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Coloring Versus Drawing: Effects of Cognitive Demand on Mood Repair, Flow, and Enjoyment

Jennifer Forkosh and Jennifer E. Drake

Abstract

We examined whether using drawing to distract, by either coloring a design or drawing a design, improves mood more than drawing to express feelings. We manipulated levels of cognitive demand in the first 2 conditions by asking participants to color a design (low cognitive demand) or draw a design (high cognitive demand). After a sad mood induction, we randomly assigned 70 participants to coloring, drawing, or drawing to express thoughts and feelings. Affect was measured before and after the mood induction and after drawing. Participants also reported on their level of enjoyment and flow when drawing. Both distraction conditions, regardless of level of cognitive demand, improved affect. Whereas those in both the coloring and drawing conditions enjoyed the activity more than the drawing to express condition, only the coloring condition resulted in greater states of flow.

Much research has been devoted to studying the ways in which we regulate our emotions (Buss, 2000; Larsen, 2000). When confronted with emotionally arousing situations, a person must learn to monitor, evaluate, and modify emotional reactions, thereby regulating positive and negative emotions (Gross, 1998). Many strategies have been proposed (Larsen, Billings, & Cutler, 1996), and one activity for regulating emotions is drawing. Drawing has been shown to reduce sadness (Dalebroux, Goldstein, & Winner, 2008; Drake & Winner, 2012; Pizarro, 2004; van der Venet & Serice, 2012) and anger in adults (Diliberto-Macaluso & Stubblefield, 2015). This research has shown that drawing improves mood more when used to distract rather than express negative thoughts and feelings. Yet it is unclear why using drawing to distract from negative thoughts and feelings results in greater mood improvement. In this study we examined possible reasons why using drawing to distract improves mood.

Drawing has been shown to be beneficial outside of an art therapy setting. In one of the first experimental studies

examining the short-term emotion regulation benefits of drawing, participants viewed images of tragic events and then were randomly assigned to draw, copy shapes, or complete a word puzzle (DePetrillo & Winner, 2005). Mood was measured before and after the activity. The copy shapes condition allowed the researchers to determine whether the motor act of making marks on paper would improve mood, whereas the puzzle condition allowed them to determine whether a nondrawing task that was also fun and engaging would improve mood just as well as drawing. The researchers found that drawing improved mood more than both copying shapes and completing a word puzzle. They argued that the act of creating something resulted in greater mood improvement.

Subsequent research has compared the use of different emotion regulation strategies when drawing. Artists have talked about art both as a way to reflect on and express emotions (express) and as a way to turn away from their emotions (distract). Picasso described the act of painting as a way to express: “Painting is just another way of keeping a diary” (Brainy Quote, 2016). Artists have created self-portraits as a way to express and process their emotions (Alter-Muri, 2007). As argued by Alter-Muri (2007), creating a self-portrait allows an individual to experience and acknowledge emotions and then gain distance from the emotions. In contrast, Renoir described art as a way to distract. He stated, “For me, painting is a way to forget life” (Brainy Quote, 2016). Research has compared the short-term benefits of using drawing as a way to express and as a way to distract. This research has consistently found that drawing improves mood more when used as a way to distract rather than as a way to express (Dalebroux et al., 2008; Diliberto-Macaluso & Stubblefield, 2015; Drake & Winner, 2012; Pizarro, 2004).

Dalebroux et al. (2008) found that drawing something happy improved mood more than expressing negative feelings or scanning a sheet of symbols (the control condition). Drake and Winner (2012) showed that the content of the drawing does not need to be positive for drawing to result in mood improvement. They found that drawing a neutral image improved mood more than expressing negative feelings in a drawing. Finally, Diliberto-Macaluso and Stubblefield (2015) directly compared the emotion regulation benefits of painting something positive versus something neutral. After a negative mood induction intended to induce anger, participants were randomly assigned to one of four conditions: paint something that made them happy (positive condition), paint a still life (neutral condition),

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express their feelings (express condition), or complete a word puzzle (control condition). Whereas both the positive and neutral conditions improved mood more than the express and control conditions, there was no difference between the positive and neutral conditions. This further demonstrates that the content of the drawing (or painting) does not need to be positive for mood benefits to occur.

The benefits of drawing also extend to coloring. Curry and Kasser (2005) examined the benefits of coloring for reducing anxiety. After a mood induction intended to induce anxiety, participants were instructed to color a pre-drawn mandala design (i.e., a circular, symmetrical figure), color a plaid design, or draw (with no instructions provided on what to draw). Both coloring conditions reduced anxiety more than the drawing condition. In a follow-up study, van der Venet and Serice (2012) sought to replicate these findings. After an anxiety-inducing mood induction, participants were again instructed to color a pre-drawn mandala, color a plaid design, or draw. Contrary to the findings by Curry and Kasser (2005), the mandala and not the plaid design improved mood more than the drawing condition. The authors suggested that this might be due to the circular nature of the mandala design, which they argued is inherently meditative. However, in both studies, participants in the drawing conditions were given no instructions on what to draw. It is unclear whether the participants used drawing to distract or express their feelings. It is also unknown whether the benefits of coloring extend to regulating sadness and whether coloring is more beneficial in regulating emotions than using drawing to distract.

Why might using drawing to distract improve mood? One possible explanation is that using drawing to distract from a negative mood is cognitively demanding (van Dillen & Koole, 2007). In the studies comparing distraction and expression, participants in the distract conditions were asked to create images that were incongruent with the negative mood induction. Tasks that are cognitively demanding load our working memory and prevent mood-congruent processing (van Dillen & Koole, 2007). Participants in the distract condition were not focused on the negative content of the mood induction (a congruent mood) but were shifting their attention away from the negative content (an incongruent mood).

Difficult tasks have been shown to improve mood more than easy ones because they allow fewer mood-related thoughts (Erber & Tesser, 1992). Working on a complex math problem improved mood more than working on a simple math problem and also more than working on no math problem at all (van Dillen & Koole, 2007). Viewing humorous stimuli high in cognitive demand improved mood more than viewing equally positive nonhumorous stimuli low in cognitive demand (Strick, Holland, van Baaren, & van Knippenberg, 2009). Playing a complex computer game reduced negative mood more than playing a simple computer game (Bowman & Tamborini, 2012). A distracting task is effective not simply because it causes a person to turn away from negative feelings, but also because it requires attention to something else (van Dillen & Koole, 2007). When engaging in a task low in cognitive demand,

we can rely on habitual processes, deploy minimal effort, and readily shift attention back to negative thoughts. However, when engaging in a demanding task, we cannot rely on habitual processes and must focus on the task at hand. Thus, a demanding task shifts our attention away from negative thoughts and feelings (Kanske, Heissler, Schönfelder, Bongers, & Wessa, 2011).

Tasks that are too demanding or challenging can have counterproductive results: Difficult tasks can lead to frustration, thereby having damaging effects on mood improvement (Bowman & Tamborini, 2012). When individuals are engaged in tasks with an optimal level of challenge (or cognitive demand), they become absorbed and experience states of flow (Csikszentmihalyi & Csikszentmihalyi, 2000). Flow occurs when a person is deeply absorbed in an activity. When experiencing flow, one can pursue goals free of worry. In states of flow, one is immersed in an activity that brings joy and this can lead to peak performance (Jackson & Marsh, 1996). A person can experience flow in a wide range of activities from playing sports (Jackson, Kimiecik, Ford, & Marsh, 1998) to gardening (Pitt, 2014). Drawing might be an activity that results in states of flow.

In our study, we asked whether using drawing to distract improves mood because it is cognitively demanding and whether using drawing to distract results in greater states of flow. Drawing is a cognitively demanding task (Kozbelt, 2001) that requires envisioning and planning, and then translating what is envisioned onto a two-dimensional surface. Drawing always involves abstraction for the simple reason that one cannot copy all of the information from an actual object or event onto a small, flat page. Finally, drawing requires visual analysis of what is to be drawn. We manipulated cognitive demand by asking participants to color a design (low cognitive demand) or draw a design (high cognitive demand). Unlike drawing, coloring does not involve analysis of what is to be drawn or abstraction of essential features to be included in the drawing. Hence, coloring in something that is pre-drawn is lower in cognitive demand than creating a drawing.

After a sad mood induction, we asked participants to color a design, draw a design, or express their thoughts and feelings. We measured positive affect and negative affect before and after the mood induction and after the drawing activity. The coloring and drawing conditions allowed us to compare the benefits of two distraction tasks that varied in the level of cognitive demand. The drawing to express condition was intended as a control condition. To measure flow, we asked participants to complete a questionnaire that assessed their degree of engagement in the drawing activity.

We hypothesized that both distraction tasks (coloring and drawing) would result in greater mood improvement than the expressing condition. Based on previous research demonstrating the benefits of engaging in cognitively demanding activities, we hypothesized that the drawing condition (high cognitive demand) would result in greater mood improvement and flow than the coloring condition (low cognitive demand). Finally, we hypothesized that the draw-distract condition would result in greater enjoyment and states of flow than the color-distract condition. Our

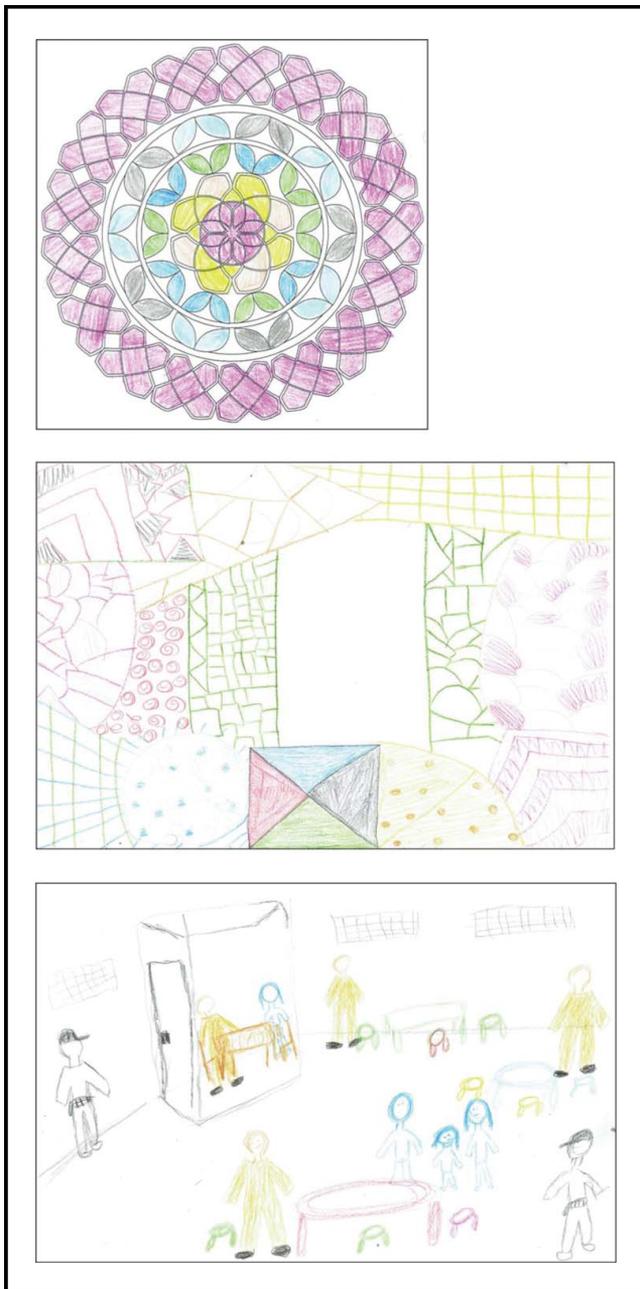


Figure 1. Examples From the Coloring (top), Drawing (middle), and Drawing to Express (bottom) Conditions

reasoning was that because drawing is more cognitively demanding, it would result in a greater balance of challenge and skill and thereby a greater state of flow.

Method

Participants

Seventy undergraduates (49 women, 21 men) ranging in age from 18 to 46 ($M = 21.7$, $SD = 5.4$) were recruited and were given one research credit for participation as part of a course requirement. The sample was 41.4% White, 18.6% Asian, 17.1% Black or African American, 12.9%

Hispanic or Latino, 5.7% biracial, 2.9% other, and 1.4% Native Hawaiian or Pacific Islander. Twenty-three participants stated that they had taken formal visual arts lessons ($M = 0.7$ years, $SD = 1.6$ years) and 3 (4.3%) identified themselves as art majors. The college’s institutional review board approved the study and all participants provided written informed consent.

Materials and Measures

Mood Induction. To induce a negative mood, we asked participants to think of the saddest event that had ever happened to them and to record on a sheet of paper a short description of the event. Participants were then guided through a 3-min visual imagery task developed by Rusting and Nolen-Hoeksema (1998) that asked them to focus on the sights, sounds, thoughts, and feelings evoked by the sad event they recalled.

Activity. Participants were randomly assigned to one of three conditions: coloring, drawing a design, or drawing to express the sad event. There were no differences in sex across conditions, $\chi^2 = .012$, $p = .994$. All participants were given a set of colored pencils and a 9” × 11” blank sheet of white paper in the draw and express conditions and a sheet of white paper with a predrawn mandala printed on the paper in the color condition. Those in the color condition were instructed as follows: “You will have 15 minutes to color in as much of the design as the time allows, using these colored pencils. You will use the full 15 minutes to color.” Those in the draw condition were instructed as follows: “You will have 15 minutes to draw a design on this piece of paper with these colored pencils. This design has to be nonrepresentational. It will be made up of lines, shapes, and colors. No people, places, or things. You will use the full 15 minutes to draw.” Those in the express condition were instructed as follows: “You will have 15 minutes to use these colored pencils to draw about the sad event that you have just recalled. You will use the full 15 minutes to draw.” Figure 1 presents images from the three conditions.

Positive and Negative Affect Schedule. To measure affect, we administered the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1998). 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 they were feeling that emotion on a 5-point scale from 1 to 5 with 1 being *very slightly* or *not at all* and 5 being *extremely*. The PANAS measures positive affect and negative affect as two independent variables (Watson et al., 1988). Participants completed the PANAS before (Time 1) and after the mood induction (Time 2) and after drawing (Time 3). Cronbach’s alpha for this measure was as follows: positive affect Time 1 $\alpha = .91$, positive affect Time 2 $\alpha = .90$, positive affect Time 3 $\alpha = .90$, negative affect Time 1 $\alpha = .80$, negative affect Time 2 $\alpha = .79$, and negative affect Time 3 $\alpha = .84$.

Enjoyment Scale. Participants were asked to rate how much they enjoyed the drawing activity on a 5-point scale

ranging from 1 to 5 from *really didn't* to *really did*. This measure was developed for this study.

Flow State Scale. To measure the level of flow participants experienced during the drawing activity, we administered the Flow State Scale (Jackson & Marsh, 1996). Participants were presented with 36 statements and were instructed to think about how often they experienced each of the statements during the activity (e.g., "I was not concerned with what others may have been thinking of me"). They were asked to rate how much they experienced each statement during the drawing activity on a 5-point scale ranging from 1 to 5 from *never* to *always*. An overall flow score was computed and Cronbach's alpha for the overall flow score was $\alpha = .88$.

Procedure

Participants were tested individually in a private room. First, they completed the PANAS (Time 1). Next, they were asked to think of the saddest event they had ever experienced and were guided through the 3-min visual imagery task. After the mood induction, participants completed the PANAS a second time (Time 2). They then carried out the activity in their assigned condition and afterward filled out the PANAS (Time 3) once more. Participants were next asked to rate how much they enjoyed the activity and to fill out the Flow State Scale. Finally, participants were provided a debriefing form with the principal investigator's contact information. Because they were asked to think about a sad life event, we also provided information on how to contact the college counseling services if they were distressed as a result of participation.

Results

Preliminary Results

Table 1 presents the means and standard deviations for positive affect and negative affect at Time 1, Time 2, and Time 3 by condition. Participants in the three conditions had equivalent positive affect and negative

Table 1. Means and Standard Deviations for Positive Affect and Negative Affect at Time 1, Time 2, and Time 3 by Condition

	<i>n</i>	Time 1		Time 2		Time 3	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Positive affect							
Color	23	26.6	8.9	17.2	6.0	24.7	8.7
Draw	24	26.1	9.0	20.0	8.2	25.4	8.3
Express	23	27.5	8.4	18.7	7.4	20.7	6.9
Negative affect							
Color	23	13.7	3.9	21.2	7.1	11.1	2.3
Draw	24	15.2	5.1	23.2	7.0	12.8	3.8
Express	23	14.1	4.7	21.2	6.8	14.7	6.2

affect scores prior to the mood induction and after the mood induction. A one-way analysis of variance (ANOVA) by condition at Time 1 revealed no differences across conditions for positive affect, $F(2, 67) = 0.145$, $p = .865$, $n_p^2 = .004$, and negative affect, $F(2, 67) = 0.685$, $p = .508$, $n_p^2 = .020$. A one-way ANOVA by condition at Time 2 also revealed no differences across conditions for positive affect, $F(2, 67) = 0.859$, $p = .428$, $n_p^2 = .025$, and negative affect, $F(2, 67) = 0.641$, $p = .530$, $n_p^2 = .019$.

Effect of Condition on Increasing Positive Affect

To compare the effectiveness of the conditions in increasing positive affect, we performed a mixed design ANOVA with condition as the between-subjects factor, and time as the repeated measures factor. There was an effect of time, $F(2, 134) = 39.551$, $p < .001$, $n_p^2 = .371$. Paired-sample t tests showed that positive affect decreased from Time 1 to Time 2, $t(69) = -8.817$, $p < .001$, $d = -1.04$; and positive affect increased from Time 2 to Time 3, $t(69) = 5.632$, $p < .001$, $d = 0.67$. There was no effect of condition, $F(2, 67) = 0.317$, $p = .729$, $n_p^2 = .009$.

More important, condition interacted with time, $F(4, 134) = 2.750$, $p = .031$, $n_p^2 = .076$ (Figure 2). To determine the source of the interaction, we performed a paired-sample t test comparing positive affect before and after the drawing activity for each condition. Because we ran three paired-sample t tests (one for each of the three conditions), a Bonferroni adjusted significance level of .02 was used ($\alpha = .05/3$ tests = .02). Positive affect increased from before to after the activity for the coloring, $t(22) = 4.662$, $p < .001$, $d = 0.95$, and drawing conditions, $t(23) = 3.665$, $p = .001$, $d = 0.73$, but not for the express condition, $t(22) = 1.496$, $p = .149$, $d = 0.31$. Our hypothesis was partially supported. Although both distraction conditions (coloring and drawing) resulted in greater improvement in positive affect than the express condition, there was no difference in positive affect improvement between the coloring and drawing conditions.

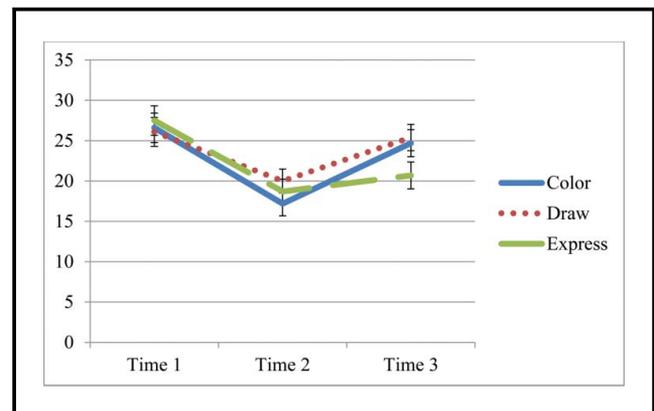


Figure 2. Positive Affect for Time 1, Time 2, and Time 3 by Condition

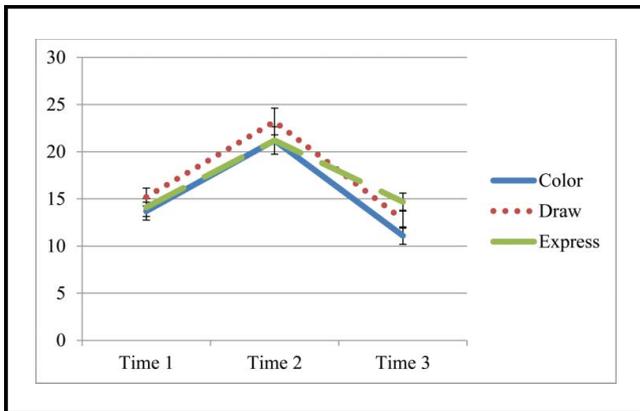


Figure 3. Negative Affect for Time 1, Time 2, and Time 3 by Condition

Effect of Condition on Decreasing Negative Affect

To compare the effectiveness of the conditions in decreasing negative affect, we performed a mixed design ANOVA with condition as the between-subjects factor and time as the repeated measures factor. There was an effect of time, $F(2, 134) = 93.528, p < .001, \eta_p^2 = .583$. Paired-sample t tests showed that negative affect increased from Time 1 to Time 2, $t(69) = 9.943, p < .001, d = 1.18$; and decreased from Time 2 to Time 3, $t(69) = -12.460, p < .001, d = -1.47$. There was no effect of condition, $F(2, 67) = 1.07, p = .350, \eta_p^2 = .031$, and no interaction of condition with time, $F(4, 134) = 1.797, p = .133, \eta_p^2 = .051$ (Figure 3).

Effect of Condition on Overall Flow and Enjoyment

Table 2 presents the means and standard deviations for enjoyment and overall flow. To determine how enjoyment and flow differed by condition, we performed a multivariate ANOVA by condition with enjoyment and flow as the dependent variables. There was a significant effect by condition for enjoyment, $F(2, 67) = 4.752, p = .012, \eta_p^2 = .124$, and overall flow, $F(2, 67) = 6.926, p = .002, \eta_p^2 = .171$. Bonferroni post-hoc tests were run to clarify the results. For enjoyment, those in the coloring and drawing conditions enjoyed the activity more than those in the drawing to express condition ($p = .037$ and $p = .022$, respectively). There was no difference in enjoyment for the

coloring and drawing conditions ($p = 1.0$). The coloring condition experienced greater overall flow than the express condition ($p = .001$). There were no differences in overall flow between coloring and drawing ($p = .167$) and drawing and express conditions ($p = .223$).

Our hypothesis was partially supported. Those in both the coloring and drawing conditions enjoyed the activity more than those in the expressing condition. However, there were no differences between the two distraction conditions—coloring and drawing. Contrary to our hypothesis, the coloring and not the drawing condition resulted in greater overall states of flow.

Discussion

The goal of this study was twofold. First, we sought to replicate previous findings that drawing activities that distract individuals from thinking about negative events lead to better immediate mood more than drawing activities that invite individuals to reflect on and express feelings about negative events. Second, we tested the hypothesis that cognitive demand is related to immediate mood improvement because it prevents the individual from reflecting about a negative event. We manipulated cognitive demand by asking participants to either color a design (low cognitive demand) or draw a design (high cognitive demand). After asking them to recall the saddest event that they had ever experienced, we randomly assigned participants to color, draw, or use drawing to express their thoughts and feelings.

Consistent with our first hypothesis, drawing to distract (color and design conditions) improved positive affect more than drawing to express. This finding replicates previous research showing that using drawing to distract from negative thoughts and feelings is an effective way to regulate emotions (Dalebroux et al., 2008; Diliberto-Macaluso & Stubblefield, 2015; Drake & Winner, 2012; Pizarro, 2004). Contrary to our second hypothesis, we did not find that cognitive demand played a role in improving positive affect. Although both the distract conditions (coloring and drawing) improved positive affect, there was no difference between the two conditions. However, both conditions improved positive affect more than the drawing to express condition, suggesting that engaging in a distracting task might lead to fewer mood-congruent thoughts and thereby result in greater mood improvement. Participants in the coloring and drawing conditions were likely focusing less on the sad event they recalled.

Table 2. Mean and Standard Deviations for Enjoyment and Overall Flow by Condition

	Color		Draw		Express		<i>F</i>	<i>p</i>	η_p^2
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Enjoyment	3.8	0.8	3.9	1.0	3.1	1.1	4.752*	.012	.124
Overall flow	33.3	5.7	29.8	6.5	26.7	5.7	6.926**	.002	.171

* $p < .05$. ** $p < .01$.

We found that coloring and drawing, regardless of condition, resulted in a decrease in negative affect; however, contrary to previous research (Drake & Winner, 2012), we did not find that drawing to distract decreased negative affect more than drawing to express. This discrepancy might be due to differences in the instructions used for each study. Drake and Winner (2012) instructed participants to draw a representational image of a house, whereas we instructed participants to draw a nonrepresentational image of a design. Participants might have felt more comfortable drawing a representational image and this might have allowed them to more easily focus their attention away from the sad event they recalled. It is also possible that drawing a house, although intended as a neutral image, conjured up positive feelings, resulting in a greater decrease in negative affect. Future research should compare the emotion regulation benefits of drawing representational versus nonrepresentational images.

Why might there be a difference in findings for positive affect and negative affect? As discussed by Watson et al. (1988), positive affect and negative affect represent two orthogonal dimensions. Positive affect measures a person's enthusiasm and alertness with high scores in positive affect reflecting "high energy, full concentration, and pleasurable engagement" and low scores reflecting "sadness and lethargy" (p. 1063). In contrast, negative affect measures a person's distress, with high scores reflecting anger, disgust, and fear and low scores reflecting "calmness and serenity" (p. 1063). Scores on positive affect and negative affect are not negatively correlated. Thus, a person could experience high positive affect (feeling energized and an engaged in an activity) without experiencing low negative affect (feeling calm and serene). In our study, those in the coloring and drawing conditions experienced more engagement in the activity than those in the drawing to express condition (as evidenced by higher positive affect scores), but all conditions experienced a feeling of calm (as evidenced by lower negative affect scores).

We extended previous work on the benefits of coloring by showing that coloring not only reduces anxiety (Curry & Kasser, 2005; van der Venet & Serice, 2012), but also improves mood. Although previous research has shown that coloring is more beneficial in reducing anxiety than drawing, we found that both coloring and drawing improved mood. Unlike previous research in which participants were not given any instructions on what to draw (and thereby could have used drawing to distract or express), we explicitly instructed participants to use drawing to distract or drawing to express and compared these with coloring. We found that both distraction tasks—coloring and drawing—were beneficial in improving mood.

Previous research has demonstrated that distraction from a negative mood can occur when individuals engage in cognitively demanding tasks. This can occur across a wide variety of activities: completing complex over simple math problems (van Dillen & Kooze, 2007), viewing complex over simple cartoons (Strick et al., 2009), and completing a complex over simple

computer game (Bowman & Tamborini, 2012). Contrary to this research and our hypothesis, we found no differences in mood improvement between the coloring (low cognitive demand) and drawing (high cognitive demand) conditions. Previous studies included the same activity (e.g., math problem) and varied the level of complexity (simple math problem vs. complex math problem). In our study, we varied task complexity (low vs. high cognitive demand) by asking participants to engage in two different types of activities (coloring vs. drawing). It is possible that different results might have been obtained if we varied task difficulty within the same activity (e.g., drawing a simple vs. complex design). Future research should examine cognitive demand in drawing by directly comparing the same activity but varying the complexity.

It is also possible that the drawing task might have been too difficult for participants. As argued by Bowman and Tamborini (2012), a task that is too challenging can be counterproductive to mood improvement. They found that a computer task that was too challenging had a negative effect on mood repair, possibly because participants felt frustrated engaging in a challenging game. Thus, an optimal level of demand must be obtained for mood improvement. When drawing a representational image, a person has a goal of what to draw and a schema for what the image looks like. The same is true for coloring a design: A person has a clear goal of coloring a premade design. When drawing a nonrepresentational image (e.g., a design), one relies less on schemas for a design and more on imagination. There might exist a level of optimal cognitive demand imposed by the drawing activity that results in the mood improvement. Perhaps generating a design was too challenging for participants.

We hypothesized that drawing a design would result in greater enjoyment and states of flow than coloring a design because the drawing task is higher in cognitive demand—this was not supported. Although participants in the coloring and drawing conditions experienced greater enjoyment than those in the drawing to express condition, only the coloring condition resulted in greater states of flow. Those in the coloring condition might have experienced greater absorption in the task because, unlike those in the drawing condition, they did not have to create the design. Different results might have been obtained with those experienced in drawing.

It is also possible that participants in the coloring condition were experiencing what Csikszentmihalyi (2000) called "microflow" or "flow hack" (Roston, 2016). Flow involves a balance between challenge and skill. Activities that are too easy lead to boredom and those that are too difficult lead to anxiety, but when a balance between challenge and skill occurs, flow occurs (Csikszentmihalyi, 2000; Csikszentmihalyi & Csikszentmihalyi, 2000). Because coloring is an activity that anyone can do, it might not necessarily elicit a balance between challenge and skill. Those in the coloring condition might have been experiencing a simulation of flow while in a relaxed state (Roston, 2016).

Implications for Art Therapy Practice and Research

Nonverbal forms of art are ways of meaning making that are different from but no less powerful than verbal ways of meaning making (Goodman, 1976). Art therapy allows individuals to express in a nonverbal way what cannot so easily be put into words. Several studies have already demonstrated the benefits of art therapy for those who have experienced an upsetting and traumatic event in reducing posttraumatic stress disorder and depressive symptoms (e.g., Campbell, Decker, Kruk, & Deaver, 2016; Pifalo, 2007). Those who are coping with a traumatic event might be unable to recall details of the event or cope with unresolved memories (Tinnin, Bills, & Gantt, 2002). Art making allows them a safe way to nonverbally express themselves and create a visual narrative of the event. This graphic depiction can allow individuals to view the experience from a distance, thereby allowing them to recall and cope with unresolved memories.

What are the benefits of using distraction forms of drawing in art therapy? An important stage of trauma treatment is stabilization, in which a person learns to regulate emotions without directly addressing the traumatic event (Steele & van der Hart, 2009). By using art making for regulating emotions, one can then address the traumatic event without being overwhelmed by emotions (Steele & van der Hart, 2009). Drawing tasks, which distract from negative affect (e.g., the coloring and drawing a design tasks used here), could be used in conjunction with trauma treatment: Patients can learn to regulate and stabilize emotions through such tasks prior to addressing trauma. In addition to stabilizing emotions, coloring can be used as a relaxation technique. For instance, our study asked participants to color a predrawn mandala, which is often used in art therapy for relaxation. Finally, distraction forms of drawing might also benefit those who are uncomfortable with drawing or who lack self-confidence in their drawing abilities. Nonartists might have difficulty expressing through drawing because of a “poor command of the medium” (Betts & Groth-Marnat, 2014, p. 279). Distraction forms of drawing might allow them to become comfortable with art media and gain self-confidence without focusing on emotions. This would make it possible to achieve a better command of media before confronting the traumatic event using art therapy.

Future research should investigate the role of the medium of art in mood improvement. According to the Medium Dimension Variables system, art materials can mediate a person’s responses to an art therapy experience (Kagin & Lusebrink, 1978). Colored pencils are considered restrictive and evoke a more cognitive response (i.e., planning the artwork), whereas paint is considered less restrictive and evokes a more affective response (i.e., expressing thoughts and feelings). In this study, we used colored pencils, which might have elicited a more cognitive response, thereby allowing participants to shift their attention away from the sad mood induction and not necessarily allowing them to express themselves. In art therapy, patients tend to gravitate toward

materials they are familiar with, such as markers, which are used from a young age. It would be interesting for future research outside an art therapy setting to examine the materials that adults select and how this might influence the content of their drawings (evoking a cognitive or affective response).

Taken together, our results demonstrate the emotion regulation benefits of coloring and drawing and suggest that their benefits occur independent of cognitive demand: Coloring a design (low cognitive demand) resulted in the same mood improvement as drawing a design (high cognitive demand). However, coloring a design resulted in greater states of flow than drawing a design for these nonartist participants. Our findings have implications for art therapy practice. Coloring is an activity that is accessible to all, regardless of artistic ability or training. It allows individuals to engage in a pleasurable activity without the pressure of being a good artist. It can be used as a way for them to gain experience working with different art media. Presumably, this could boost confidence in art making and reduce resistance to using the techniques and media of art therapy.

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