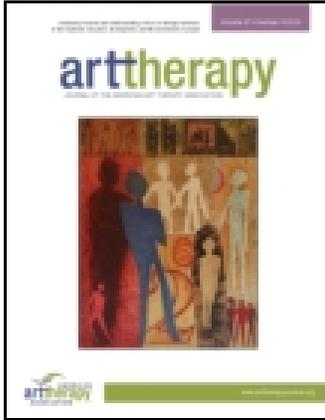


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# Drawing Versus Writing: The Role of Preference in Regulating Short-Term Affect

Jennifer E. Drake and Adeline Hodge

## Abstract

*In a pilot study we investigated whether the most effective medium for regulating short-term affect depends on one's preference for drawing or writing, and also investigated the emotion regulation strategy (distraction versus expression) spontaneously chosen when drawing and writing. Eighty undergraduates indicated their preference for drawing or writing. After a sad mood induction, half were assigned to their preferred activity and half to their non-preferred activity. Positive and negative affect was assessed before and after the activity, and participants reported whether they used the activity to express or to distract themselves. Negative affect was significantly lower after drawing than after writing, even when the preferred activity indicated was writing. Participants were more likely to use drawing to distract and writing to express.*

## Introduction

Numerous physiological and psychological benefits accrue from the experiencing of positive emotions. Positive moods are associated with improved immune functioning, better recovery from cardiovascular illness, and a lessening of pain (Fredrickson & Cohn, 2008). Fredrickson (2001) proposed a “broaden-and-build” model of positive emotions to account for their association with physical and psychological well-being. According to this model, positive emotions broaden thinking and build resources. This theory postulates that negative emotions narrow our focus, whereas discrete positive emotions broaden our “thought action repertoire, expanding the range of cognitions and behaviors that come to mind,” and thereby allow more successful emotional regulation (Tugade & Fredrickson, 2004, p. 321). Positive emotions have been shown to counteract a negative mood (Fredrickson & Levenson, 1998). Here we examine drawing's function to increase positive emotions and thereby regulate negative emotions.

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Evidence that drawing has short-term affective benefits comes from De Petrillo and Winner (2005), who showed that drawing improves mood and does so more strongly than the act of copying geometric shapes, perhaps because an open-ended drawing task is generative and thus more engaging than copying. Two emotion regulation strategies seem particularly relevant to drawing: expression and distraction. Expressing one's negative feelings by conveying them through drawing may serve to discharge these feelings. Distracting oneself from negative feelings by drawing something entirely unrelated may serve to shift attention away from negative feelings. Research shows that drawing improves short-term mood most effectively when used as a means of distraction rather than a means of expression (Dalebroux, Goldstein, & Winner, 2008; Drake & Winner, 2012).

Writing has also been shown to have affective benefits. Expressive writing is associated with many positive long-term outcomes including improved immune function (Pennebaker, Kiecolt-Glaser, & Glaser, 1988), raised academic performance (Pennebaker & Francis, 1996), and a decreased number of visits to the doctor (Pennebaker & Beall, 1986; Pennebaker, Colder, & Sharp, 1990). Expressive writing may improve both physical and psychological health because it allows people to construct coherent narratives of their experiences. The formation of a coherent narrative may assist people in regulating and understanding their emotions (Klein & Boals, 2001), presumably due to the use of causal words (e.g., *reason*, *because*, etc.) to describe the event (Pennebaker, Mayne, & Francis, 1997).

Although expressive writing is associated with long-term benefits, it is not associated with short-term affective benefits. Pizarro (2004) showed that after a negative mood induction, drawing a still life improved mood more than either drawing or writing about a past stressful event. Hemenover, Augustine, Shulman, Tran, and Barlett (2008) found that autobiographical writing in adults improves short-term mood only when the content of the writing is positive—presumably because when the content is positive, writing temporarily shifts the writer's attention to positive memories and away from the writer's negative feelings.

A direct comparison of the short-term mood benefits of drawing versus writing revealed that drawing is more effective than writing in reducing an induced negative mood (Drake, Coleman, & Winner, 2011). However, both writing and drawing worked best when participants reported using the activity to distract themselves from their negative

feelings rather than using the activity to express their negative feelings.

In the study reported here, we pushed the comparison between writing and drawing a step further by introducing the factor of preference. Might it be that those who prefer to draw will show the greatest mood improvement from drawing, and those who prefer to write will show the greatest mood improvement from writing?

Self-selected activities are more likely to improve mood than activities that are imposed, perhaps because chosen activities result in greater absorption and thus take us away from negative affect (Harris, 1989). In contrast, during imposed activities we may lose concentration, allowing us to refocus on our negative feelings.

Research examining the affective and cognitive benefits of activities that are self-selected supports this hypothesis. How much we value self-selected activities and our perception of control is closely linked to life satisfaction (Verme, 2009). Those who perceive control as being due to internal factors (effort/skill) versus external factors (fate) have greater life satisfaction, are happier, and value freedom of choice more. Having the opportunity to make a choice is also highly desirable (Leotti & Delgado, 2011). Adults prefer having a choice and the anticipation of making a choice is associated with increased brain activation in the ventral striatum, an area involved in affective and motivational processes. When given the autonomy to select a task rather than having one imposed on them, adults' performance on a subsequent cognitive task improved more (Nantais & Schellenberg, 1999); level of performance on a spatial task was affected by whether the task followed a participant's preferred or non-preferred activity (listening to music or a story). Performance was higher after the preferred activity, possibly due to greater mood elevation following the person's preferred activity, which in turn boosted cognitive performance.

The subjective experience of an activity is also higher when the activity is self-selected rather than imposed. Cassidy and McDonald (2009) found that adults who listened to a self-selected piece of music while playing a video game enjoyed and liked the game more, rated themselves as less distracted, and experienced a greater reduction in feelings of tension and anxiety. Given that self-selected activities are more rewarding and lead to a greater subjective experience, it seems plausible that self-selected activities would improve mood more than imposed activities. Thus, we conducted a pilot study to investigate this question further.

In the study reported here, we asked participants to indicate whether they would prefer to write or draw if they were feeling upset and asked them questions about the frequency with which they engaged in these activities and how competent they felt engaging in each. After inducing a sad mood, we then randomly assigned participants to their preferred or non-preferred activity. We measured positive and negative affect before and after the activity and asked participants to report on whether they used the activity to express their feelings or distract themselves from their negative feelings.

We hypothesized that mood improvement would be a function of the preferred activity, the activity that was most frequently engaged in, and the activity that elicited the

greatest perceived competence. Consistent with previous research we hypothesized that mood would improve most for participants who engaged both in writing and in drawing when the activity was used to distract rather than express.

## Method

### Participants

Eighty undergraduates (62 women, 18 men) ranging in age from 18 to 22 ( $M = 18.8$ ,  $SD = 0.9$ ) were recruited and received credit for their participation as part of an undergraduate course. The sample was 67.5% Caucasian, 18.8% Asian, 3.8% Hispanic/Latino, 3.8% Biracial, 2.5% Black or African American, 1.2% American Indian/Alaskan Native, 1.2% Native Hawaiian/Pacific Islander, and 1.2% Other.

### Materials

**Experience Questionnaire.** Participants completed a questionnaire that assessed their perceived ability, experience with, and preference for both drawing and writing. Participants were asked to indicate how frequently they draw and how frequently they write in a journal in their free time on a 6-point scale. Participants' drawing and writing frequencies were coded on a scale from 0–5, with 0 = *never*; 1 = *rarely, almost never, about once/year*; 2 = *occasionally, 1–2 times per month or every few months, doodling sometimes*; 3 = *often, about once/week*; 4 = *multiple times/week*; and 5 = *every day*. They were also asked to rate their drawing and writing abilities on a 5-point scale, with 1 indicating *very poor* and 5 *very good*. Finally, participants were then asked: "If you were feeling upset, would you prefer to draw or to write in a journal to help you feel better?"

**Mood Induction.** To induce a negative mood, we showed participants a 6-minute clip from the movie *The Laramie Project*, a documentary about the murder of a young man who was tortured and killed for being openly gay. In the clip, the young man's father speaks at the sentencing of his son's murderer, describing his son's death, the publicity that surrounded it, and the family's opinion of the death penalty. Previous research has found this film effective in eliciting a negative mood (Goldstein, 2009). To ensure that the video clip induced a sad mood, we asked four pilot participants to rate how sad the film clip was on a 7-point scale with 1 indicating a low degree and 7 indicating a high degree of sadness. The pilot participants rated the film clip as sad ( $M = 5.25$ ;  $SD = 0.96$ ).

**Activity.** Participants were randomly assigned to one of two conditions: prefer or non-prefer, with 40 in each condition and no difference in gender distribution between conditions, ( $\chi^2 = 0.29$ ,  $p = .582$ ). In the prefer condition, participants were given 10 minutes to engage in their preferred activity (writing or drawing); in the non-prefer condition, participants were given 10 minutes to engage in their non-preferred activity. Instructions were: "Use the next 10 minutes to draw/write whatever you like." All were given a

set of colored pencils and a blue ink pen. A 9" × 11" sheet of blank white paper was given to those who drew, and a 9" × 11" sheet of white lined paper was given to those who wrote.

**Positive and Negative Affect Schedule (PANAS).** To measure affect, we administered the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen 1988). The PANAS contains 20 words (10 positive and 10 negative) that describe different feelings and emotions (e.g., *interested, excited, distressed, upset*). Participants were asked to indicate, for each word, the extent to which they were feeling that emotion on a 5-point scale ranging from 1 (*very slightly or not at all*) to 5 (*extremely*). The PANAS yields a global score for positive affect and negative affect (positive affect  $\alpha = 0.85$  and negative affect  $\alpha = 0.81$ ). The measure has been shown to have high internal consistency among African Americans, positive affect  $\alpha = 0.88$  and negative affect  $\alpha = 0.87$  (Merz et al., 2013).

**Strategy Questionnaire.** To assess the strategy participants thought they had used, at the end of the session we asked them to indicate which function the task served for them: "It helped me vent my feelings"; "It helped me to think about things other than the sad event"; or "Other—specify." Participants were allowed to select more than one response. Participants who selected both vent (expression) and think about other things (distraction) were excluded from the analysis that assessed emotion regulation strategy ( $n = 10$ ). Two experimenters independently categorized the "Other" responses as either using the activity as a form of expression or distraction,  $k = 1.0$ . After excluding those who selected both, 70 participants remained.

## Procedure

The Boston College Institutional Review Board approved the study and all participants provided informed consent. Participants were seen individually in a private room. Participants first completed the experience questionnaire, followed by the PANAS (Time 1). Next they watched the mood induction film clip and completed the PANAS again (Time 2). They then carried out the activity in their assigned condition. Next they completed the PANAS a final time (Time 3). Finally, they completed the strategy questionnaire.

## Results

### Mood Manipulation

**Positive Affect.** Table 1 presents mean positive affect scores for Time 1, Time 2, and Time 3 by preference and activity. To determine the effectiveness of the film clip in inducing a negative mood, a repeated measures ANOVA with preference (2) and activity (2) as the between-subjects factor and time (Time 1 and Time 2) as the repeated measures factor was performed on positive affect. There was an effect of time,  $F(1, 76) = 7.01$ ,  $MSE = 13.44$ ,  $p = .010$ ,  $\eta_p^2 = .08$ : positive affect decreased from Time 1 to Time 2, reflecting the effect of the mood induction. There was no

**Table 1** Positive Affect for Time 1, Time 2, and Time 3 by Preference and Activity

Condition	$n^a$	Time 1		Time 2		Time 3	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Write total	40	25.58	5.17	22.69	5.27	24.95	5.48
Prefer	28	25.89	4.96	23.39	5.00	25.78	5.75
Non-prefer	12	24.50	5.74	21.04	5.72	23.00	4.41
Draw total	40	23.65	6.42	23.20	6.32	24.25	8.15
Prefer	12	25.17	5.15	25.00	5.91	26.83	7.94
Non-prefer	28	23.00	6.87	22.43	6.43	23.14	8.12

<sup>a</sup>Participants were randomly assigned to prefer or non-prefer conditions. It is a coincidence that an equal number of subjects ended up in the writing activity and in the drawing activity.

effect of preference,  $F(1, 76) = 2.79$ ,  $p = .099$ ,  $\eta_p^2 = .04$ , or activity,  $F(1, 76) = 0.02$ ,  $p = .880$ ,  $\eta_p^2 < .01$ , and no interaction between preference and activity,  $F(1, 76) = 0.04$ ,  $p = .845$ ,  $\eta_p^2 < .01$ .

There was a significant interaction between activity and time,  $F(1, 76) = 4.53$ ,  $p = .043$ ,  $\eta_p^2 = .05$ . A paired sample  $t$  test showed that positive affect decreased from Time 1 to Time 2 for the writing condition,  $t(39) = 3.14$ ,  $p = .003$ ,  $d = 0.53$ , but not for the drawing condition,  $t(39) = .62$ ,  $p = .539$ ,  $d = 0.07$ . Thus in subsequent analyses we controlled for Time 2 positive affect.

**Negative Affect.** Table 2 presents mean negative affect scores for Time 1, Time 2, and Time 3 by preference and activity. To determine the effectiveness of the film clip in inducing a sad mood, a repeated measures ANOVA with preference (2) and activity (2) as the between-subjects factor and time (Time 1 and Time 2) as the repeated measures factor was performed on negative affect. There was an effect of time,  $F(1, 76) = 52.06$ ,  $MSE = 7.73$ ,  $p < .001$ ,  $\eta_p^2 = .41$ : negative affect increased from Time 1 to Time 2. There was no effect of preference,  $F(1, 76) = 3.1$ ,  $p = .082$ ,  $\eta_p^2 = .04$ , or activity,  $F(1, 76) = 0.52$ ,  $p = .475$ ,  $\eta_p^2 < .01$ , and no interaction between preference and activity,  $F(1, 76) = 0.09$ ,  $p = .763$ ,  $\eta_p^2 < .01$ .

**Table 2** Negative Affect for Time 1, Time 2, and Time 3 by Preference and Activity

Condition	$n^a$	Time 1		Time 2		Time 3	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Write total	40	12.73	3.54	16.30	5.02	14.00	5.33
Prefer	28	12.82	3.02	17.29	5.50	14.54	5.86
Non-prefer	12	12.50	4.70	14.00	2.66	12.75	3.77
Draw Total	40	12.78	3.08	16.25	4.65	12.45	3.48
Prefer	12	12.83	3.64	18.00	5.82	12.50	2.88
Non-prefer	28	12.75	2.88	15.50	3.93	12.43	3.76

There was a significant interaction between condition and time,  $F(1, 76) = 7.97, p = .006, \eta_p^2 = .10$ . A one-way ANOVA revealed that there was no difference in negative affect at Time 1 between prefer and non-prefer conditions,  $F(1, 78) = 0.03, p = .866, d = 0.04$ . However, a one-way ANOVA revealed that the prefer condition experienced more negative affect at Time 2 than the non-prefer condition,  $F(1, 78) = 5.49, p = .022, d = 0.52$ . Thus in subsequent analyses we controlled for Time 2 negative affect.

It should be noted that the analysis was also run with gender as a covariate. Because there was no effect of gender, gender was not included in subsequent analyses.

### Effects of Drawing and Writing on Mood

**Positive Affect.** A preference (2)  $\times$  activity (2) univariate ANCOVA, with Time 2 positive affect as the covariate, was performed on Time 3 positive affect (Figure 1). The higher the resulting number, the more positive was the affect experienced at Time 3. There was no effect of preference,  $F(1, 75) = 0.97, p = .328, \eta_p^2 = .01$ , no effect of activity,  $F(1, 75) = 0.26, p = .614, \eta_p^2 < .01$ , and no interaction between preference and activity,  $F(1, 75) = 0.09, p = .768, \eta_p^2 < .01$ .

**Negative Affect.** A preference (2)  $\times$  activity (2) univariate ANCOVA, with Time 2 negative affect as the covariate, was performed on Time 3 negative affect (Figure 2). The higher the resulting number, the more negative was the affect experienced at Time 3. There was an effect of activity,  $F(1, 75) = 5.61, p = .020, \eta_p^2 = .07$ : those in the drawing activity experienced lower negative affect at Time 3 than those in the writing activity. There was no effect of preference,  $F(1, 75) = 1.41, p = .239, \eta_p^2 = .02$ , and no interaction between preference and activity,  $F(1, 75) = 0.55, p = .461, \eta_p^2 = .01$ .

### Abilities and Frequencies

Participants were asked to rate their perceived competence level for both writing and drawing in order to determine whether perceived competence affected their mood after engaging in these activities. It was expected that greater feelings of competence would be associated with greater mood improvement. It was also expected that activities engaged in more frequently would be more effective at elevating mood because one is likely to choose to engage in activities that have such an effect. Regression analyses were conducted separately for the drawing and writing conditions.

**Drawing.** Perceived drawing ability and drawing frequency were regressed onto positive and negative affect at Time 3 for those who performed the drawing activity. Contrary to expectation, perceived drawing ability and frequency predicted neither the positive nor negative affect,  $R^2 = .04, p = .521$ , and  $R^2 = .08, p = .247$ , respectively.

**Writing.** Perceived writing ability and writing frequency were regressed onto positive and negative affect at Time 3 for those who performed the writing activity.

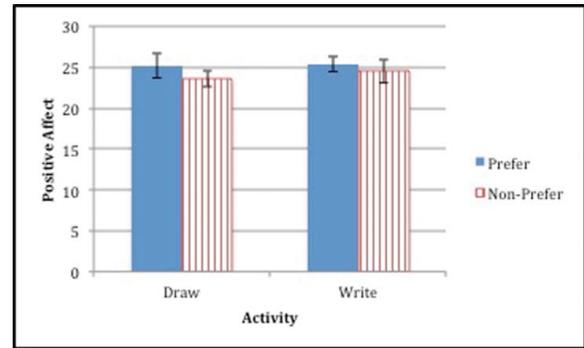


Figure 1. Positive Affect at Time 3 Controlling for Time 2 by Preference and Activity

Contrary to expectation, perceived writing ability and frequency predicted neither the positive nor negative affect at Time 3,  $R^2 = .07, p = .347$ , and  $R^2 = .01, p = .848$ , respectively.

### Strategy Evaluation

A chi-square test revealed that participants were more likely to express their feelings in the writing condition and distract themselves from their feelings in the drawing condition,  $\chi^2 = 9.79, p = .002$  (Figure 3). When writing (whether writing was the preferred activity or not), 71% of participants reported using writing to express their feelings and only 29% reported using the activity to distract themselves. When drawing (again whether drawing was the preferred activity or not), only 33.3% of participants reported using drawing to express their feelings, whereas 66.7% reported using the activity to distract themselves.

### Effects of Expression Versus Distraction on Positive and Negative Affect

To examine the effect of strategy and activity on mood, we next conducted an activity (2)  $\times$  strategy (2) univariate

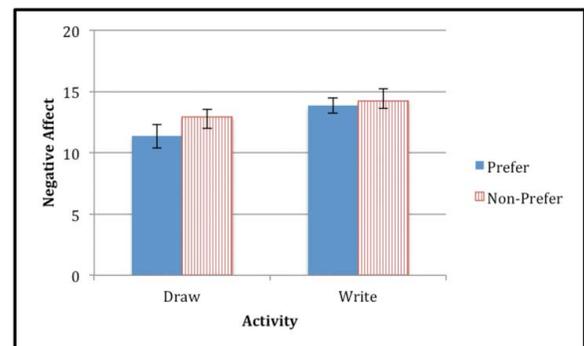


Figure 2. Negative Affect at Time 3 Controlling for Time 2 by Preference and Activity

ANOVA on Time 3 positive affect while controlling for Time 2 positive affect. This same analysis was also performed with Time 3 negative affect as the dependent variable.

**Positive Affect.** Figure 4 presents Time 3 positive affect controlling for Time 2 positive affect by activity and strategy. The higher the resulting number the more positive was the affect experienced at Time 3. There was neither an effect of activity,  $F(1, 65) = 1.96, p = .166, \eta_p^2 = .03$ , nor strategy,  $F(1, 65) = 0.29, p = .591, \eta_p^2 < .01$ . However, activity interacted with strategy,  $F(1, 65) = 4.13, p = .046, \eta_p^2 = .06$ : after drawing, Time 3 positive affect (controlling for Time 2) was greater for those who used drawing to distract than for those who used it to express,  $F(1, 36) = 4.29, p = .045, d = 0.11$ . However, strategy did not affect Time 3 positive affect for those who engaged in writing (controlling for Time 2),  $F(1, 28) = 1.72, p = .200, d = 0.06$ .

**Negative Affect.** Figure 5 presents Time 3 negative affect controlling for Time 2 negative affect by activity and strategy. The higher the resulting number the more negative was the affect experienced at Time 3. There was neither an effect of activity,  $F(1, 65) = 0.95, p = .335, \eta_p^2 = .01$ , nor strategy,  $F(1, 65) = 0.43, p = .513, \eta_p^2 < .01$ , and no interaction between activity and strategy,  $F(1, 65) = 0.99, p = .325, \eta_p^2 = .02$ .

### Discussion

Is drawing a better agent of immediate mood repair than writing, or is the answer a matter of individual preference? Consistent with previous research (Drake et al., 2011; Pizarro, 2004), our pilot study showed drawing to be a more effective short-term mood elevator than writing. We also found that mood improvement was not a function of preference: those who engaged in their preferred activity did not have greater mood improvement than those who engaged in their non-preferred activity. This is contrary to previous research showing affective and cognitive benefits of performing activities that are self-selected (Cassidy & McDonald, 2009; Leotti & Delgado, 2011; Nantais & Schellenberg, 1999; Verme, 2009).

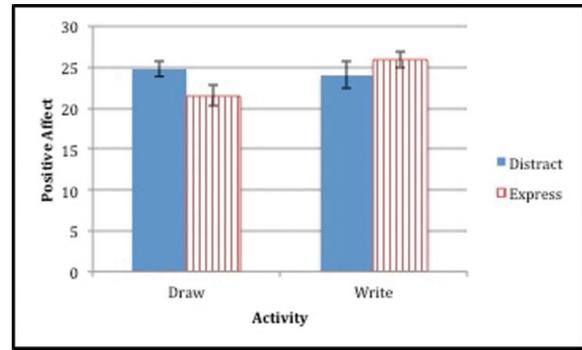


Figure 4. Positive Affect at Time 3 Controlling for Time 2 by Activity and Strategy

We also found that drawing was more effective than writing for regulating negative but not positive affect. As suggested by Lyubomirsky, Sousa, and Dickerhoof (2006), expressive writing may allow individuals to integrate and analyze negative experiences but this analysis may be “incompatible” with increasing positive affect. Previous research has also shown that drawing is more effective in decreasing negative affect than increasing positive affect (Drake & Winner, 2012). However, this may be due to the nature of the mood induction task. When the mood induction involved an impersonal event (such as watching a film clip), drawing decreased negative affect but did not increase positive affect. However, when the mood induction involved a personal event (such as reexperiencing a sad event), drawing decreased negative affect and increased positive affect. Future research should continue to compare drawing and writing to determine whether there are differences in the emotion regulation functions served by these two creative activities.

It is possible that the lack of the activities’ effect on positive affect was due to the mood manipulation (Time 2): the film clip lowered positive affect in the writing but not in the drawing condition. However, we did control for Time 2 positive affect in all analyses, and thus we do not

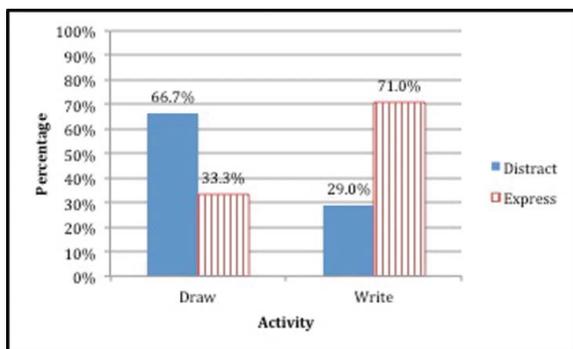


Figure 3. Percentage of Participants Engaging in Distraction or Expression

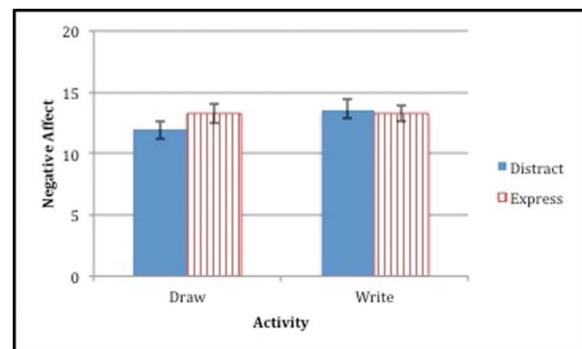


Figure 5. Negative Affect at Time 3 Controlling for Time 2 by Activity and Strategy

think that results were influenced by the lowered positive affect in the writing condition.

Mood improvement was unrelated to how frequently participants engaged in the activity and unrelated to their perceived competence with the activity. This is important because it demonstrates that the emotion regulation benefits of the arts are available to all, not just to those who feel particularly familiar with or competent at an artistic behavior. This conclusion is consistent with the findings of De Petrillo and Winner (2005) who reported that participants in their study who were not art students improved their mood as a function of drawing just as much as did art students.

Drawing and writing afford the use of different emotion regulation strategies. Drawing afforded distraction most often, whereas writing led participants to express. Why should this be? We suggest that it is more inviting to express one's feelings in words than in images. Writing allows us to integrate and analyze our thoughts (Lyubomirsky et al., 2006), which may then permit us to let go and move beyond our negative emotions (Pennebaker & Francis, 1996). In short, writing about one's feelings is a task that many people know how to do; conveying feelings through images may be more challenging. In addition, drawing allows for distraction due to the immediately engaging aesthetic properties of color and line. Perhaps if we had asked participants to complete a piece of literary writing (a poem, a short story), they would have focused on the aesthetic properties of words—their alliterative or rhyming or evocative properties—and would have become distracted from their feelings through this focus.

Positive affect change from drawing (but not writing) was affected by the emotion regulation strategy used. Drawing was significantly more effective in increasing positive affect when used as a form of distraction. However, although writing improved positive affect more when used to express than to distract, this difference did not reach significance.

Although it is becoming clear that drawing is a more effective tool in repairing mood than writing, at least in the short term (Drake et al., 2011; Pizarro, 2004), research has not yet demonstrated conclusively why this is so. To do so we must randomly assign participants to use drawing and writing as forms of expression and as forms of distraction. Pizarro (2004) did assign participants to an expressive writing condition (in addition to an expressive drawing condition and a distraction drawing condition), but there was no distraction writing condition. A direct comparison of the effectiveness of expression versus distraction for both drawing and writing would provide a test of the hypothesis that drawing is more effective than writing because drawing affords distraction more invitingly than does writing.

A second important avenue for future research would be to examine the role of emotion regulation style by studying individuals' preferred emotion regulation strategies and how well they monitor and label their emotions. Research has shown that individuals' expectancies of mood improvement success are related to their monitoring and labeling of emotions: those who attend to and have a greater

understanding of their affect report greater mood improvement (Hemenover et al., 2008).

In conclusion, this pilot study demonstrated that drawing improves mood more powerfully than does writing in the short term. The affective benefits of drawing are unrelated to whether an individual expresses a preference for drawing or writing, independent of the frequency of engaging in these activities, and independent of the individual's perceived competence at the activity. Furthermore, individuals are more likely to use drawing as a vehicle for distraction, and to use writing as a means of expression. Future research should continue to compare the affective benefits of drawing and writing in the short term and to extend this research in comparison to the long-term benefits of these two activities.

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