customer service agent who knows that cognitively reframing an interaction with a difficult customer is the best strategy may not implement that strategy well during the interaction. Thus, to understand fully how emotion regulation ability is associated with criteria such as well-being and financial success, researchers must also examine the ability to *implement* strategies to regulate emotions—whether people can actually operate the machinery of emotion regulation.

Several of the measures used in studies of the relationship between emotion regulation and other criteria do not assess actual ability to implement emotion regulation strategies. For example, the MSCEIT (Mayer et al., 2002) does not ask respondents to

implement the strategy that they believe best addresses the issues depicted in the scenarios. Recent advances in affective science, however, provide tools to objectively assess the ability to implement emotion regulation strategies (Gross & Levenson, 1993; Hagemann, Levenson, & Gross, 2006; Jackson, Malmstadt, Larson, & Davidson, 2000; Kunzmann, Kupperbusch, & Levenson, 2005). In these laboratory paradigms, individuals receive specific instructions about how to regulate their emotions (e.g., reduce the intensity of their emotional expressive behaviors) when encountering emotional stimuli, such as loud noises or emotionally evocative film clips. Success at implementing the emotion regulation strategy can be measured objectively, for example, by coding how much respondents change their emotional expressive behavior when being instructed to do so.

Several studies have used this paradigm to examine how regulating emotions is associated with cognitive task performance (Baumeister, Bratslavsky, Muraven, & Tice, 1998; Bonanno, Papa, Lalande, Westphal, & Coifman, 2004; Schmeichel, Demaree, Robinson, & Pu, 2006), the activation of neural systems (Beauregard, Levesque, & Bourgouin, 2001; Ochsner, Bunge, Gross, & Gabrieli, 2002), and emotion experience, emotional expressive behavior, and autonomic physiology (Demaree et al., 2006; Giuliani, McCrae, & Gross, 2008; Gross & Levenson, 1993, 1997; Hagemann et al., 2006).

This paradigm has also been used as an individual difference measure to test how the ability to implement emotion regulation strategies is associated with age (Kunzmann et al., 2005; Scheibe & Blanchard-Fields, 2009), working memory (Schmeichel, Volokhov, & Demaree, 2008), and executive function (Gyurak et al., 2009). In addition, one study used this paradigm to assess people's flexibility in using different emotion regulation strategies depending on the situation, showing that flexibility is associated with lower distress after a traumatic event (Bonanno et al., 2004). Thus, this body of research supports the utility of these laboratory paradigms for assessing individual variation in the ability to implement emotion regulation strategies and the correlates of this ability.

In this report, we present the results of two studies that examine whether individual variation in the ability to implement strategies to regulate emotions is associated with well-being and financial success and, if so, in what direction. Most people regulate their emotions daily, and more than half the time, they do so by modifying the expression of emotions in their face, voice, and posture (Gross, Richards, & John, 2006). Given the frequency with which we regulate our emotional expressive behavior, it is reasonable to expect that the individual's ability in this realm would exhibit important associations with other constructs. The regulation of visible expressive behavior encompasses both up-regulation (amplifying emotional expressive behavior) and down-regulation (reducing emotional expressive behavior). We considered the association of both with our criteria.

We now turn to our theoretical development. A review of the existing literature suggests the possibility of both a positive and a negative association between the ability to implement emotion regulation strategies assessed in the laboratory and well-being and financial success. Furthermore, because we do not test the direction of causality in our studies, we consider theoretical arguments for both causal directions of associations, reviewing literatures that suggest that emotion regulation ability has consequences for well-being and financial success (both positive and negative), and also

that well-being and financial success have consequences for emotion regulation ability (both positive and negative).

The Ability To Regulate Emotional Behavior and Well-Being and Financial Success: Positive Associations

In this section, we present theoretical arguments suggesting that the ability to regulate emotion and well-being is positively associated with financial success. We first describe why high emotion regulation ability may help people become happier and garner more financial resources, and then we examine whether happiness and financial resources may help people develop better abilities to regulate their emotions.

Why Would Emotion Regulation Ability Increase Well-Being and Financial Success?

Philosophers have argued that rational thought and a happy life requires the ability to rein in emotional impulses (Aristotle, 1884; Solomon, 1993). The ability to modify emotional expressive behavior effectively may help people adapt flexibly to situational demands. Equipped with this ability, individuals might be more successful in communicating attitudes, goals, and intentions that are appropriate in various situations (Keltner & Haidt, 1999) and that might be rewarded and fulfilled. The ability to adapt successfully to situational demands then could be associated with various indicators of well-being and success.

At more of a microlevel, modifying emotional expressive behavior effectively may help people conform to display rules about who can show which emotions to whom and when they can do so (Friesen, 1972). People often attain rewards for conforming to display rules in various settings. For instance, employees who conform to display rules at work are rated as more effective and are more satisfied and less exhausted than employees who flaunt these rules (Côté & Morgan, 2002; Grandey, 2003). Breaking display rules (e.g., failing to smile at a customer or laughing at a funeral) may have costs, such as social exclusion and punishment. The ability to modify emotional expressive behavior may help individuals maximize social gains and avoid these kinds of costs.

Why Would Well-Being and Financial Success Increase Emotion Regulation Ability?

Individuals tend to interact with others who share social and cultural characteristics such as age, ethnicity, and education; this phenomenon is termed *homophily* (Mare, 1991; McPherson, Smith-Lovin, & Cook, 2001). People also tend to affiliate with others who share their social class and, thus, through their social networks, successful people tend to be exposed to similarly successful others (Kalmijn, 1991). This exposure may provide successful individuals with opportunities to learn effective ways to regulate emotions through modeling. For example, a successful manager may learn how to regulate her anger at a subordinate by observing how another manager handles a similar episode of conflict.

Well-being may also improve emotion regulation ability through a broaden-and-build mechanism (Fredrickson, 1998). Happy individuals with a broad mindset may be exposed to more

novel information about how to regulate emotions and may also more readily accept that information. In turn, their abilities to regulate emotions may improve. In support of this proposition, the trait of openness to experience is positively associated with emotional abilities (Mayer, Salovey, & Caruso, 2004), suggesting that exposure to novel situations and acceptance of new information facilitate the development of ability in a given domain. Conversely, financial strain may drain mental resources and limit attention to novel ways of regulating emotions. In addition, financial strain in the family may increase conflict and, in turn, conflict in the family is associated with lower ability to regulate emotions (see Morris, Silk, Steinberg, Myers, & Robinson, 2007, for a review). Consistent with these arguments, socioeconomic status is related to several indicators of effective emotion regulation, such as lower violence and less hostility (see Gallo & Matthews, 2003, for a review).

The Ability To Regulate Emotional Behavior and Well-Being and Financial Success: Negative Associations

We now consider the possibility that the associations between the ability to regulate emotion and well-being and financial success are negative. We again consider both potential causal directions.

Why Would Emotion Regulation Ability Decrease Well-Being and Financial Success?

People with high emotion regulation ability may be less happy and less successful because of the physiological costs incurred when regulating emotions. Modifying emotional expressions both upward and downward requires considerable physiological resources, activating the sympathetic branch of the autonomic nervous system (Gross, 1998; Gross & Levenson, 1993; Kunzmann et al., 2005). Among those who perform well on laboratory tests that measure these abilities and are particularly well-versed in these strategies, physiological strain may accumulate over time and ultimately reduce well-being and success. In a similar vein, inhibiting emotions increases the risk of coronary heart disease and hypertension (Adler & Matthews, 1994) and prolongs recovery from traumatic events (Pennebaker, 1997). This suggests that individuals with high emotion regulation ability may attain lower well-being and financial success through health problems.

In addition, emotions serve several intra- and interpersonal functions, such as preparing the person for adaptive actions and sending signals to others about the person's intentions, attitudes, and goals (Keltner & Haidt, 1999; Levenson, 1994). Individuals who aptly modify emotion may deprive themselves of these functions. For example, sadness signals a need for assistance to other individuals (Eisenberg, 2000). Individuals who aptly suppress sadness may not receive social support and, in turn, experience lower well-being. The suppression of emotional expressive behavior by one interaction partner deteriorates the quality of the relationship as indicated by less rapport and liking (Butler et al., 2003). Extrapolating from these findings, individuals who can best implement strategies to regulate expressions of emotions may be less happy and less successful than others.

Why Would Well-Being and Financial Success Decrease Emotion Regulation Ability?

It is also possible that success and well-being prevent people from developing abilities to regulate emotion. Individuals with financial resources tend to hold power, in that their outcomes tend to depend on their own actions and not the actions of others (Bacharach & Lawler, 1981). Power liberates a person's behavior because powerful individuals possess abundant resources, and sufficient resources should typically be maintained regardless of how one behaves (Keltner, Gruenfeld, & Anderson, 2003). Individuals with high power may feel that they can express the emotions they feel without regulating them (Gibson & Schroeder, 2002; Hall, Coats, & Smith LeBeau, 2005) and, therefore, fail to invest in developing strong abilities to regulate emotions. Support for this proposition comes from a study that found that customer service employees report stronger pressures to suppress their emotions with people who have power over them (e.g., customers and supervisors) than people who have similar amounts of power (e.g., coworkers; Diefendorff & Greguras, 2009).

In addition, according to an investment model (Ackerman, 1996), people acquire abilities to the extent that they are motivated to expend effort to develop them over time. Because time and effort are limited, people invest their efforts in developing the abilities that they need the most. Financially successful individuals who feel negative emotions such as anxiety, hopelessness, and hostility relatively infrequently (Gallo & Matthews, 2003) may not invest much effort and, thus, not develop emotion regulation abilities because they do not need them. Given that people often want to feel good, there is little incentive to learn how to modify emotions that are already positive. In comparison, individuals who are less financially successful and often feel negative emotions (Gallo & Matthews, 2003) need the ability to regulate emotions more. These individuals may be more motivated to develop these abilities.

Finally, longitudinal research has found some associations between positive emotions linked to approach motivation (e.g., joy) and impulsivity and reduced self-regulation ability among young children (Blair, Peters, & Granger, 2004; Kochanska, Aksan, Penney, & Doobay, 2007). These results suggest that at least some aspects of well-being may predict lower emotion regulation ability in the long-term.

Overview of the Present Research

The goal of this research is to determine whether the ability to implement emotion regulation strategies assessed in the laboratory is associated with well-being and financial success and, if so, in what direction. We aim to advance theory by identifying whether an association exists, and by testing competing perspectives about the direction in which emotion regulation ability is associated with well-being and financial success. We analyzed data from two studies in which the ability to implement strategies to regulate emotion was measured using objective laboratory tests based on the precise measurement of emotional expressive behavior. The forms of emotion regulation (down- and up-regulation), emotional stimuli (startle and film), age of participants (younger and older individuals), and the particular criteria being predicted (well-being, disposable income, and socioeconomic status) varied across the studies, thereby providing more definitive conclusions.

Study 1: The Direction of the Association Between the Ability To Suppress Emotional Expressive Behavior and Well-Being

The goal of Study 1 was to conduct an initial test of the association between the ability to regulate emotional expressive behavior and well-being. We examined whether individual variation in the ability to reduce emotional expressive behavior to an unpleasant auditory stimulus is associated with well-being and, if so, whether it is associated with more or less well-being.

Method

Participants. The sample was composed of 239 students ($M = 20.45$ years; 52% female, 48% male; ethnic composition: 17% African American, 38% Asian American, 21% Caucasian, and 24% Hispanic). Participants were recruited by means of advertisements and were paid $50. Results for this sample concerning ethnic differences in responses to emotional stimuli (Soto, Levenson, & Ebling, 2005) and the physiological consequences of regulating emotion (Hagemann et al., 2006) have previously been reported. These previous publications did not include any analyses of well-being.

Procedure and measures. Participants were mailed a package that included a consent form and questionnaires on well-being, demographics, and the variables that we covaried in the analyses (described later). After participants completed the package, they were scheduled for individual laboratory sessions.

At the beginning of the sessions, participants were seated in a sound-attenuated experimental room facing a TV monitor. The experimenter gave instructions about the session to participants, informed them that they would be video-recorded, and obtained consent. The experimenter then left the room, and all subsequent instructions were shown on the TV screen.

The experiment consisted of two trials that were administered to all participants in counterbalanced order. Each trial consisted of four epochs: (a) a 2-min relaxation period during which participants watched an "X" on the screen; (b) a period that included an acoustic startle under different instructions; (c) another 2-min relaxation period; and (d) a short period in which participants completed questionnaires. The acoustic startle consisted of a 115-dB burst of white noise administered for 100 ms through two speakers located behind the participants' heads. Past research has shown that this kind of acoustic startle is typically considered to be noxious and elicits strong emotional responses (Ekman, Friesen, & Simons, 1985). Three additional trials concerning other aspects of emotional functioning were not examined in this study. In these trials, participants compressed a handgrip device, completed mental arithmetic problems, and heard an unanticipated acoustic startle. None of these trials included instructions to regulate emotions.

In the uninstructed trial, participants were informed that they would hear a loud noise after a countdown from 10 to 1 on the TV screen. Participants heard the acoustic startle at the end of the countdown.

In the instructed suppression trial, participants received the same information plus the following instructions to regulate their emotional reaction to the startle:

> We want to see how well you can keep from showing any emotional response when you hear the noise. Try not to feel anything, and try not

to have a physiological reaction. Also, see if you can act so that someone seeing the video with the sound off won't know that anything has happened. Try not to show any visible signs or feel anything before, during, or after the loud noise occurs. Try to look relaxed all the way through. See if you can fool the person who will be studying this video.

Measure of emotional expressive behavior. We used a modified version of the Emotional Expressive Behavior coding system (Gross & Levenson, 1993) to code emotional expressive behavior during the 1-s period containing the startle stimulus in both the uninstructed and instructed suppression trials. Judges who were unaware of the purpose of the study rated (a) the intensity of emotional expressions, such as expressions of fear and surprise, on a scale ranging from 0 (*no emotional expressive behavior*) to 6 (*extremely expressive*) and (b) the intensity of behavioral expressions, such as torso and protective head movements, on a scale ranging from 0 (*no reaction at all*) to 6 (*extremely reactive*). The judges were nine undergraduate research assistants. Each participant's expressive behavior was coded by two of the judges, and the average score was used in the analyses. We used the internal consistency reliability (Cronbach's alpha) as an index of the reliability of the judges. Cronbach's alpha was 0.70 for the intensity of behavioral expression and 0.51 for the intensity of emotional expression. Past research has found evidence for the test–retest reliability of expressive responses to the startle (i.e., a correlation of .74 over a 1-year period; Gyurak et al., 2009).

The codes for emotional and behavioral expressions were correlated $r = .48$ ($p < .001$). Therefore, we averaged them to create two composite scores for each person: one for the uninstructed trial and one for the instructed suppression trial. Participants with the lowest composite scores in the instructed suppression trial were considered to have the highest ability to down-regulate emotional expressive behavior.

Measure of well-being. Participants indicated whether five statements were true or false: "My daily life is full of things that keep me interested"; "The future seems hopeless to me" (reverse scored); "Most of the time I feel happy"; "I don't think I'm quite as happy as others seem to be" (reverse scored); and "It often seems that my life has no meaning" (reverse scored); $M = 0.73$, $SD = 0.18$, $\alpha = 0.66$. We verified the convergent validity of this scale by administering it along with the Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985) and the well-being scale from Study 2 to a separate sample of 80 students. The scale was highly correlated, $r(78) = .67$ (*r* corrected for attenuation = .89; $p < .001$), with the well-being scale from Study 2 and the Satisfaction with Life Scale, $r(78) = .62$ (*r* corrected for attenuation = .81; $p < .001$).

Covariates. We controlled for several variables to rule out alternative explanations of any results due to third variables. First, we covaried emotional expressive behavior in the uninstructed trial to control for individual differences in baseline emotional expressiveness to the startle. Second, we controlled for conscientiousness. Conscientious participants may have performed well on the emotion regulation task because of their tendency to follow instructions closely. In addition, conscientious people may feel high well-being because of the success they achieve through hard work (McCrae & Costa, 1991). To rule out the possibly that any association between emotion regulation ability and well-being was

spuriously caused by conscientiousness, we administered the Conscientiousness scale of the revised NEO Five-Factor Inventory ($M = 3.57$, $SD = 0.57$, $\alpha = 0.70$; Costa & McCrae, 1992).

Third, we controlled for the traits of extraversion and neuroticism. The task of suppressing mostly negative emotional reactions to the acoustic startle may have been easier for extraverted individuals who tend to experience more positive emotions and more difficult for neurotic individuals who tend to experience more negative emotions. In addition, the traits of extraversion and neuroticism are positively and negatively related, respectively, to well-being (Costa & McCrae, 1980; McCrae & Costa, 1991). An association between emotion regulation ability and well-being could thus have been spuriously caused by extraversion and neuroticism. To rule out this possibility, we administered the Extraversion ($M = 3.43$, $SD = 0.53$, $\alpha = 0.77$) and Neuroticism ($M = 2.93$, $SD = 0.71$, $\alpha = 0.86$) scales from the revised NEO Five-Factor Inventory (Costa & McCrae, 1992).

Fourth, we controlled for people's self-efficacy beliefs in emotion regulation. Individuals who believe that they can control their emotions well may do better on a task asking them to regulate their emotions. In addition, they may report high well-being as a result of believing that they manage their emotions aptly. To rule out the possible role of self-efficacy beliefs in emotion regulation, participants evaluated their broad ability to regulate emotions on three items (e.g., "How successful are you in controlling your emotions in public?") on a scale ranging from 1 (*very successful*) to 5 (*not at all*) ($M = 2.56$, $SD = 0.75$, $\alpha = 0.70$). They also evaluated how well they regulated their emotions during the instructed suppression trial immediately after the trial on a scale ranging from 0 (*extremely unsuccessful*) to 8 (*extremely successful*) ($M = 3.39$, $SD = 1.98$). Because there may be some validity to individuals' beliefs about their own ability to regulate emotions, controlling for this variable may partial out some actual variance in emotion regulation ability. We found the same results, however, when we repeated the analyses without controlling for these self-efficacy beliefs.

Finally, to provide a conservative test of the association between emotion regulation ability and well-being, we also covaried gender and ethnicity. To code for ethnicity, we created four dummy codes for African Americans, Asian Americans, Caucasians, and Hispanics.

Results

Preliminary analyses. The instructions to regulate emotion produced the intended behavioral consequences. As expected, emotional expressive behavior was less intense in the instructed suppression trial ($M = 0.61$, $SD = 0.44$) than in the uninstructed trial ($M = 0.74$, $SD = 0.58$), $t(238) = 3.41$, $p < .001$.

Because the order of trials was randomized, we examined the interaction between emotional expressive behavior in the instructed suppression trial and a dummy code for order of trial (uninstructed trial first vs. instructed suppression trial first) in predicting well-being. The interaction was not significant, $F(2, 232) = 2.38$, $p = .10$; thus, we collapsed across the orders.

Main analyses. We first regressed well-being on emotional expressive behavior in the instructed suppression trial, covarying emotional expressive behavior in the uninstructed trial to control for individual differences in baseline emotional expressiveness.

The regression results shown in Table 1 (Model 1) reveal that individuals with the highest ability to down-regulate emotional expressive behavior (i.e., individuals who expressed the least emotion in the instructed suppression trial) had the highest well-being, $\beta = -0.18$, $p < .01$, $f^2 = .03$. We then added the covariates in the regression model. The results did not change when we entered the covariates (Table 1, Model 2). These results indicate that individuals who best performed on the instructed suppression task reported higher general well-being than those who did not perform well.[1]

Discussion

Study 1 made several contributions to our knowledge of individual differences in the ability to implement emotion regulation strategies. First, the results demonstrate that the laboratory measure of emotion regulation ability developed in past research (e.g., Gross & Levenson, 1993, 1997) relates to a real-life criterion outside of the laboratory, general well-being. The results provide additional evidence that this measure is a valid assessment of whether a person can regulate emotion aptly. Second, the results indicate that the nature of the association between emotion regulation ability and well-being is positive. Higher emotion regulation ability might lead to higher well-being, or higher well-being may lead to higher emotion regulation ability. It does not seem that higher ability to regulate emotions reduces well-being by exerting physiological costs or that being happy reduces the motivation to develop abilities to regulate emotions.

The results of Study 1 should be interpreted in light of some limitations. First, we only examined one criterion, inviting questions about the importance of emotion regulation ability in domains other than well-being. Second, the participants were undergraduate students, and it is unknown whether the results generalize to older individuals. Third, half of the participants were administered the uninstructed trial after the trial in which they were instructed to suppress their emotional reaction to the startle. Some of these participants may have assumed that they should suppress their emotional reaction in the uninstructed trial also. This would make our test more conservative, because we used the uninstructed trial (and any emotion regulation ability it contained) as a covariate, thus making it more difficult to find a unique effect of emotion regulation ability on the instructed trial. In Study 2, we administered the uninstructed trial before the instructed regulation trial to all participants. Fourth, we only looked at the ability to perform one type of regulation, down-regulating one's expressive reaction to an acoustic startle. Whether similar effects are found for different types of emotion regulation, such as the up-regulation of emotional expressive behavior, is unknown. We conducted a second study to replicate, extend, and test the generalizability of the finding from Study 1.

---

[1] The results were the same when we repeated the analyses with emotional expressions, $\beta = -0.15$, $p < .05$; and with behavior expressions, $\beta = -0.17$, $p < .05$, separately.

Table 1
Regression Analysis Results Predicting Well-Being (Study 1)

Variable	Model 1			Model 2		
	b	β	*SE*	*b*	β	*SE*
Gender				0.01	0.01	0.03
Asian American ethnicity				0.02	0.03	0.04
Caucasian ethnicity				0.08	0.11	0.05
Hispanic ethnicity				−0.02	−0.04	0.05
Conscientiousness				−0.02	−0.03	0.03
Extraversion				0.18***	0.33***	0.03
Neuroticism				−0.19***	−0.46***	0.03
Self-judged ability to regulate emotions (disposition)[a]				−0.01	−0.04	0.02
Self-judged ability to regulate emotions (in the laboratory)				0.00	0.00	0.01
Emotionally expressive behavior (uninstructed trial)	0.03	0.07	0.03	0.03	0.07	0.03
Emotionally expressive behavior (instructed suppression trial)	−0.12**	−0.18**	0.04	−0.13***	−0.19***	0.04

Note. Gender was coded as 0 = female and 1 = male. The ethnicity variables were coded as 0 = other ethnic group and 1 = this ethnic group.
[a] This scale was reversed so that a high score reflects high self-judged ability.
* $p < .05$.   ** $p < .01$.   *** $p < .001$.

Study 2: The Direction of the Association Between the Ability To Amplify Emotional Expressive Behavior and Well-Being and Success

In Study 2, we investigated whether the results extend to other criteria by assessing disposable income and socioeconomic status in addition to well-being. To address concerns about the restricted age of the sample, we analyzed an independent sample that included both younger and older participants. Finally, to explore whether the results extend beyond the ability to down-regulate emotional expressive behavior, we examined a different emotion regulation paradigm and different emotional stimuli. We specifically examined how variation in the ability to amplify emotional expression to a movie that elicits disgust is associated with well-being, disposable income, and socioeconomic status. Consistent findings with Study 1 would increase our confidence that the ability to implement an emotion regulation strategy in the laboratory is positively associated with real-world criteria outside of the laboratory.

Method

Participants.   The sample was composed of 24 younger participants ($M = 20.17$ years; 50% male, 50% female; ethnic composition: 87.5% Caucasian and 12.5% Asian American) and 23 older participants ($M = 70.86$ years; 52% male, 48% female; ethnic composition: 87% Caucasian and 13% Asian American). Participants were recruited by means of advertisements and fliers distributed in Berkeley, CA. The younger participants were undergraduate students, except for one who had recently graduated. Among the older participants, 16 were retired, 4 worked part time, and 3 worked full time. The undergraduate students received credit in a psychology course. The other participants were entered in a lottery in which two $100 prizes were awarded. Results for this sample concerning aging differences in responses to emotional stimuli have previously been reported (Kunzmann et al., 2005). This previous report did not include any analyses of well-being or financial success.

Materials, procedure, and measures.   On arrival to the laboratory, participants signed a consent form and completed the questionnaires described later. The experimenter gave instructions to participants, telling them that they would view several short film clips and be video-recorded. The experimenter then left the room, and all subsequent instructions were shown on a TV monitor.

The experimental session was composed of two trials, each consisting of four epochs: (a) a 1-min relaxation period during which participants cleared their minds of all thoughts and feelings; (b) an approximately 1-min period in which participants viewed a film under different instructions; (c) another 1-min relaxation period; and (d) a 5-min period during which participants completed an inventory of their reactions. The films that we used to elicit emotions were films of medical procedures taken from Gross and Levenson's (1995) set. These films elicit equivalent levels of self-reported disgust and some reports of other emotions. Three additional trials concerning other aspects of emotional functioning were not examined in this study.

On the watch trial, all participants viewed a film of an eye operation (58 s). They were asked to just watch the film.

On the instructed amplification trial, participants viewed a film of the treatment of a burn victim (55 s) or an arm amputation (62 s). They were instructed to regulate their emotions while watching the movie:

> This time, if you have any feelings as you watch the film clip, please try your best to let those feelings show. In other words, as you watch the film clip, try to behave in such a way that a person watching you would clearly know what you are feeling. To summarize, as you watch the film clip, show your feelings as much as you can.

Measure of emotional expressive behavior.   Participants' expressions of disgust, anger, contempt, fear, and sadness were coded by judges. The judges, four trained undergraduate research assistants who were unaware of the purpose of the study, used a modified version of the Emotional Expressive Behavior coding system (Gross & Levenson, 1993). Expressions of each emotion were scored second by second for the duration of the entire movie on a 3-point intensity scale, separately for the uninstructed trial and

the instructed amplification trial. The sum of these intensity scores was divided by the number of seconds in the film. We created two composite scores for each person: one for the uninstructed trial and one for the instructed amplification trial. Participants with the highest composite scores for the instructed amplification trial were considered to have the highest ability to up-regulate emotional expressive behavior.

To establish reliability, two judges scored the same 21 participants. The internal consistency reliability coefficients (Cronbach alphas) for the disgust scores were 0.81 for the watch trial and 0.91 for the instructed amplification trial. Estimating reliability for anger, contempt, fear, and sadness required a different treatment because they were less frequent. We examined the frequency with which the raters agreed that a score was either 0 or higher than 0. The average agreement was 93% (range = 71%–100%). When two codes were available for participants, we calculated the average of the two. Thus, we always used the most precise information available for each participant.

Measure of well-being. We used two instruments to measure well-being. The first instrument asked participants to indicate how satisfied they were with their lives in general on a scale ranging from 1 (*not at all satisfied*) to 5 (*extremely satisfied*) ($M = 3.55$, $SD = 0.60$). The second instrument asked participants to rate their satisfaction with 19 specific aspects of their lives, such as their social relationships and personal achievements on a scale ranging from 1 (*not at all satisfied*) to 5 (*extremely satisfied*) ($M = 3.98$, $SD = 0.77$, $\alpha = 0.91$). The scores on the two instruments were highly correlated, $r(45) = .62$, $p < .001$; thus, we averaged them. In the separate sample of 80 students described in Study 1, this scale was highly correlated with the well-being scale used in Study 1 ($r = .67$; r corrected for attenuation = .89; $p < .001$) and the Satisfaction with Life Scale (Diener et al., 1985) ($r = .77$; r corrected for attenuation = .93; $p < .001$).

Disposable income. Participants indicated the amount of money they had for their living expenses per year, using the following options: 1 = <$10,000; 2 = $10,000–$20,000; 3 = $20,000–$30,000; 4 = $30,000–$40,000; 5 = $40,000–$50,000; 6 = $50,000–$75,000; 7 = $75,000–$100,000; and 8 = >$100,000. The mean was 4.61 ($SD = 2.25$) in the older group and 1.95 ($SD = 1.21$) in the younger group.

Socioeconomic status. Participants indicated the socioeconomic level of their household, using the following options: 1 = lower income; 2 = lower middle income; 3 = middle income; 4 = upper middle income; and 5 = upper income. The mean was 3.14 ($SD = 1.21$) in the older group and 2.29 ($SD = 1.10$) in the younger group. They also indicated their socioeconomic status when they were growing up (older group: $M = 2.49$, $SD = 2.27$; younger group: $M = 3.54$, $SD = 0.83$).

Covariates. We controlled for several constructs to rule out potential alternative explanation of any findings. As in Study 1, we covaried emotional expressive behavior in the uninstructed trial, conscientiousness, self-efficacy beliefs in emotion regulation, and gender and ethnicity. We measured conscientiousness with the Big Five Inventory (John, Donahue, & Kentle, 1991; $M = 3.57$, $SD = 0.64$, $\alpha = 0.81$).

We assessed self-efficacy beliefs in emotion regulation by asking participants to indicate their agreement with 20 statements about their ability to modify emotion (e.g., "If I want to, I can let my feelings show when I am happy about something") on a scale

ranging from 1 (*disagree strongly*) to 5 (*agree strongly*) ($M = 3.45$, $SD = 0.36$, $\alpha = 0.62$). Although controlling for this variable may represent a conservative test, the results were the same when we did not control for self-efficacy beliefs, as in Study 1.

In Study 2, we also controlled for social desirability. Participants high on social desirability may have closely followed instructions to regulate emotions to make a favorable impression on the experimenter. Separately, they may have reported high well-being and financial success because it is socially desirable to report these outcomes. To rule out the possibility that social desirability caused any spurious associations, we administered Stöber's (2001) Social Desirability Scale ($M = 0.37$, $SD = 0.25$, $\alpha = 0.71$).

We covaried the dispositional tendencies to feel positive affect and negative affect. The task of amplifying mostly negative emotional reactions to the movies may have been easier for dispositionally unpleasant individuals and more difficult for dispositionally pleasant individuals who tend to experience more positive emotions. These traits may also be separately related to well-being. To rule out this alternative explanation of the findings, we administered the scales measuring positive affect ($M = 3.63$, $SD = 0.56$, $\alpha = 0.86$) and negative affect ($M = 2.64$, $SD = 0.57$, $\alpha = 0.87$) on the Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1985).

Finally, in the analyses of disposable income and socioeconomic status, we also covaried socioeconomic status when growing up to rule out the possibility that a favorable early environment led participants to develop high emotional regulation abilities and, separately, achieve financial success.

Results

Preliminary analyses. The instructions to regulate emotion produced the intended behavioral consequences. Participants expressed more emotional expressive behavior in the instructed amplification trial ($M = 0.12$; $SD = 0.14$) than in the watch trial ($M = 0.06$; $SD = 0.10$), $t(46) = 4.03$, $p < .001$.

The interaction term between emotional expressive behavior in the instructed amplification trial and a dummy code for which of the two movies participants viewed while trying to amplify emotion was not significant for well-being, $\beta = -0.001$, $p = .996$; disposable income, $\beta = 0.44$, $p = .16$; and socioeconomic status, $\beta = 0.14$, $p = .65$. Thus, we collapsed across the movies.

Main analyses. As in Study 1, we first regressed well-being on emotional expressive behavior in the instructed amplification trial, covarying emotional expressive behavior in the uninstructed trial. The regression results shown in Table 2 (Model 1) reveal that individuals with the highest ability to up-regulate emotional expressive behavior (i.e., individuals who expressed the most emotion in the instructed amplification trial) had the highest well-being, $\beta = 0.42$, $p < .05$, $f^2 = .12$. The conclusions did not change (Table 2, Model 2) when we entered the covariates.[2]

Only the participants in the older group were included in the analyses of disposable income and socioeconomic status because

---

[2] Analyses conducted on each age group separately indicated positive associations between the ability to up-regulate emotional expressive behavior and well-being in both the older group, $\beta = 0.27$, $p = .31$; and the younger group, $\beta = 0.63$, $p < .05$; although it was only significant in the latter.

Table 2
Regression Analysis Results Predicting Well-Being (Study 2)

Variable	Model 1			Model 2		
	b	β	*SE*	*b*	β	*SE*
Gender				−0.22	−0.18	0.14
Ethnicity				−0.16	−0.09	0.21
Conscientiousness				−0.28*	−0.29*	0.12
Positive affectivity				0.59***	0.55***	0.12
Negative affectivity				−0.45***	−0.42***	0.12
Self-judged ability to regulate emotions (disposition)				−0.10	−0.05	0.20
Social desirability				0.44	0.18	0.27
Emotionally expressive behavior (watch trial)	−2.36*	−0.37*	1.16	−1.89*	−0.30*	0.87
Emotionally expressive behavior (instructed amplification trial)	1.86*	0.42*	0.79	1.88**	0.44**	0.62

Note. Gender was coded as 0 = female and 1 = male. Ethnicity was coded as 0 = Asian American and 1 = Caucasian.
* $p < .05$. ** $p < .01$. *** $p < .001$.

the younger participants were homogeneous in these criteria. The regression results shown in Tables 3 and 4 (Models 1) reveal that individuals with the highest ability to up-regulate emotional expressive behavior (i.e., individuals who expressed the most emotion in the instructed amplification trial) had the highest disposable income, β = 0.53, $p < .05$, $f^2 = .25$; and socioeconomic status, β = 0.59, $p < .05$, $f^2 = .35$.

The subsample of older participants was small. Thus, instead of entering the covariates simultaneously, we entered them one at a time to preserve power. The results remained unchanged when we entered the covariates (Tables 3 and 4, Models 2–9).

Discussion

The results of Study 2 replicate and extend those of Study 1 in several ways. First, the results of Study 2 show that the associations with emotion regulation ability extend beyond well-being. In Study 2, emotion regulation ability was also associated with two indicators of financial success, disposable income and socioeconomic status, revealing its relevance in various domains. Second, the results of Study 2 show that the findings concerning emotion regulation ability are not restricted to undergraduate students. Both undergraduate students and older individuals exhibited a positive

association between emotion regulation ability and well-being, and older individuals also exhibited positive associations between emotion regulation ability and financial success. Third, the results of Study 2 show that consistent effects are found when investigating both the down-regulation and the up-regulation of emotional expressive reactions to both an acoustic startle and a movie.

General Discussion

In this research we examined how the ability to regulate emotional expressive behavior, measured in the laboratory, is associated with real-world criteria. The associations revealed that individuals who can best modify their emotional expressive behavior have the highest well-being, disposable income, and socioeconomic status. Our confidence in these associations is increased by the fact that the studies used well-controlled tasks and objective measurements of emotional expressive behavior to assess the ability to implement emotion regulation. Moreover, the findings generalized over differences in the two studies in the forms of emotion regulation (down-regulation and up-regulation), emotional stimuli (startle and film), age of participants (younger and older individuals), and the particular criteria being predicted (well-being, disposable income, and socioeconomic status).

Table 3
Regression Analysis Results Predicting Disposable Income (Study 2)

Variable	M1	M2	M3	M4	M5	M6	M7	M8	M9
Socioeconomic status when growing up		−.15							
Gender			−.19						
Ethnicity				−.11					
Conscientiousness					.17				
Positive affectivity						.16			
Negative affectivity							−.36		
Self-judged ability to regulate emotions (disposition)								.18	
Social desirability									.15
Emotional expressive behavior (watch trial)	−.42	−.40	−.47	−.42	−.47	−.43	−.48*	−.44	−.42
Emotional expressive behavior (instructed amplification trial)	.53*	.55*	.50†	.56*	.51†	.53*	.64*	.51*	.53*

Note. Values are standardized regression coefficients. Each model (M) included emotional expressive behavior in the watch and amplification trials as predictors. M1 did not include any covariates. M2 through M9 each included one covariate in addition to emotional expressive behavior in the watch trial. Gender was coded as 0 = female and 1 = male. Ethnicity was coded as 0 = Asian and 1 = Caucasian.
† $p = .05$. * $p < .05$.

Table 4
Regression Analysis Results Predicting Socioeconomic Status (Study 2)

Variable	M1	M2	M3	M4	M5	M6	M7	M8	M9
Socioeconomic status when growing up		−.13							
Gender			−.23						
Ethnicity				−.05					
Conscientiousness					.28				
Positive affectivity						.19			
Negative affectivity							−.26		
Self-judged ability to regulate emotions (disposition)								.17	
Social desirability									.06
Emotional expressive behavior (watch trial)	−.49*	−.44	−.55*	−.49†	−.54*	−.51*	−.53*	−.51*	−.49†
Emotional expressive behavior (instructed amplification trial)	.59*	.60*	.57*	.61*	.55*	.59*	.68**	.57*	.59*

Note. Values are standardized regression coefficients. Each model (M) included emotional expressive behavior in the watch and amplification trials as predictors. M1 did not include any covariates. M2 through M9 each included one covariate in addition to emotional expressive behavior in the watch trial. Gender was coded as 0 = female and 1 = male. Ethnicity was coded as 0 = Asian and 1 = Caucasian.
† $p = .05$.   * $p < .05$.   ** $p < .01$.

These findings make two important theoretical contributions. First, past theory provided theoretical arguments supporting both positive and negative associations between the ability to implement emotion regulation strategies and the criteria that we examined. Our findings support the view that the association between ability to regulate emotions and the criteria is positive and not negative. The correlational nature of these data precludes definitive conclusions about the direction of causality. Future research with longitudinal designs would help establish whether the ability to regulate emotional expressive behavior paves the way for well-being and financial success, whether well-being and financial success provide a platform for developing this ability, or whether both effects occur simultaneously.

Second, past research had shown that knowledge of the best strategies to regulate emotions, assessed by comparing people's beliefs about the best way to regulate emotions in various situations to the judgments of experts, is beneficial (cf. Lopes et al., 2005; MacCann & Roberts, 2008; Mayer et al., 2008). Although knowing the most effective emotion regulatory strategies is undoubtedly part of successful emotion regulation, it does not guarantee that a person can actually carry out the strategy successfully. If a person poorly executes emotion regulation strategies, the strategies will not have the desired effects on emotion. To illustrate this point, successfully suppressing a fear response requires knowing that one has to hold one's face and body steady. Knowing this, however, does not guarantee that one will be able to do so when faced with emotionally evocative stimuli, such as the startle used in Study 1. Our research shows that the objective measurement of whether an individual can implement a strategy is critical to assess fully that person's general ability to regulate emotions.

Limitations and Future Research Directions

The results should be interpreted in light of several limitations that reveal important directions for future research. First, in this research we focused on two criteria: well-being and financial success. It is possible that the correlates of the ability to regulate emotion are less sanguine in other life domains. For instance, it is possible that the results do not generalize to the criterion of cardiovascular health, given the results described in the introduc-

tion indicating that certain types of emotion regulation exact physiological cost. In addition, our research focused on two type of regulation of expressive behavior. Other kinds of emotion regulation, such as regulation that focuses less on behavioral displays and more on how we appraise emotion-inducing situations (Beck, 1972), may exhibit different associations with different criteria.

In this research, we examined whether people can execute emotion regulation strategies that they were specifically instructed to use in a laboratory. These abilities do not necessarily correspond to people's abilities to execute the same or other emotion regulation strategies in rich real-life situations, where adults rarely receive specific instructions about how to regulate their emotions. Thus, this study does not speak to whether individual variation in the implementation of emotion regulation in day-to-day life relates to well-being and financial success. It is important for future research to examine the correspondence between the abilities to execute instructed regulation strategies in laboratory settings and the ability to select and execute strategies in real-world social situations. It will also be important to compare the predictive and incremental validities of instructed regulation in the laboratory and real-world regulation in terms of criteria such as well-being and financial success.

This study is also limited because it did not examine the stability of emotion regulation ability over time. Previous research using this paradigm has found high test–retest reliability for the magnitude of the startle response when administered without instructions ($r = .71$) and with the instruction to suppress observable behavior ($r = .55$) for a 1-year period (Gyurak et al., 2009). This suggests some stability in this response and in the ability to implement a particular emotion regulation strategy in the laboratory. Even so, it would be interesting to examine how much this ability varies depending on the context, the specific emotion that is regulated, and the direction in which emotion is regulated. In addition, comparing the associations between these different dimensions of emotion regulation ability and well-being and financial success is an important goal for future research.

Future research may also explore the implications of the results in more applied domains. Policymakers have focused heavily on traditional cognitive abilities assessed by IQ tests to explain dif-

ferences in socioeconomic status (ter Weel, 2008). Our results provide direct evidence that an important emotional ability, the ability to implement regulation of the behavioral signs of emotion, is associated with socioeconomic criteria. Similarly, traditional pedagogy as practiced in our school systems is heavily focused on improving traditional cognitive abilities. School curricula that also emphasize training in domains such as emotion regulation (Blair & Diamond, 2008) may have even greater success in terms of well-being and financial success, both of which would have enormous benefits for individuals and for society.

References

Ackerman, P. L. (1996). A theory of adult intellectual development: Process, personality, interests, and knowledge. *Intelligence, 22,* 229–259.

Adler, N. E., & Matthews, K. (1994). Health psychology: Why do some people get sick and some stay well? *Annual Review of Psychology, 45,* 229–259.

Aristotle (1884). *Nicomachean ethics* (2nd ed.). London: Kegan Paul.

Bacharach, S., & Lawler, E. (1981). *Bargaining: Power, tactics, and outcomes.* San Francisco: Jossey-Bass.

Baumeister, R. F., Bratslavsky, E., Muraven, M., & Tice, D. M. (1998). Ego depletion: Is the active self a limited resource? *Journal of Personality and Social Psychology, 74,* 1252–1265.

Beauregard, M., Levesque, J., & Bourgouin, P. (2001). Neural correlates of conscious self-regulation of emotion. *Journal of Neuroscience, 21,* 1–6.

Beck, A. T. (1972). *Depression: Causes and treatment.* Philadelphia: University of Pennsylvania Press.

Blair, C., & Diamond, A. (2008). Biological processes in prevention and intervention: The promotion of self-regulation as a means of preventing school failure. *Development and Psychopathology, 20,* 899–911.

Blair, C., Peters, R., & Granger, D. (2004). Physiological and neuropsychological correlates of approach/withdrawal tendencies in preschool: Further examination of the Behavioral Inhibition System/Behavioral Activation System scales for young children. *Developmental Psychobiology, 45,* 113–124.

Bonanno, G. A., Papa, A., Lalande, K., Westphal, M., & Coifman, K. (2004). The importance of being flexible: The ability to enhance and suppress emotional expression predicts long-term adjustment. *Psychological Science, 17,* 482–487.

Butler, E. A., Egloff, B., Wilhelm, F. W., Smith, N. C., Erickson, E. A., & Gross, J. J. (2003). The social consequences of expressive suppression. *Emotion, 3,* 48–67.

Costa, P. T., & McCrae, R. R. (1992). *NEO PI-R professional manual.* Odessa, FL: Psychological Assessment.

Côté, S., & Miners, C. T. H. (2006). Emotional intelligence, cognitive intelligence, and job performance. *Administrative Science Quarterly, 51,* 1–28.

Côté, S., & Morgan, L. M. (2002). A longitudinal analysis of the association between emotion regulation, job satisfaction, and intentions to quit. *Journal of Organizational Behavior, 23,* 947–962.

Demaree, H. A., Schmeichel, B. J., Robinson, J. L., Pu, J., Everhart, D. E., & Berntson, G. G. (2006). Up- and down-regulating facial disgust: Affective, vagal, sympathetic, and respiratory consequences. *Biological Psychology, 71,* 90–99.

Diefendorff, J. M., & Greguras, G. J. (2009). Contextualizing emotional display rules: Examining the roles of targets and discrete emotions in shaping display rule perceptions. *Journal of Management, 35,* 880–898.

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment, 49,* 71–75.

Eisenberg, N. (2000). Emotion, regulation, and moral development. *Annual Review of Psychology, 51,* 665–697.

Ekman, P., Friesen, W. V., & Simons, R. C. (1985). Is the startle reaction an emotion? *Journal of Personality and Social Psychology, 49,* 1416–1426.

Fredrickson, B. L. (1998). What good are positive emotions? *Review of General Psychology, 3,* 300–319.

Friesen, W. V. (1972). *Cultural differences in facial expressions in a social situation. An experimental test of the concept of display rules.* Unpublished doctoral dissertation, University of California, San Francisco.

Gallo, L. C., & Matthews, K. A. (2003). Understanding the association between socioeconomic status and physical health: Do negative emotions play a role? *Psychological Bulletin, 129,* 10–51.

Gibson, D. E., & Schroeder, S. (2002). Grinning, frowning, and emotionless: Agent perceptions of power and their effect on felt and displayed emotions in influence attempts. In N. Ashkanasy, C. Härtel, & W. Zerbe (Eds.), *Managing emotions in the workplace* (pp. 184–211). Armonk, NY: M. E. Sharpe.

Giuliani, N., McRae, K., & Gross, J. J. (2008). The up- and down-regulation of amusement: Experiential, behavioral, and autonomic consequences. *Emotion, 8,* 714–719.

Grandey, A. A. (2003). When "the show must go on": Surface and deep acting as determinants of emotional exhaustion and peer-rated service delivery. *Academy of Management Journal, 46,* 86–96.

Gross, J. J. (1998). The emerging field of emotion regulation: An integrative review. *Review of General Psychology, 2,* 271–299.

Gross, J. J., & Levenson, R. W. (1993). Emotional suppression: Physiology, self-report, and expressive behavior. *Journal of Personality and Social Psychology, 64,* 970–986.

Gross, J. J., & Levenson, R. W. (1995). Emotion elicitation using films. *Cognition and Emotion, 9,* 87–108.

Gross, J. J., & Levenson, R. W. (1997). Hiding emotions: The acute effects of inhibiting negative and positive emotions. *Journal of Abnormal Psychology, 106,* 95–103.

Gross, J. J., Richards, J. M., & John, O. P. (2006). Emotion regulation in everyday life. In D. K. Snyder, J. A. Simpson, & J. N. Hughes (Eds.), *Emotion regulation in families* (pp. 13–35). Washington, DC: American Psychological Association.

Gross, J. J., & Thompson, R. A. (2007). Emotion regulation. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 3–24). New York: Guilford Press.

Gyurak, A., Goodkind, M. S., Madan, A., Kramer, J. H., Miller, B. L., & Levenson, R. W. (2009). Do tests of executive functioning predict ability to down-regulate emotions spontaneously and when instructed to suppress? *Cognitive Affective and Behavioral Neuroscience, 9,* 144–152.

Hagemann, T., Levenson, R. W., & Gross, J. J. (2006). Expressive suppression during an acoustic startle. *Psychophysiology, 43,* 104–112.

Hall, J. A., Coats, E. J., & Smith LeBeau, L. (2005). Nonverbal behavior and the vertical dimension of social relations: A meta-analysis. *Psychological Bulletin, 131,* 898–924.

Jackson, D. C., Malmstadt, J. R., Larson, C. L., & Davidson, R. J. (2000). Suppression and enhancement of emotional responses to unpleasant pictures. *Psychophysiology, 37,* 515–522.

John, O. P., Donahue, E. M., & Kentle, R. L. (1991). *The Big Five Inventory—Versions 4a and 54.* Berkeley, CA: Institute of Personality and Social Research.

Kalmijn, M. (1991). Status homogamy in the United States. *American Journal of Sociology, 97,* 496–523.

Keltner, D., Gruenfeld, D. H., & Anderson, C. (2003). Power, approach, and inhibition. *Psychological Review, 110,* 265–284.

Keltner, D., & Haidt, J. (1999). Social functions of emotions at multiple levels of analysis. *Cognition and Emotion, 13,* 505–522.

Kochanska, G., Aksan, N., Penney, S. J., & Doobay, A. F. (2007). Early positive emotionality as a heterogeneous trait: Implications for children's self-regulation. *Journal of Personality and Social Psychology, 93,* 1054–1066.

Kuncel, N. R., Hezlett, S. A., & Ones, D. S. (2004). Academic performance, career potential, creativity, and job performance: Can one construct predict them all? *Journal of Personality and Social Psychology, 86,* 148–161.

Kunzmann, U., Kupperbusch, C. S., & Levenson, R. W. (2005). Behavioral inhibition and amplification during emotional arousal: A comparison of two age groups. *Psychology and Aging, 20,* 144–158.

Levenson, R. W. (1994). Human emotions: A functional view. In P. Ekman & R. J. Davidson (Eds.), *The nature of emotion* (pp. 123–126). New York: Oxford University Press.

Lopes, P. N., Salovey, P., Côté, S., & Beers, M. (2005). Emotion regulation abilities and the quality of social interaction. *Emotion, 5,* 113–118.

MacCann, C., & Roberts, R. D. (2008). New paradigms for assessing emotional intelligence: Theory and data. *Emotion, 8,* 540–551.

Mare, R. D. (1991). Five decades of educational assortative mating. *American Sociological Review, 56,* 15–32.

Mayer, J. D., Roberts, R. D., & Barsade, S. G. (2008). Human abilities: Emotional intelligence. *Annual Review of Psychology, 59,* 507–536.

Mayer, J. D., Salovey, P., & Caruso, D. R. (2002). *Manual for the MSCEIT (Mayer–Salovey–Caruso Emotional Intelligence Test).* Toronto, Ontario, Canada: Multi-Health Systems.

Mayer, J. D., Salovey, P., & Caruso, D. R. (2004). Emotional intelligence: Theory, findings, and implications. *Psychological Inquiry, 15,* 197–215.

Mayer, J. D., Salovey, P., & Caruso, D. R. (2008). Emotional intelligence: New ability or eclectic traits? *American Psychologist, 63,* 503–517.

McCrae, R. R., & Costa, P. T. Jr. (1991). Adding Liebe und Arbeit: The full five-factor model and well-being. *Personality and Social Psychology Bulletin, 49,* 710–721.

McPherson, J. M., Smith-Lovin, L., Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology, 27,* 415–444.

Morris, A. S., Silk, J. S., Steinberg, L., Myers, S. S., & Robinson, L. R. (2007). The role of the family context in the development of emotion regulation. *Social Development, 16,* 361–388.

Ochsner, K. N., Bunge, S. A., Gross, J. J., & Gabrieli, J. D. E. (2002). Rethinking feelings: An fMRI study of the cognitive regulation of emotion. *Journal of Cognitive Neuroscience, 14,* 1215–1229.

Pennebaker, J. W. (1997). Writing about emotional experiences as a therapeutic process. *Psychological Science, 8,* 162–166.

Salovey, P., & Mayer, J. D. (1990). Emotional intelligence. *Imagination, Cognition, and Personality, 9,* 185–211.

Scheibe, S., & Blanchard-Fields, F. (2009). Effects of regulating emotions on cognitive performance: What is costly for young adults is not so costly for older adults. *Psychology and Aging, 24,* 217–223.

Schmeichel, B. J., Demaree, H. A., Robinson, J. L., & Pu, J. (2006). Ego depletion by response exaggeration. *Journal of Experimental Social Psychology, 42,* 95–102.

Schmeichel, B. J., Volokhov, R., & Demaree, H. A. (2008). Working memory capacity and the self-regulation of emotional expression and experience. *Journal of Personality and Social Psychology, 95,* 1526–1540.

Schmidt, F. L., & Hunter, J. E. (1998). The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 85 years of research findings. *Psychological Bulletin, 124,* 262–274.

Solomon, R. C. (1993). The philosophy of emotions. In M. Lewis & J. Haviland (Eds.), *Handbook of emotions* (pp. 3–15). New York: Guilford Press.

Soto, J. A., Levenson, R. W., & Ebling, R. (2005). Cultures of moderation and expression: Emotional experience, behavior, and physiology in Chinese Americans and Mexican Americans. *Emotion, 5,* 154–165.

Stöber, J. (2001). The Social Desirability Scale-17 (SDS-17): Convergent validity, discriminant validity, and relationship with age. *European Journal of Psychological Assessment, 17,* 222–232.

ter Weel, B. (2008). The noncognitive determinants of labor market and behavioral outcomes. *Journal of Human Resources, 43,* 729–737.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative mood: The PANAS scales. *Journal of Personality and Social Psychology, 54,* 1063–1070.