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# Rejuvenation in the “Making”: Lingering Mood Repair in Textile Handcrafters

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A variety of activities can help people improve their bad moods. We propose activities that are engaging, arousing, and associated with the mental state of flow can be particularly helpful and inspire what we call *rejuvenation*. Rejuvenation, as we conceive it, is a state of feeling restored, renewed, and ready to start anew, which continues beyond immediate participation in a mood-repair activity. To explore this model, we examined rejuvenation in a sample of 435 women, all experienced in some form of textile handcrafts. Consistent with our model, we found that textile-handcraft activities rated as rejuvenating (i.e., mixed media, surface design, quilting, weaving, spinning, and dyeing) were also rated as arousing and engaging. In fact, higher levels of arousal and higher levels of engagement were associated with higher levels of rejuvenation (hereafter termed *textile rejuvenation*). Adapting Waterman et al.’s (2003) Personally Expressive Activities Questionnaire (PEAQ), we asked each participant to specify the 1 activity she considered to be most important to her self-definition. Based on the nature of their most self-defining or *PEAQ activity*, we then categorized participants as an *art maker* or a *nonart maker*. Compared to nonart makers, women categorized as art makers (69%) reported greater rejuvenation (hereafter termed *PEAQ rejuvenation*), flow, personal expressiveness, self-realization of values, and skill and challenge during art-making. For the art-maker group, mood repair during an activity, flow, and self-realization of values predicted PEAQ rejuvenation. These outcomes could not be explained by indicators of well being, age, income, or education. A state of rejuvenation, it seems, may linger after participation in (a) textile-handcraft activities that are arousing and engaging, and (b) PEAQ activities that are high in mood repair, flow, and self-realization of values.

*Keywords:* mood repair, rejuvenation, arousal, positive mood, art-making

Each of us has experienced a terrible mood. Each of us has sought ways to improve or repair such a mood. What works to change bad moods? The literature reveals a variety of activities can help. Some help in the moment and some help beyond the longer term. We have particular interest in this last group.

In a landmark study, Thayer, Newman, and McClain (1994) examined how people used affect-regulation techniques to successfully repair negative mood. Their model was grounded in Watson and Tellegen’s (1985) two-dimensional conceptualization of mood, which incorporated affect polarity (positive and negative) and arousal or energy level (Watson & Tellegen,

1985). Thayer et al. reported that exercise, relaxation, stress management, and cognitive techniques were the most commonly used mood-regulation strategies. In 2009, Augustine and Hemenover conducted a comprehensive meta-analysis of over 1,300 published mood-repair studies. They reported that reappraisal and distraction were the most effective mood-repair strategies, and that behavioral strategies were not significantly more effective than cognitive strategies.

There is now a large body of evidence pertaining to activities that promote mood repair. Some activities, however, only promote mood repair *during* participation in the activity. We are interested in understanding activities that promote an improved mood that lingers beyond participation in the activity and those that help one create a mindset that supports the maintenance of an improved mood. We call this longer-term or lingering improved mood *rejuvenation*. Rejuvenation, thus, is a state of feeling restored, renewed, and ready to start anew which remains beyond immediate participation in a mood-repair activity. For resolving bad moods, we consider rejuvenation to be more important than immediate mood repair because of its greater scope and longer time frame. Thus, we consider mood repair and rejuvenation to be related, but distinct concepts.

A sense of rejuvenation need not be concurrent with participation in a mood-repair activity, but, once achieved, it lingers. For

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example, exercise can be uncomfortable, stressful, irritating, and strenuous, and may not lead to immediate successful mood enhancement. However, we know that exercise leads to improved mood and reduced anxiety (e.g., Berger & Owen, 1988; Berger & Motl, 2001; Ekkekakis & Petruzzello, 1999) and thus from our perspective, is rejuvenating. Some activities may promote only immediate mood repair, such as watching a movie; and certain activities may promote immediate mood repair, but are ultimately detrimental, such as getting drunk. In contrast, we are interested in activities that, like exercise, promote rejuvenation.

The purpose of our investigation was to explore the nature of art-making activities that promoted rejuvenation. We anticipated that engagement, arousal, intellectual stimulation, and flow would be critical characteristics of activities that would promote rejuvenation. We also wanted to explore how activities associated with hedonic happiness (self-realization of values) and eudemonic happiness (personal expressiveness) might be associated with rejuvenation.

First, engagement, from an organizational psychology perspective, is described as absorption, dedication and professional efficiency (Schaufeli, Bakker, & Salanova, 2006). Engagement is a positive affective state, and hence, the antipode of dissonant states such as work burnout. Research suggests that work engagement is indeed associated with better work outcomes and lower burnout (e.g., Schaufeli & Salanova, 2007) and, when coupled with leisure time activities that allow for recuperation and unwinding from work, optimal for recovery from burnout (e.g., Sonntag & Fritz, 2007). In fact, detachment (the opposite of engagement) from work is strongly associated with impaired well-being.

Second, flow describes a specific type of engagement. Flow is a mental state in which a person is fully engaged in an activity, has mastery, yet feels challenged by the activity, becomes completely absorbed, feels an energized focus, loses track of time, feels in control, and finds the activity to be intrinsically rewarding, according to Csikszentmihályi (1990). Early in his career, Csikszentmihályi examined flow in artists (Csikszentmihályi, 1965 as cited in Csikszentmihályi & Csikszentmihályi, 1988); later he studied teenagers who were talented in a variety of domains (Csikszentmihályi, Rathunde, & Whalen, 1997). Much of the subsequent research generated from this theory examined professionally trained athletes, as well as artists (e.g., Nakamura & Csikszentmihályi, 2005; Rheinberg, 2008). Across activities, Csikszentmihályi emphasized skill and mastery as essential components of flow.

In sum, higher levels of engagement are associated with higher levels of well-being and pleasure. Although, clearly, well-being and pleasure are not characteristic of being in a bad mood, we speculated that when seeking to repair bad moods, activities with higher levels of engagement would more likely lead to rejuvenation than would activities with lower levels of engagement. Recent studies support our conjecture. Griffiths (2008) reported that a variety of creative leisure activities that facilitated engagement and flow could be therapeutic. Iwasaki, Mactavish, and Mackay (2005) found that, across a variety of samples and settings, leisure activities provided positive diversion from stress and context for rejuvenation and renewal. Whereas we do not assert that all highly engaging activities that involve flow lead to mood repair, we consider engagement and flow important components to consider when selecting an activity intended to improve a bad mood.

Third, arousal is important to consider when studying mood (Feldman Barrett & Russell, 1998, 1999; Watson & Tellegen, 1985). Arousal can be thought of as a state of stimulation, energy, or activation, as opposed to a state of calm or low energy. The literature is replete with evidence that decreased arousal levels are associated with increased positive affect (Stone, Kennedy-Moore, & Neale, 1995). For example, progressive muscle relaxation (Jacobson, 1938), meditation (Grossman, Niemann, Schmidt, & Walach, 2004), and being in a natural environment (Hartig, Evans, Jamner, Davis, & Garling, 2003), are all associated with both decreased arousal levels and increased positive affect. Fredrickson (2001) suggested that positive affect generated by low-arousal techniques may reduce negative affect. Engaging in low-arousal, positive-affect-promoting activities increases physical well-being (e.g., Pressman & Cohen, 2005) and psychological health (e.g., Fredrickson & Branigan, 2005). Yet, there are also many mood-enhancing activities, such as exercising, socializing with groups of friends, engaging in sex, and venting that typically involve high levels of arousal. This suggests that higher levels of arousal might also be associated with mood repair.

How can both high and low arousal be associated with mood repair? Thayer et al. (1994) are the only investigators to date who have examined the differential use of strategies to alter energy levels (tension reduction or energy enhancement), but obtained no consistent result. Kuppens (2008) reported that there are strong individual preferences in the association with pleasant affect and high or low arousal. Thus, people tend to have unique patterns in how they pair arousal states (either low or high) with pleasant affect. For some, arousal and pleasantness are integrally related, such as a happy person who feels energized and excited. For others, joy may be accompanied by quietness, or feeling relaxed and at ease. Tsai, Knutson, and Fung (2006) have suggested that people from more individualistic cultures prefer aroused, pleasant affect, and individuals from more collectivist cultures prefer low arousal pleasant states. To our knowledge, no investigators have examined whether high-arousal positive affect plays an important role in mood repair. We wondered whether people actually experience greater engagement in activities that are highly arousing. Given this, and drawing on Thayer et al.'s (1994) original research, we speculated that high arousal states may play an important, but often overlooked role in mood-repair research.

Intellectual stimulation or focus may be a type of arousal, especially in cases where the activity does not involve physical domains, such as with exercise. Research has suggested that distraction, both with motor movements (e.g., walking back and forth to sort cards) and cognitive activity (e.g., mental arithmetic) influences the success of mood repair (Kanske, Heissler, Schönfelder, Bongers, & Wessa, 2011; Morrow & Nolen-Hoeksema, 1990). And, the greater the cognitive effort required, the greater the mood change (Erber & Tesser, 1992; Van Dillen & Koole, 2007). Thus, by simply loading working memory with cognitively demanding activities—tasks that have little to no relevance to the negative emotional experience—negative mood can be attenuated (Van Dillen & Koole, 2007).

In 2003, using the Personally Expressive Activities Questionnaire (PEAQ), Waterman et al. asked individuals to specify those activities with which they strongly identified and considered to be self-defining. (Hereafter, such activities will be referred to as *PEAQ activities* and related rejuvenation responses will be referred

to as *PEAQ rejuvenation*.) In 2008, Waterman, Schwartz, and Conti developed a model, based in part on Csíkszentmihályi's theory of flow, that linked personal expressiveness with intrinsic motivation. They reported that hedonic activities were most associated with self-determination and interest, whereas activities involving eudemonic enjoyment were most associated with the balance of challenges and skills, self-realization of values, effort, and importance. Individuals are happiest, according to Waterman et al., when they are engaged in activities that move them toward their best potential.

Although we cannot yet fully answer the question, "What works to change bad moods?" based on empirical evidence, it is reasonable to assert that highly arousing or possibly intellectually stimulating and engaging activities that involve flow may promote both mood repair and rejuvenation. It also seems reasonable to speculate that self-defining or PEAQ activities would be good candidates for promoting mood repair and rejuvenation. Because happiness and life satisfaction are an ultimate goal of mood repair, one can theorize that activities requiring artistic skills, that are high in engagement, arousal or intellectual stimulation, as well as flow, self-realization of values, personal expressiveness, and skill or challenge, should also promote mood repair and rejuvenation.

Collier (2011) is the only investigator who has examined mood repair in experienced textile handcrafters. She found that more than half of the over 900 women who participated used textile-handcraft activities to repair their bad moods. Those who *intentionally* used their handcraft in this way reported greater mood repair than did women using other activities (e.g., exercising, reading, spending time in nature, venting, religious activities, resting).

The current study expands the work of Collier (2011) by examining eudemonic and hedonic happiness and rejuvenation in a sample of female textile handcrafters. We tested three hypotheses:

*Hypothesis 1:* First, we predicted that participation in PEAQ activities would be associated with higher levels of flow, self-realization of values, personal expressiveness, and skill or challenge for *art makers* (women who strongly identified themselves with art-making PEAQ activities) than for *nonart makers* (women who strongly identified themselves with nonart-making activities).

*Hypothesis 2:* Second, we predicted that, regardless of baseline indicators of well-being, demographic characteristics, or their experience of mood repair during PEAQ activities, self-defined art makers would experience greater PEAQ rejuvenation from participating in their PEAQ activities than would nonart makers.

*Hypothesis 3:* Third, we predicted that within the art-maker group, PEAQ rejuvenation would be related to the extent to which their PEAQ activities promoted flow, self-realization of values, personal expressiveness, and skill or challenge.

We also explored the relationship between PEAQ rejuvenation and (a) baseline indicators of well-being (e.g., satisfaction with life, global health), (b) mood repair during participation in PEAQ activities, and (c) demographic characteristics within the art-maker group.

In addition, we speculated that those textile activities that promoted greater levels of arousal and engagement would also pro-

mote greater levels of rejuvenation. (Hereafter, referred to as *textile rejuvenation* to distinguish it from PEAQ rejuvenation.)

## Method

### Participants

Requests to participate in a survey were sent to local yarn stores in Wisconsin and textile handcrafters known to the authors in the United States, Australia, and New Zealand. After approximately one week, email requests were sent to the editors of several international fiber magazines under the Interweave Press label (e.g., *Fiber Arts*, *Handwoven*, *Knits*, and *Crochet*), Ashford's *The Wheel*, the *Surface Design Association Newsletter*, as well as the Minnesota Textile Center. These organizations then sent e-newsletters with a description of the study and a request to participate. Then, women started to inform each other about the study via their guilds, knitting circles, specific e-newsgroups in Yahoo, blogs, and so forth. The majority of respondents read about the study in an e-letter, e-magazine, or Internet group (44%); received an e-mail about the study from a friend or an organization that they belonged to (28%); or other sources (26%), which were typically their fiber-art networks. Both authors have been professional textile artists and thus had ready access to this convenience sample.

The email announcement, which served as a cover letter, described the nature of the project and provided a link to the survey. The same information, but expanded, was also provided at the beginning of the survey. Respondents, who agreed to participate, acknowledged that they were 18 or over, and that they had read and agreed with the informed consent form, were given access to an electronic survey. During the 10 months the survey was active, 471 women participated. All notices about the study specified that we were seeking women participants only; however, 5 males completed the survey. Although men do create textile handcrafts, there far fewer men than women who participate in these types of activities. Data from the five men respondents were not included in any analyses. In addition, 31 participants declined to participate after reading the informed consent form or after the first two questions. Analyses were performed on the responses of the remaining 435 women textile handcrafters.

### Materials and Procedure

All procedures met with the approval of the Institutional Review Board at the University of Wisconsin-Eau Claire. Potential participants were assured that their responses would be treated as confidential, before their participation. Textile handcrafters answered a variety of questions about their textile experiences, a set of questions about their mood, health, and satisfaction with life, and demographic characteristics. These items were presented in a survey on Qualtrics (Provo, UT), an online survey authoring software program that allows direct, web-based data collection. The survey took between 20 and 60 min to complete. No identifying information was linked with any of the participants' responses. (Some of the information that was collected is not relevant to the hypotheses tested in this study and thus is not reported here.)

**Background information.** Respondents were asked to indicate age, race, income, work status, education, marital status, number of children, location, size of community, and how they found out about the study.

## Measures

**Affect Grid Scale–Modified.** The Affect Grid Scale (Russell, Weiss, & Mendelsohn, 1989) is a visual  $9 \times 9$  two-dimensional grid with a neutral (fifth) row and a neutral (fifth) column. In a previous pilot work, we found that participants were confused by the Affect Grid Scale format and seemed to have difficulty following the instructions. We therefore dispensed with the grid format and developed a modified version with two separate scales: Mood (unpleasant/pleasant) and Arousal (arousal/sleepiness) dimensions. Each participant rated her (a) current mood and her (b) mood on a terrible day (e.g., “not so severe you would be called clinically depressed or anxious, but worried, upset, sad, etc.”) on a 5-point scale (1 = *extremely negative*, 3 = *neutral*, and 5 = *extremely positive*). Participants also rated their corresponding (a) current arousal levels and (b) arousal levels on a terrible day (described as “stimulating, energizing, and activating, as opposed to nonstimulating, calming, fatiguing, or low energy.”) on a 5-point scale (1 = *extremely low arousal or energy level*, 3 = *neutral*, and 5 = *extremely high arousal or energy level*). Difference scores were calculated based on each participant’s (a) current mood minus her mood on terrible day, and (b) current arousal minus her arousal on a terrible day. The resultant scores were labeled Mood  $\Delta$  and Arousal  $\Delta$ , respectively, and allowed us to determine whether a participant was experiencing an extreme mood or extreme arousal state while completing the survey.

**Quality of life.** One item from the Center for Disease Control (CDC)’s Health-Related Quality of Life Measure–4 (HRQOL-4) was used to assess quality of life (Moriarty, Zack & Kobau, 2003). Participants were asked to evaluate their overall health quality of life (QOL) by indicating general health on a 5-item scale, with 1 = *poor*; 2 = *fair*; 3 = *good*; 4 = *very good*; and 5 = *excellent*.

**Depression and anxiety.** Depression and anxiety were assessed using the Patient Health Questionnaire for Depression and Anxiety (PHQ-4; Kroenke, Spitzer, Williams, & Lowe, 2009). The PHQ-4 is a valid, ultrabrief screening tool for depression and anxiety, developed from the original Primary Care Evaluation of Mental Disorders (PRIME-MD; Spitzer, Kroenke, & Williams, 1999). In addition to depression and anxiety, PHQ-4 scores are strongly associated with functional impairment, absenteeism due to disability, and health-care use (Kroenke et al., 2009). Cronbach’s  $\alpha = .88$  for the PHQ-4 questions. A mean PHQ score was created for the four items.

**Satisfaction with life.** Life satisfaction was assessed with the Satisfaction with Life Scale (SWLS; Pavot & Diener, 1993). The SWLS is a short five-item instrument designed to measure global cognitive judgments of satisfaction with one’s life. Cronbach’s  $\alpha = .89$  for the SWLS questions. A mean SWLS score was created for the items.

**Patterns of textile-handcraft activities.** Participants were provided with a list of 18 textile handcrafts and asked to indicate which techniques they had ever tried. The list included basketry, beadwork, bookcrafts, braiding, macramé, kumihimo, dyeing fibers, knitting and crocheting, fabric-surface design (e.g., dye,

paint, embellishments), felting (e.g., wet, dry, needle), lace making (e.g., tatting, needle, cutwork, bobbin, tape, guipure), mixed media, needlework (e.g., embroidery, cross stitch, needlepoint), paper making, rug making (e.g., braided, woven, hooding, rag, needle punch, prodded), sewing (clothing and functional objects), quilting, spinning fibers, temari balls (Japanese string and fabric balls), and weaving. They could also write in additional handcrafts that they had tried. Participants rated their (a) *skill level* for each technique on a 5-point scale (1 = *poor*; 3 = *moderate*; 5 = *excellent*) and (b) how much time they typically spent per session when using the technique (1 = *1–2 hr*, 2 = *3–4 hr*, 3 = *3–4 hr*, 4 = *4–8 hr*, and 5 = *8 or more hr*).

**Textile techniques and textile-based rejuvenation.** To examine how textile rejuvenation was associated with specific textile-handcraft techniques, each participant was asked to think of a time when she was in a terrible mood (not clinically depressed or anxious, but worried, upset, angry, or sad). Then, she was asked to report the extent to which participating in each handcraft technique resulted in her experiencing rejuvenation (feeling recentered, refreshed, repaired, ready to start anew). Using the same format as the Affect Grid Scale–Modified described above (Russell et al., 1989), textile rejuvenation was rated on a 5-point scale, in which 1 = *no rejuvenation*, 3 = *some rejuvenation*, and 5 = *extreme rejuvenation*.

**Textile techniques, engagement, arousal, and intellectual focus.** Using the same 5-point scale just described, participants were also asked to rate each specific textile-handcraft techniques, for the following: (a) the extent to which they felt engaged when making this handcraft (i.e., “How immersed in the activity were you?” “Did you lose track of time?” “How absorbed were you?” “Were you completely involved?” (1 = *none*, 3 = *somewhat*, 5 = *tremendous amount*); (b) how much the handcraft technique changed arousal or energy level (1 = *extreme decrease*, 3 = *neutral*, 5 = *extreme increase*); and (c) how much intellectual focus or stimulation the handcraft technique required (1 = *none*, 3 = *some*, 5 = *tremendous amount*).

## Personally Expressive Activities Questionnaire

**Self-definition as an art maker.** Waterman et al.’s, (2003) PEAQ was used to examine hedonic enjoyment and feelings of personal expressiveness, or eudemonia associated with favored activities. The standard version of the PEAQ was modified such that respondents identified only one activity. (Studies employing the PEAQ have varied in asking participants to identify two to five activities.) Participants were told, “If you wanted another person to know who you really were and what you were really like as a person, which activity would you tell them about that reflects who you are?” Because the sample was made up of textile handcrafters, participants were told that these activities did not need to include fiber or textile handcrafts. When the data were analyzed, these PEAQ activities were grouped into art-making and nonart-making categories, and participants classified as art makers or nonart makers, accordingly.

The PEAQ involves the following subscales: (a) flow (clear goals, self-conscious, feel in control, lose track of time); (b) personal expressiveness (greatest sense of being alive, feel intensely involved, strong sense of self, strong sense of enjoyment, activity is what the person is meant to do, feel special fit or meshing when engaged in activity); (c) self-realization of values

(appreciate beauty, share experiences with others, satisfy desire for competition, develop best potential, experience spirituality, increase or decrease need for stimulation, make progress toward goals); and (d) skill and challenge involved in each activity. In addition, each participant was asked to indicate her usual level of interest in the PEAQ activity, and how frequently she had participated in the activity during the previous year.

The reliability ratings obtained were as follows: personal expressiveness,  $\alpha = .83$ ; self-realization of values,  $\alpha = .63$ ; skill and challenge,  $\alpha = .77$ . The reliability rating for the flow scale was  $\alpha = .50$ ; however, when the self-consciousness item was removed, the rating increased to  $\alpha = .72$ . Therefore, the self-consciousness item was excluded from the calculations and mean scores were calculated for each of the remaining PEAQ subscales.

**PEAQ mood repair and PEAQ rejuvenation for PEAQ activities.** Using the same rating format as the PEAQ scale above, we asked each participant to consider her experience of participating in her PEAQ activity and, using a 7-point scale (1 = *not at all like me*, 4 = *neutral*, 7 = *very much like me*), rate the accuracy of the following two statements: (1) "I feel rejuvenated, for example, refreshed, restored, and revitalized during and/or afterward." (2) "My mood always feels more positive during" the activity. These ratings contributed to the PEAQ rejuvenation score and the mood-repair score, respectively.

## Results

### Handcrafter Characteristics

As stated above, our participants were all women. Their mean age was 52.0 years ( $SD = 13.0$ , Range = 17 to 79 years). On average, most were employed and the majority earned well over \$50,000 per year. In general, they were well-educated. The number of trained artists, defined here as having a degree in art, was  $n = 147$  or 33.9% of the sample. Most participants were from the U.S.; however, 19% were from overseas. (Additional demographic information can be found in Table 1.)

The difference scores, Mood  $\Delta$  and Arousal  $\Delta$ , were not significantly correlated with any of the measures, as can be seen in Table 2. This suggests that neither participants' mood nor arousal states while completing the questionnaire influenced their ratings of other variables. (Correlations between Mood  $\Delta$  and Arousal  $\Delta$ , well-being indicators, PEAQ scores, PEAQ rejuvenation and mood-repair scores, and demographic variables can be found in Table 2.)

PEAQ rejuvenation scores were positively and significantly correlated with each other, as was each PEAQ subscale score, except for the skill-challenge subscale. PEAQ rejuvenation scores were also positively associated with satisfaction with life and quality of life scores; however, for art makers, mood repair showed a weaker correlation with SWLS and no association with QOL. Higher depression scores were associated with younger age and lower scores for both QOL and SWLS. Although eudemonia was positively correlated with each of the PEAQ subscale variables, it was not significantly correlated with any of the demographic or well-being variables.

**Frequently tried textile techniques.** Table 3 indicates which textile handcraft techniques participants tried, used frequently, and reported having mastered. The 10 most commonly tried handcraft techniques, in order of frequency were knitting and crocheting,

Table 1  
*Female Textile Handcrafter Participant Characteristics*

Characteristic	Percentage
Location	
U.S.	81.1
Europe, Australia, New Zealand, Asia, South America, & Africa	18.9
Race	
White/Caucasian	92.2
Black/African American	2.2
Alaska Native or American Indian	1.0
Asian	2.0
Other/rather not say	2.6
Employment Status	
Full-time	48.9
Part-time	17.1
Employed as homemaker	20.7
Not employed	13.3
Marital status	
Single, never married	12.5
Married	67.5
Divorced	10.7
Separated	0.9
Widowed	4.5
Living with partner	3.9
Education	
Less than high school	0.5
High school/GED equivalent	4.3
Some college or associate degree	19.8
Bachelor's degree	34.3
Master's degree	30.7
Doctoral degree or professional degree	10.5
Income	
Rather not say	15.2
Under \$10,000	3.3
\$10,000–\$19,999	4.9
\$20,000–29,999	4.9
\$30,000–49,999	17.1
\$50,000–149,999	47.0
Over \$150,000	7.7

sewing clothing, needlework, beading, surface-design techniques, dyeing, quilting, felting, mixed media, weaving, and braiding and kumihomo (Japanese-style braiding).

**Mastery with textile techniques.** Most of the activities that participants reported having mastery over were also among those most frequently tried. The greatest mastery was reported for quilting, mixed media, fabric surface design, sewing clothing, needlework, knitting or crocheting, weaving, spinning, and felting.

**Popular textile techniques.** The most commonly used textile techniques were quilting, weaving, mixed media, surface design, sewing clothing, dyeing, needlework, knitting or crocheting, and spinning. Thus, although participants had most frequently tried knitting and crocheting, these techniques were not always ones they reported having the most mastery over or using the most often. Quilting was the top-most technique participants reported having mastery over and using the most regularly, followed by mixed media and surface design techniques. Weaving was the second most commonly used technique in this sample and was among the top 10 techniques that participants had tried and had mastery over. Sewing clothing was also very popular to try, have mastery over, and use frequently.

Table 2

Correlations Between Demographics, Well-Being Indicators, PEAQ Rejuvenation and Mood Repair, and PEAQ Subscales

	Age	Inc	Ed	M Δ	AΔ	PHQ4	SWLS	QOL	REJ	Mood	Flow	EUD	HED	S/C
Age	1													
Inc	.115*	1												
Ed	.167**	.171**	1											
MΔ	-.097	.053	.072	1										
AΔ	-.025	.009	-.055	.506**	1									
PHQ-4	.199**	-.059	-.115	-.007	-.010	1								
SWLS	.157*	.160*	.175**	.089	.025	-.485**	1							
QOL	-.031	.128*	.129*	.089	.087	-.336**	.378*	1						
REJ	.035	-.024	-.059	.056	-.035	-.136*	.195**	.156**	1					
Mood	.002	-.036	-.123*	.031	.098	-.143*	.159*	.096	.725**	1				
Flow	.137*	.000	.013	.055	-.083	-.132*	.208**	.106	.493**	.512**	1			
EUD	-.053	-.073	-.016	.060	-.003	-.021	.091	.025	.129*	.159*	.215**	1		
HED	-.118*	-.040	.038	.120	.052	-.096	.263**	.120*	.325**	.286**	.342**	.266**	1	
S/C	.113	.060	.038	.062	-.033	-.058	.102	.063	.115	.144	.328**	.163**	.325**	1

Note. Inc = income; Ed = education; MΔ = mood difference; AΔ = arousal difference; PHQ4 = Patient Health Questionnaire for Depression and Anxiety; SWLS = Satisfaction with Life Score; QOL = overall quality of life score; REJ = PEAQ rejuvenation; mood = PEAQ mood repair; EUD = Eudemonia; HED = Hedonia; S/C = skill/challenge.

\*  $p < .05$ . \*\*  $p < .001$ .

### Exploring the Relationship Between Textile Rejuvenation, Engagement, Arousal, and Intellectual Focus

Mean textile rejuvenation scores greater than 3.0 indicated that participants experienced rejuvenation with each handcraft technique at a moderate or higher level. The greatest textile rejuvenation appeared to occur for the following six handcraft activities: mixed media, surface design, quilting, weaving, dyeing, and spinning. None of the other textile-handcraft techniques promoted textile rejuvenation, in that they were rated by the participants as having less than *some rejuvenation* ( $M < 3$ ).

Individual linear regressions of textile rejuvenation on engagement, arousal, and intellectual focus were carried out for each of the six textile techniques rated as rejuvenating ( $M \geq 3$ ). It is

noteworthy that for each of these textile activities, arousal and engagement were consistently the best predictors of textile rejuvenation; intellectual focus was never a significant predictor. We therefore excluded intellectual focus and ran the regressions again. For each of the six techniques that participants had rated as rejuvenating, we found significant linear relationships between arousal, engagement, and textile rejuvenation ( $p < .001$ ; see Table 4).

### Art Makers and Nonart Makers

**Art-maker and nonart-maker categories.** Based on their self-identified PEAQ activities, participants were categorized as art makers (68.8%) and nonart makers (31.2%). The art-maker category was assigned to participants who defined using any type of textile (75.2%) or visual arts (24.8%) as their PEAQ activity.

Table 3

Experience With Top 10 Textile Handcrafts: Means and Rank Orders, Techniques Tried, Mastery, and Frequency

Textile handcraft technique [Alphabetical order]	Tried technique % [rank order]	Mastery level $M$ ( $SD$ ) [rank order]	Frequency of use $M$ ( $SD$ ) [rank order]
Basketry	33.3	2.55 (1.04)	2.19 (1.22)
Beading	54.4 [3]	2.91 (1.00)	2.12 (1.07)
Book making	27.7	2.98 (1.04)	2.51 (1.26)
Braiding, kumihomo, etc.	36.0 [10]	2.91 (1.06)	1.95 (1.10)
Dyeing	53.7 [5]	3.59 (1.07) [7]	2.98 (1.16) [6]
Knitting or crocheting	63.5 [1.5]	3.72 (1.15) [6]	2.82 (1.20) [8]
Fabric surface design	54.1 [4]	3.88 (0.97) [3]	3.16 (1.23) [4]
Felt	45.9 [7]	3.19 (1.12) [10]	2.46 (1.14)
Lace	13.9	2.74 (1.23)	2.36 (1.27)
Mixed media	37.4 [8]	3.94 (0.97) [2]	3.21 (1.17) [3]
Needlework	60.2 [2]	3.82 (1.00) [5]	2.87 (1.23) [7]
Paper making	28.6	2.82 (1.11)	2.33 (1.07)
Rug making	28.2	3.12 (1.08)	2.68 (1.23) [9]
Sewing: clothing etc.	63.5 [1.5]	3.85 (1.03) [4]	3.09 (1.15) [5]
Quilting	52.1 [6]	4.03 (1.03) [1]	3.54 (1.22) [1]
Spinning	27.7	3.33 (1.18) [9]	2.57 (1.14) [10]
Temari	3.8	2.19 (1.05)	1.82 (0.81)
Weaving	36.7 [9]	3.56 (1.09) [8]	3.34 (1.20) [2]

Table 4  
*Regressions of Textile Rejuvenation on Engagement and Arousal for Six Handcraft Techniques*

Textile handcraft technique	<i>B</i>	<i>SE B</i>	$\beta$	<i>F(df)</i>
Mixed media				23.10 (4, 86)***
Constant	-0.58	0.51		
Arousal	0.69	0.09	.59***	
Engagement	0.38	0.12	.31**	
Surface design				33.43 (4, 139)***
Constant	-1.18	0.44		
Arousal	0.68	0.08	.58***	
Engagement	0.46	0.10	.34***	
Quilting				28.23 (4, 153)***
Constant	-0.29	0.43		
Arousal	0.57	0.06	.56***	
Engagement	0.32	0.10	.25**	
Weaving				22.44 (4, 90)***
Constant	-0.69	0.49		
Arousal	0.69	0.09	.60***	
Engagement	0.35	0.11	.29**	
Dyeing				22.89 (4, 140)***
Constant	-0.49	0.42		
Arousal	0.62	0.08	.54***	
Engagement	0.24	0.10	.21*	
Spinning				16.05 (4, 50)**
Constant	-0.40	0.57		
Arousal	0.55	0.11	.52**	
Engagement	0.50	0.11	.44**	

\*  $p < .01$ . \*\*  $p \leq .003$ . \*\*\*  $p < .001$ .

The nonart-maker category was assigned to participants who defined using job-related activities (not in the area of art), family-related activities, reading, sports, writing, learning, volunteering, spiritual and religious pursuits, and gardening. Chi-square analysis indicated that self-defined art makers were no more likely to have had an art degree than self-defined nonart makers. (Art-maker and nonart-maker mean scores can be found in Table 5 for all the variables relevant to this study.)

**Art-maker and nonart-maker PEAQ rejuvenation, personal expressiveness, self-realization of values, flow, and skill/challenge.** A multiple analysis of variance (MANOVA) was conducted with group (art maker, nonart maker) and PEAQ subscores (PEAQ rejuvenation, personal expressiveness, self-realization of values, flow, skill/challenge) using age, education, income, SWLS, QOL, and PEAQ mood repair as covariates. Pillai's trace criterion for significance was employed because of its robustness in response to violations of the assumption of homogeneity resulting from the use of unequal sample sizes.

The MANOVA result was significant, omnibus  $F(5, 228) = 57.31, p < .001$  ( $\eta^2 = .557$ ). Positive mood,  $F(5, 228) = 37.91, p < .001$  ( $\eta^2 = .45$ ); age,  $F(5, 228) = 4.30, p = .001$  ( $\eta^2 = .086$ ); and SWLS,  $F(5, 228) = 2.46, p = .03$  ( $\eta^2 = .051$ ) were significant covariates, but education, income, and QOL were not. Because the overall model was significant (providing some protection against Type I errors), we examined the corrected individual analysis of variance (ANOVA) results.

Thus, after correcting for positive mood, age, and SWLS, we found that art makers were different than nonart makers for each of the PEAQ characteristics, including PEAQ rejuvenation (see Table 6). This result provides support for our first hypothesis (which

stated that participation in PEAQ activities would be associated with higher levels of flow, personal expressiveness, self-realization of values, and skill/challenge for art makers than it would for nonart makers) and our second hypothesis (which stated that, regardless of baseline indicators of well-being, demographic characteristics, or their experience of mood repair during PEAQ activities, art makers would experience greater PEAQ rejuvenation from participating in their PEAQ activities than would nonart makers).

**What predicts rejuvenation for art makers?** Including only art-maker responses, a multiple linear regression was performed using the "enter" method. Specifically, PEAQ rejuvenation was regressed on the other (a) PEAQ components, i.e., personal expressiveness, self-realization of values, flow, skill/challenge, and PEAQ-activity mood repair; (b) indicators of well-being, i.e., SWLS, and QOL; and (c) demographics, i.e., age, education, and income. Because PEAQ-rejuvenation and mood-repair scores were significantly correlated, it became especially important to evaluate the potential collinearity among the variables. Variance-inflation-factor (VIF) values were well below the cut-off point of 10, and the tolerance statistics were all well above 0.1, indicating that multicollinearity was not seriously inflating the variance underlying the calculations contributing to the multiple regression. Thus we can safely conclude that our analyses were based on sufficiently discrete variables, and that our findings are not a consequence of undue collinearity among our variables.

PEAQ-rejuvenation scores were most strongly predicted by PEAQ mood-repair, flow and self-realization of values (see Table 7). No other variables significantly predicted PEAQ rejuvenation. Our results, then, only partially supported our third hypothesis (which stated that, within the art-maker group, PEAQ rejuvenation would be related to the extent to which their PEAQ activities promoted flow, self-realization of values, personal expressiveness, and skill-challenge).

## Discussion

Our first two hypotheses were supported: Compared with nonart-making PEAQ activities, art-making PEAQ activities appeared to be more restorative and rejuvenating. Further, neither the experiences of self-realization of values, personal expressiveness, flow, or skill and challenge experienced during participation in PEAQ activities, nor the lingering experience of rejuvenation, were contingent on the participants' age, overall satisfaction with life, or mood repair—though mood repair did influence the strength of those relationships.

For art makers specifically, rejuvenation was strongly predicted by flow, self-realization of values, and mood repair. Here too, our outcomes could not be accounted for by the other indicators of well-being, nor by demographic characteristics. When examining the psychologically restorative properties of *specific* textile handcrafts, we found that the extent to which those activities were engaging and arousing strongly predicted the extent to which they were rejuvenating.

It is important to keep in mind that, for the textile techniques we listed, 69% of the respondents reported having greater-than-average levels of mastery. Also, approximately 34% of the respondents had earned a bachelor's or graduate degree in art. Thus, the sample was unusually skillful than the population at large. Al-

Table 5  
*Means and t Tests for Art Makers and Nonart Makers for Demographic Variables, Well-Being Indicators, PEAQ Rejuvenation and MoodRepair, and PEAQ Subscales*

	<i>N</i>	<i>M</i>	<i>SD</i>	<i>SE</i>	<i>t(df)</i>
Age					
Nonart maker	92	51.97	13.75	1.43	ns
Art maker	203	52.80	12.60	0.87	
Income					
Nonart maker	91	6.43	2.65	0.28	ns
Art maker	196	6.04	2.88	0.21	
Education					
Nonart maker	91	5.04	1.45	0.15	ns
Art maker	202	5.13	1.21	0.9	
Art degree					
Nonart maker	89	1.74	0.44	0.47	ns
Art maker	203	1.64	0.48	0.03	
MΔ					
Nonart maker	92	3.15	0.60	0.06	ns
Art maker	201	3.20	0.64	0.04	
AΔ					
Nonart maker	92	3.100	0.71	0.07	ns
Art maker	199	2.98	0.65	0.04	
QOL					
Nonart maker	92	3.68	1.11	0.12	ns
Art maker	203	3.73	0.99	0.07	
PHQ-4					
Nonart maker	88	0.60	0.70	0.07	ns
Art maker	197	0.54	0.63	0.04	
SWLS					
Nonart maker	76	4.81	1.38	0.16	ns
Art maker	179	5.12	1.30	0.09	
Rejuvenation					
Nonart maker	80	5.90	1.31	0.14	-3.53 (290)***
Art maker	203	6.34	0.82	0.06	
Mood repair					
Nonart maker	89	5.8	1.30	0.14	-4.26 (290)***
Art maker	203	6.33	0.80	0.06	
Flow					
Nonart maker	87	5.91	0.83	0.09	-5.21 (283)***
Art maker	198	6.33	0.52	0.04	
Personal expressiveness					
Nonart maker	87	5.67	1.12	0.12	-3.96 (286)***
Art maker	201	6.14	0.85	0.06	
Self-realization of values					
Nonart maker	86	5.38	0.71	0.08	-2.87 (285)**
Art maker	201	5.64	0.68	0.04	
Skill/Challenge					
Nonart maker	87	5.43	1.34	0.14	-6.44 (288)***
Art maker	203	6.21	0.72	0.05	

*Note.* MΔ = Mood difference; AΔ = Arousal difference; PHQ4 = Patient Health Questionnaire for Depression and Anxiety; SWLS = Satisfaction with Life; QOL = Quality of Life.

\*\*  $p \leq .004$ . \*\*\*  $p < .001$ .

though it is possible that merely having high levels of experience with textiles could invite states of rejuvenation, our results suggest otherwise.

Instead, it seemed to be critical that women experience hedonia in their art-making, where hedonia is defined as immersion in the beauty of art making, sharing her experiences with others, satisfying her desire for competition, developing her best potential, experiencing spirituality, increasing or decreasing her need for stimulation, and making progress toward her personal goals. Thus, when art making is associated with self-realization of values, it may be more likely to give lead to a sense of vitality and enjoyment, as well as rejuvenation. Even though nonart-making PEAQ activities included a wide realm of

leisure undertakings, from work to home life to gardening, those activities did not appear to promote rejuvenation to the same extent as did the art-making PEAQ activities.

Flow was also very important to rejuvenation for our art-maker group, and flow states seemed to be conducive to both mood repair and rejuvenation. This is not terribly surprising. We know that there are individual differences in who is prone to experience flow; that flow was first studied in association with art making, and that the pleasure experienced while participating in a flow-stimulating activity, is intrinsically motivating (Csikszentmihályi & Csikszentmihályi, 1988; Csikszentmihályi et al., 1997). Although flow is most closely associated with motivation and can occur in response

Table 6  
ANOVAs Comparing Art Makers To Nonart Makers on Flow, Personal Expressiveness, Self-Realization, and Skill/Challenge, Correcting for the Covariate Effects of Age and Life Satisfaction

Variable	Group	<i>M</i> ( <i>SD</i> )	<i>F</i> (5, 233)	<i>p</i> (2-tailed)	$\eta^2$
Flow	Art maker	6.33 (0.53)	4.36	<.001	.103
	Nonart maker	6.02 (0.69)			
Personal Expressiveness	Art maker	6.20 (0.79)	2.08	.004	.081
	Nonart maker	5.82 (0.82)			
Self-realization	Art maker	5.65 (0.68)	4.22	<.001	.100
	Nonart maker	5.46 (0.65)			
Skill/Challenge	Art maker	6.22 (0.70)	6.05	<.001	.138
	Nonart maker	5.42 (1.39)			

to any activity, it is not much of a leap to consider that activities that promote flow (for any given individual) should also promote mood repair and rejuvenation for that individual. Nevertheless, with an eye on individual differences and motivations, further research into the relationships between the characteristics of activities that promote flow, mood repair, and rejuvenation is warranted.

Pressman and colleagues (2009) found that truly enjoyable leisure activities were associated with psychological and physical well-being, and that enjoyable activities enhanced well-being by acting as breathers, restorers, and stress buffers. They suggested that leisure behaviors may provide a unique pathway whereby positive mood can influence well-being. Given our results, to be fully psychologically restorative, perhaps leisure activities should engender *both* flow and feelings associated with hedonic happiness. This too should be examined in future studies.

Collins, Sarkisian, and Winner (2009) reported that older adults reported a higher quality of flow experiences associated with their daily activities (such as working, reading, writing, watching or playing sports) when the activities were both high in arousal and high in positive mood. Our findings, which supported our specu-

lation that rejuvenation would be promoted by engagement in textile techniques that were both engaging and arousing, is consistent with Collins et al.'s (2009) findings relating to flow. This also points to the need to undertake additional research examining the relationship between activities, rejuvenation, and flow.

We found it interesting that intellectual stimulation or focus, which we thought to be a type of arousal, was not associated with rejuvenation. Possibly, the term "intellectual stimulation" was too specific to the cognitive domain, which may not be important for many textile handcrafts. For example, spinning wool does not typically involve a great deal of thinking, but it may be energizing, activating, or stimulating—that is, arousing. Thus the word "arousal" may have allowed participants to include a wider array of behaviors. It is also possible that intellectual arousal is less important to mood repair and rejuvenation when engaging in textile techniques or for those who are interested in textile techniques. Future research is needed to tease apart the roles that domain-specific types of arousal may play in rejuvenation.

### Limitations

This study has a number of limitations. We used a convenience sample made up of individuals who had already been involved in a lifelong artistic endeavor, textile handcrafts. They also sought out participation in our study, knowing full well that we were examining the role of mood and handcrafts. Most of them readily expressed great joy in making fiber arts. In essence, we were singing to the choir about the benefits of art making, which biased our sample. Because the majority of our participants strongly identified as art makers, they could have had an investment in seeing art-making activities as producing positive outcomes. This further limits the generalizability of our findings to those less involved in the arts. In addition, our participants were in their 50s, on average. Thus the extent to which our findings could be generalized to younger samples is also limited. We also used retroactive, self-report measures and thus our participant responses were subject to the limitations that come with doing so: faulty memories, selective recall, interference, inaccurate reporting, social-desirability bias, response-demand characteristics, and so forth.

Table 7  
Predictors of PEAQ Rejuvenation Scores With PEAQ Subscales as Independent Variables

	<i>B</i>	<i>SE B</i>	$\beta$
Step 1			
Constant	2.10	.37	
Positive mood	.67	.06	.67**
Step 2			
Constant	.042	.060	
Positive mood	.58	.060	.58**
Flow	.06	.01	.25**
Step 3			
Constant	-.24	.61	
Positive mood	.56	.06	.55**
Flow	.05	.01	.21**
Self-realization of values	.02	.01	.13*

Note.  $R^2 = .44$  for Step 1,  $\Delta R^2 = .06$  for Step 2,  $\Delta R^2 = .01$  for Step 3.  
\*  $p < .04$ . \*\*  $p < .001$ .

Textile handcrafts tend to be female-dominated. Because we were specifically interested in women, we did not include men in our sample. Future investigators may wish to consider whether there are gender differences in which type of mood-repair activities are effective.

We did not comprehensively evaluate the impact of rejuvenating activities on participant health. The only measure of health we included was a retrospective question about general health. Although not germane to our hypotheses, it may have been important to consider the role of social involvement in PEAQ rejuvenation.

In fact, for rejuvenation, ratings pertaining to PEAQ activities were based on a single item, as were ratings for rejuvenation pertaining to top textile techniques. Our measurement of rejuvenation needs to be further developed to include more extensive items and we should employ repeated measures across time. Thus, the limitation of our measurement challenged our ability to evaluate the reliability or construct and predictive validity of our concepts. Finally, we have explored our questions using a cross-sectional design. Our questions beg for a longitudinal design; at least they demand that we start with a microgenetic approach.

### Future Research

As stated above, further examination of these same questions should employ a microgenetic approach. This would allow us to evaluate the nature, duration, and changes associated with rejuvenation. There are additional questions that should also be investigated. For example, there may be important interactions between an individual's preferred arousal level and mood enhancement. Davydov, Shapiro, Goldstein and Chicz-Demet (2007) reported that different combinations of biological and psychosocial variables can contribute to general arousal levels, which in turn, affects mood states, especially for happy and tired states. For some people, low-arousal negative mood may motivate sensation seeking that can be either adaptive (e.g., increase in exercise, creating a hand-woven or multimedia textile art project) or maladaptive (e.g., impulsive behavior and aggression). Likewise, a high-arousal negative mood could stimulate adaptive or maladaptive sensation-avoidant behaviors, such as that found with less arousing textile-handcraft activities such as spinning fibers and bead-making, and relaxation techniques, or even sedative drug abuse. Individual differences in baseline negative mood or perhaps biological and hormonal fluctuations, could lead to seeking mood-repair activities with compatible or preferred arousal levels. The interactions between these types of variables could have implications for selecting the most effective mood-repair strategies for an individual and thus should be further investigated.

We found that PEAQ rejuvenation was predicted by a combination of flow, positive mood repair, and self-realization of values, or hedonia. We also found that textile rejuvenation was predicted by arousal and engagement. Do those individuals involved in other types of art-making activities, that is, songwriters, composers, performers, visual artists, etc., demonstrate the same patterns of response? There is no obvious reason why textile activities in particular would have a distinct impact on negative mood. As such, we speculate more generally that participating in a range of creative art-making activities may be more effective for long-term mood repair than noncreative art-making activities. Does any type of creative art-making lead to rejuvenation?

Very often, art therapists teach art techniques anew to clients; clients probably do not have strong mastery or identification with these practices. Our findings, if replicated more generally, could inform practices in art therapy. For example, if a client already has mastery in a suitable art-making activity (with the characteristics we've identified as leading to rejuvenation), the art therapist's treatment plan could draw on that activity. If the client does not have mastery of any type of suitable art-making activity, the therapist might want to consider which art-making activity the client is likely to master quickly. Of course, if our results only generalize to textile handcrafts, art therapists might consider including more fiber arts in their treatment plans!

In sum, although a variety of activities can help people to repair bad mood, art-making activities that were associated with the self-realization of values, arousal, and engagement appeared to be more effective in promoting rejuvenation. In addition, for fiber artists, mixed media, surface design, quilting, weaving, dying, and spinning techniques may be the most important activities to incorporate for rejuvenation. Extrapolating, we wonder whether women who identify strongly with the types of textile techniques that are especially engaging and arousing have a particular advantage in coping with their bad moods, through experiencing not only mood repair while participating in such activities, but also a lingering sense of rejuvenation.

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