Creativity, Mood, and the Examined Life: Self-Reflective Rumination Boosts Creativity, Brooding Breeds Dysphoria

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Past research has shown that creative behavior is associated with a higher risk for depression; our own previous work has shown that rumination lies at the heart of the connection. In a sample of 244 college students, we used path analysis to examine how 2 types of self-focused rumination—brooding and self-reflective pondering—might relate differentially to creativity and dysphoria/depression. The rumination measures intercorrelated but were found to have different consequences: Brooding was linked only to dysphoria (with more brooding or depressive rumination leading to worse mood), whereas self-reflective pondering was linked only to creativity. Thus, how one examines life—with a focus on mood or brooding versus a more reflective focus—might determine whether one slumps into depression or jumps into creative endeavors.

Keywords: creativity, depression, dysphoria, rumination

Creativity is a multifaceted construct with many determinants and correlates situated both inside and outside the individual. One within-individual correlate of creativity that has only recently been studied (we might have been the first, Verhaeghen, Joormann, & Kahn, 2005) is an individual’s propensity to engage in self-reflective behavior—that is, to lead an examined life. One aspect of self-reflective behavior that has been extensively studied, mostly in a clinical context, is rumination. Ruminations has been defined as “a class of conscious thoughts that revolve around a common instrumental theme and that recur in the absence of immediate environmental demands requiring the thought” (Martin & Tesser, 1996, pp. 7). Persistence of the thought is an additional important characteristic (Martin & Tesser). Self-reflective rumination (e.g., Nolen-Hoeksema, Morrow, & Frederickson, 1993; Tesser, Gonzalez, & Nolen-Hoeksema, 2003) uses the self, that is, one’s inner feelings, memories, and so forth, as the recurrent theme.

There might be reasons to assume that such mildly obsessive focus on the inner workings of one’s self might benefit creative endeavors. It certainly fits very well with the archetype of the post-Renaissance western artist and writer involved in endless creative endeavors. It certainly fits very well with the archetype of the post-Renaissance western artist and writer involved in endless creative endeavors. It certainly fits very well with the archetype of the post-Renaissance western artist and writer involved in endless creative endeavors.

Mor and Winquist (2002) found that self-directed attention had a rather large effect on depression (d = 0.61). Mor and Winquist argued for a reciprocal relationship between mood and self-reflection, on the grounds of experimental evidence showing that inducing negative affect leads to increased self-reflective rumination and that inducing self-reflective rumination leads to increased negative affect. It is easy to see that a self-reflective style of thought can become emotionally perilous when the inner state is one of negative affect, creating a spiral of ever-downward mood. But even within the clinical literature, rumination has been found to have positive impact as well. Persons who consistently focus on their internal states have more extensive (Turner et al., 1978), well-articulated (Nasby, 1985), and accessible self-knowledge (Mueller, 1987). This in turn allows for very efficient and accurate processing of self-relevant information (Hull, Levenston, Young, & Sher, 1983). Closer to the topic of creativity, data from expressive writing studies suggests that repeated focus on troubling and emotional events and related thoughts and feelings results in long-term benefits for mental and physical health (e.g., Pennebaker, 1997).
We are thus faced with a paradox: Sometimes self-reflective rumination leads to an emotionally negative outcome, sometimes to an emotionally positive outcome (for a review of the constructive and unconstructive nature of rumination, see Watkins, 2008). One possible way out of this conundrum is to point at the possibility that rumination is not a single construct but might be divisible into correlated components, one of which might be more conducive to positive (including creative) behaviors, the other more strongly associated with negative emotions. Perhaps the clearest such distinction was drawn by Trapnell and Campbell (1999). These authors posit two types of chronic attention to the self: ruminative self-focus and reflective self-focus. In their view, ruminative self-reflection is characterized by a neurotic tendency to dwell passively on undesirable aspects of the self and the sense that one’s feelings are threatening, confusing, and inescapable. It thus focuses on the causes and consequences of one’s rumination rather than focusing on relieving the stress of problems. Reflective self-focus, on the other hand, is characterized by an openness to explore negative feelings, a sense that one’s feelings are clear and controllable, and a willingness to contemplate strategies for alleviating unpleasant feelings. More recently, Treynor et al. (2003) were able to derive these two factors from Nolen-Hoeksema’s (1991) Ruminative Responses Scale (the arguably standard instrument for measuring rumination); they labeled these factors brooding and self-reflective pondering, respectively. The two factors appear to have different relationships to depression outcomes: Joormann, Dkane, and Gotlib (2006), for instance, found that brooding was related to attentional bias toward negative faces (a strong predictor of depressive symptoms), whereas self-reflective pondering was not. Importantly for the present study, Cohen and Ferrari (2010) found that reflective rumination significantly predicted self-rated creativity (objective measures of creativity were not included in this study).

The distinction between these two components of self-reflective attention might also shed light on a paradox within the literature on creativity, namely the strong link (at least at the between-subjects level) between mood disorder (most commonly depression, but also bipolar disorder; Furnham, Batey, Anand, & Manfield, 2008) and creativity (for a review, see Jamison, 1993). In his survey of the biographies of 1,004 eminent individuals living in the 20th century, Ludwig (1995) found a lifetime prevalence rate of depression of 50% for people working in the creative arts, compared to 20% of those in the field of enterprise, 24% of scientists, and 27% of important social figures. Particularly vulnerable to brooding were writers of poetry (77%) and fiction (59%), and visual artists (50%). Likewise, Jamison (1993) concluded from her overview of primary research literature that major depression is eight to 10 times more prevalent in writers and artists than in the general population; in addition, writers and artists are about 10 times more likely to commit suicide. Within the general population, the correlation between mood disorder and creativity appears to be more modest—we (Verhaeghen et al., 2005) found a median correlation of .18 (range: −.06 to .27) between depression as measured by the Center for Epidemiological Studies Depression Scale (CES-D) and our measures of creativity; Silvia and Kimble (2010) report that anxiety and depression combined explain 3% or less of the variance in various measures of creative achievements (raw correlations were not reported in this article); Young, Winner, and Cordes (2012) found a modest increase in CES-D depression scores for adolescents involved in the arts. (Two large-scale studies in Sweden showed no correlation between being employed in a creative profession and having been hospitalized for unipolar depression, but it seems true that many cases of depression do not require hospitalization; Kyaga et al., 2011, 2013.) An association between depression and creative behavior is surprising, given that symptoms of depression would seem to inhibit rather than foster creative behavior (e.g., Shapiro & Weissberg, 1999). Depression is associated with difficulties concentrating, sleep disorders, and loss of interest in almost all of the activities people usually enjoy doing as well as other debilitating symptoms as listed, for example, in the DSM–IV (APA, 1994). (The link between bipolar disorder and creativity is easier to explain through the occurrence of hypomanic episodes, e.g., Furnham et al., 2008; Kyaga et al., 2011, 2013, but the incidence of bipolar disorder among creative artists suffering from mood disorder appears to be much lower than that of unipolar mood disorder; Ludwig, 1995.)

Traditional accounts of the link between depression and creativity (for an overview, see Jamison, 1993) are variations on what can be labeled the “the artist must suffer” hypothesis—the idea that the experience of having gone through a depression fosters creative behavior. For instance, Richards (1981) suggested that the seemingly facilitative role depression plays in the creative process might be attributable to the introspection inherent to the affective disorder, leading to greater emotional sensitivity, which in turn might make people more susceptible to creative behaviors.

In our own previous work in this area (Verhaeghen et al., 2005), we obtained support for a different hypothesis: the examined-life hypothesis. We found that there was no direct causal relation between depression and creativity, but rather that self-reflective rumination was an underlying third variable tied to both: Once the link between, on the one hand, rumination and creativity, and on the other, rumination and depression were included in a structural equation model, the direct links between depression and creativity disappeared. What we proposed was that self-focused attention might in some cases lead to creative behavior, but it might also lead to dysphoria. If the depression and the creative behavior co-occur in enough individuals, a correlation between depressed mood and creative behavior will be observed.

In the present study, we aim to replicate and extend our 2005 study in the light of the recent literature on the two types of rumination. It makes sense to suppose that the distinction between the brooding and self-reflective pondering aspects of rumination might be applied to the link between rumination and depression/dysphoria and between rumination and creativity as well. A simple but bold hypothesis could be that brooding will foster depression (as found by Joormann et al., 2006) but will not boost creative behaviors (an assertion that, to the best of our knowledge, has not been validated), and, vice versa, that self-reflective pondering will bolster creative behaviors but will not depress mood (Verhaeghen et al., 2005) used self-reflective pondering as their measure of rumination, but did not include brooding, which would be necessary to assess net effects of each of the two types of ruminative behavior; Cohen & Ferrari, 2010 likewise did not include brooding and additionally did not include objective measures of creative ability). It is precisely this hypothesis that we investigated in the current study.
We tested our hypothesis using structural equation modeling in a large-sample ($n = 244$) individual-differences study. In this study, we basically replicated the design of the Verhaeghen et al. (2005) study, now explicitly including both component constructs of rumination—brooding and self-reflective pondering. We measured creativity as self-reported creative interests, as well as through objective creativity tests (the Abbreviated Torrance Test for Adults and select items from the Purdue Creativity Test) that yield scores on creative fluency, originality of ideas, and elaboration of ideas, three separate, but interrelated factors.

One additional variable was included as well, namely behavioral inhibition (Gray, 1972) as measured by the behavioral inhibition system (BIS) component of the BIS/behavioral activation system (BAS) scales (Carver & White, 1994). Behavioral inhibition is a motivational system related to withdrawal from threats and nonreward cues. This construct was included because of recent findings that behavioral inhibition might be the deeper construct underlying self-reflective rumination in mood disorder (e.g., Leen-Feldner, Zvolensky, Feldner, & Lejuez, 2004). Typical items on the BIS scale are “Criticism or scolding hurts me quite a bit” and “I worry about making mistakes.” Higher BIS scores are associated with depression (Meyer, Johnson, & Carver, 1999) with brooding as a likely mechanism (Leen-Feldner et al., 2004). Our additional question was whether behavioral inhibition was associated with both aspects of self-focused attention, or only to the brooding component. Compared to brooding, self-reflective pondering is relatively active and goal oriented. Given that the BIS, by definition, inhibits behavior and, in particular, actively works toward goals, it seems unlikely that behavioral inhibition would be equally associated with passive (brooding) and active (self-reflecting pondering) self-focused attention. We therefore hypothesized that there would be a stronger association between BIS and brooding than between BIS and self-reflective pondering.

**Methods**

**Participants**

We tested 244 participants, all undergraduate students, from three large universities. All participants received either course credit or $10 in cash in return for their participation. To maximize the variety of creative behavior in the sample, we recruited participants from introductory psychology classes on all three campuses, as well as from two Honors programs, selected classes in Fine Arts, one campus writers group, and a group of players in the university Symphony.

**Measures**

**Depression/dysphoria.** The CES-D (Radloff, 1977) was used to measure the severity of current depressive symptoms. The CES-D is a short self-report scale that consists of 20 items assessing aspects of dysphoria such as depressed mood, psychomotor retardation, appetite disruptions, and sleep problems. Scores range from 0 to 60 and anything over 16 indicates a level of depression in adults. The CES-D is acceptably reliable and valid (Gotlib & Crane, 1989). In the present sample, internal consistency of the CES-D (Cronbach’s alpha) was good ($0.79$).

**Creative interests.** The creative interests questionnaire from Verhaeghen et al. (2005) was used. It lists 20 artistic/creative activities (writing, drawing, singing, painting, acting, etc.). Participants were asked to respond how seriously they pursued the creative activities ($1 = $just fooling around$,$ $5 = $potential career$) and how many hours per week they spent on these activities. Participants were given room to add activities at the bottom should their preferred activity not be among those listed; none did. We calculated the average seriousness score and the total number of hours engaged in creative activities as indicators of creative interests. In the present sample, internal consistency of the seriousness scale (Cronbach’s alpha) was good ($0.80$); internal consistency of the total hours metric was more questionable ($0.60$). We note here that internal consistency is a relatively weak proxy for reliability in these scales—we do not necessarily expect that people who invest a lot of mental energy and/or time into one type of creative activity also invest a lot of mental energy and/or time in another type of activity.

**Creative behavior.** Participants took the Abbreviated Torrance Test for Adults (ATTA; Goff & Torrance, 2002). It consists of three parts (3 min are given for each). First, participants were asked to imagine what would happen if “you could walk on the air or fly” and what problems this would create. They were asked to generate as many responses as possible. In the next two parts, simple abstract shapes and designs were presented and participants used these as the basis for drawing pictures that are unusual and interesting. They were also instructed to give each drawing a title. Responses were scored for fluency (the number of responses), originality (the number of responses that do not appear on the list of common responses that accompany the test manual), and elaboration (the degree of detail in a drawing as specifically outlined in the test manual).

Three items from the Purdue Creativity Test (PCT; Lawshe & Harris, 1960) were included to gain another perspective on participants’ creative behavior. Each item consisted of an abstract line drawing. Participants were asked to respond to the question “What is this?”, in as many different ways as they could in 2 min. This test item contributed to the fluency score.

Interrater reliability was established for the creativity tests. Two of the investigators (Katherine S. Gasaway and Paul Verhaeghen) independently scored 15 of the creativity protocols, and then compared their results. When a difference arose, they talked through the individual score and came to an agreement or corrected errors. One investigator (Katherine S. Gasaway) then graded the rest of the tests by herself to ensure that grading was consistent; when questions arose, they were discussed until unanimity was achieved.

To test whether the three assumed factors (i.e., fluency, originality, and elaboration) were present in the data, as they were in Verhaeghen et al. (2005), a confirmatory factor analysis was conducted using LISREL (see Figure 1); in the model, we allowed for error covariance for measures obtained from the same item or activity. This model fitted the data reasonably well, $\chi^2(df = 38, n = 244) = 100.67$, root mean square error (RMSE) = 0.085; goodness-of-fit index (GFI) = .93, normed fit index (NFI) = .88.

1 We note that in each of the three samples, participants completed additional measures that will not be discussed here.
From this analysis, it is clear that Item 2 of the ATTA did not load significantly onto the Fluency factor; this item was discarded from later analyses. As in Verhaeghen et al. (2005), we built three scales from the creativity tests, using unit-weighted composites: (a) Fluency from the fluency scores of the ATTA items, except for Item 2, and the number of responses generated on the PCT; (b) Originality from the ATTA; and (c) Elaboration from the ATTA.

Self-reflection. Participants filled out the 22-item Ruminative Reflection Scale (RRS; Nolen-Hoeksema & Morrow, 1991). This scale asks participants to respond to statements about how often they “think or do” one of the options on the scale when they “feel down, sad, or depressed.” Thus the scale measures responses to dysphoric mood that are focused on the self, on symptoms, or on possible consequences and causes of moods. Previous studies have shown good test–retest reliability and acceptable convergent and predictive validity (Nolen-Hoeksema & Morrow, 1991). Recently, Treynor, Gonzalez, and Nolen-Hoeksema (2003) have factor analyzed the rumination scale and found three interrelated factors—two of which were used here. The first consists of a 5-item subset of items assumed to be a relatively pure and depression-free measure of rumination-as-reflection (hereafter called self-reflective pondering). Typical items are “When you feel down, sad, or depressed, how often do you write down what you are thinking about and analyze it?” and “When you feel down, sad, or depressed, how often do you go away by yourself and think about why you feel this way.” In the present sample, internal consistency of this scale (Cronbach’s alpha) was .67. The second consists of 5 items that can be considered indicative of brooding. Typical items are “When you feel down, sad, or depressed, how often do you think about a recent situation, wishing it had gone better,” and “When you feel down, sad, or depressed, how often do you think ‘What am I doing to deserve this?’” In the present sample, internal consistency of this scale (Cronbach’s alpha) was .66.

Behavioral inhibition and behavioral approach. To measure Behavioral Inhibition and Behavioral Approach, participants were asked to fill out the 24-item BIS/BAS scale developed by Carver and White (1994). Participants were asked to respond with how much they agreed or disagreed with each statement. Responses range from 1 (very true for me) to 4 (very false for me). Typical items on the BIS scale are “Criticism or scolding hurts me quite a bit” and “I worry about making mistakes.” In the present sample, internal consistency of the BIS scale (Cronbach’s alpha) was .77.

Procedure
The experimental procedure varied slightly by testing location. At the Syracuse location the study required two sessions, one for the measures discussed here, and a second one for an additional battery of cognitive measures. At all sites, testing occurred in small groups, ranging in size of 1 to 20. Because of their timed nature, the creativity tests were administered first, starting with the ATTA, followed by the PCT. After the creativity testing was completed, participants worked through the questionnaires at their own pace. The questionnaires were administered in the following order: creative interests questionnaire, BIS/BAS, RRS, and CES-D. Depressive symptoms were assessed after the creativity because items dealing with dysphoria may adversely affect the participant’s mood, and we wanted to prevent contamination of other measures by these potential mood shifts.

Results
The correlation matrix is provided in Table 1. In a first step of the data analysis, we replicated and extended the path model put forward by Verhaeghen et al. (2005). In our starting model, we estimated parameters for all significant paths among the creativity variables as found in Verhaeghen et al. The baseline creativity model assumed that creative interests (seriousness and hours spent) would influence each of the three aspects of creative behavior (fluency, originality, and elaboration) independently; in the previous article, we found that fluency influenced both originality and elaboration, and that hours spent influenced elaboration. In addition, we added brooding, reflectiveness (i.e., self-reflective pondering), and BIS to the model as exogenous variables. We assumed that BIS was the driving force in this model, and so we estimated all possible paths from BIS to all other variables, and paths from brooding and reflectiveness to all other variables, except BIS. (The BAS subscales were not included, given that they did not correlate with any of the relevant variables.) We assumed that depression would be influenced by BIS, brooding, and reflectiveness. This starting model fit the data well, \( \chi^2(\text{df} = 9, N = 244) = 10.47, \text{RMSEA} = 0.026, \text{GFI} = .99; \text{NFI} = .97; \text{the model is depicted in Figure 2.} \) The starting model was next pruned by deleting nonsignificant paths, at no significant cost to fit, \( \chi^2(\text{df} = 26, N = 244) = 36.45, \text{RMSEA} = 0.041, \text{GFI} = .97; \text{NFI} = .95 (\text{the difference in } \chi^2 \text{ between the two models is 25.98, with } \text{df} = 17 \text{ for the difference, } n_s); \) this model is shown in Figure 3. Modification indices suggested that five variables might have a direct effect on creative Originality (seriousness about creative activities, reflectiveness, creative elaboration, brooding, and BIS; all modification indices were larger than 4.07, with 3.84 being the critical value), but entering those all at once in the model resulted in nonsignificant coefficients for all five paths. This suggests that,
in this data set, creative originality is a concept associated with a number of antecedents, but that none of those antecedents was so strongly associated that it took clear precedence. To avoid a fishing expedition, we decided to stop model fitting with the (well-fitting) model depicted in Figure 3.

Discussion

Previous research (Verhaeghen et al., 2005) suggests that both creativity and dysphoria are related to self-reflective rumination—the examined life might make the examiner more creative, more depressed, or both. In the current study, we replicated and extended this result, now examining the relation of two different types of rumination—brooding and self-reflective pondering or reflectiveness—to dysphoria and creativity. This work was inspired by Trapnell and Campbell’s (1999; see also Treynor et al., 2003) claim of the existence of two types of rumination. One type, reflectiveness, is more pondering and active, encompassing an openness to explore negative feelings and a sense that one’s feelings are clear and controllable. We hypothesized that this type may promote positive outcomes and expressive, creative behaviors. The other type, brooding, dwells passively on undesirable aspects of the self, which are seen as threatening, confusing, and inescapable, which in turn likely leads to increased dysphoria.

The results are clear. Our final model suggests a plain bifurcation: Reflectiveness (the more active, positive type of rumination) has a positive effect on creative behaviors, but no effect on dysphoria; brooding (the more passive, negative type of rumination) is linked positively to dysphoria but has no effect on creativity. The effect of brooding on dysphoria is relatively large and (within the confines of the variables studied) direct, with a standardized coefficient of 0.40. The effect of reflectiveness on creativity is somewhat smaller and occurs through what can be

Table 1

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<td>2. Ruminative Brooding</td>
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<td>3. Dysphoria (CES-D)</td>
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<td>4. Fluency</td>
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<td>5. Originality</td>
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<td>6. Elaboration</td>
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<td>7. Seriousness</td>
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<td>.16*</td>
<td>.19**</td>
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<td>8. Time</td>
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<td>9. BIS Total</td>
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Note. CES-D = Center for Epidemiological Studies Depression Scale.

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

Figure 2. Full path model linking behavioral inhibition and rumination to dysphoria and creativity; solid lines indicate path coefficients significantly different from zero.
labeled a motivational factor—the self-reported seriousness with which people engage in creative endeavors, which in turn has a positive impact on creative fluency, originality of ideas, and the degree to which these ideas are elaborated; seriousness also has an effect on the number of hours spent engaged in creative activities. This result echoes and expands our previous work, as well as that of Cohen and Ferrari (2010) who found that reflective rumination correlated positively with a rating scale (the Runco Ideational Behavior Scale) measuring self-reported creative problem solving. Our result, like Cohen and Ferrari’s, suggests that reflectiveness may lead to a self-image as a more creative person; our results additionally point at a link between reflectiveness and actual creative behavior as measured by two objective tests (the ATTA and the PCT).

We hypothesized that behavioral inhibition might be a driving force in the model, explaining some of the variance in ruminative behavior. This was the case: Higher levels of self-reported behavioral inhibition were associated with higher levels of brooding, \( r = .34 \) (replicating Leen-Feldner et al., 2004) and, to a lesser extent, \( r = .16 \), with higher levels of reflectiveness. In the present sample, we found no evidence for the previously reported link between behavioral inhibition and depressed mood (Kash et al., 2002; Meyer et al., 1999), probably because we used a random sample of college students, rather than contrasting samples of depressed patients and nondepressed volunteers. At the level of correlations, behavioral inhibition was related to higher levels of creative originality (\( r = .16 \)). Thus, behavioral inhibition appears to have a dual effect, leading to higher levels of both types of rumination and possibly boosting creative originality.

Our results then confirm the existence of two types of ruminative behavior, each associated with a different behavioral complex: One type—brooding and depressive rumination—is related to depressed mood but is not related to creative behavior; the other—self-reflective pondering—is associated with enhanced mood and appears to promote creative behavior. Although the idea that ruminative behavior can have either positive or negative effects is not new (for a review see Watkins, 2008), our study is the first that we know of to delineate how the two types of ruminative behavior posited by Trapnell and Campbell (1999) differentially effect mood and creative behavior. Further, as predicted, behavioral inhibition had a greater effect on brooding than on self-reflective pondering.

One additional question to ponder is the construct of rumination as underlying the connection between depression and creativity—a correlation that appears to be strong within high-level creative artists (Ludwig, 1995), but modest in our own previous work (Verhaeghen et al., 2005) and that of others (Silvia & Kimbrel, 2010; Young et al., 2012), and very slight here (only one out of five correlations was significant, namely the one between depression and seriousness about creative activities). Perhaps this is what we would expect if the correlation were indirect, fueled by two distinct but related types of rumination (a situation also known as inconsistent mediation; McFatter, 1979). This might also explain why the correlation is stronger in accomplished artists—they might ruminate more often, more deeply, or more uncontrollably, thus putting them at a higher risk of depression. In our present state of knowledge, however, this is pure conjecture. We do note that individual with bipolar disorder—who clearly tend to be more creative (Kyaga et al., 2011, 2013) and by definition also have a higher incidence of depressive symptoms—are also more prone to rumination (Ghaznavi & Deckersbach, 2012), which could explain part of the correlation. It might be worthwhile in further studies to disentangle the effects of unipolar from those of bipolar mood disorder.

We note a few additional results. First, our final model and the Verhaeghen et al. (2005) model share many similarities. In both studies creative fluency significantly and positively influences both elaboration and originality and in both elaboration and originality are negatively correlated. In both, self-reflective pondering is positively correlated with seriousness about creative activities.
Neither study shows a direct path or set of indirect paths that links measures of creativity with our measure of dysphoria. The present study, then, is a strong replication of the main findings of the Verhaeghen et al. study.

There are, however, a few differences between the two sets of results. One is important: We obtained a positive path from self-reflective pondering to dysphoria in Verhaeghen et al. (2005)—higher levels of self-reflective pondering were associated with higher levels of dysphoria. The current study shows no such path. We conjecture that this might be due to inclusion of the other measure of ruminative behavior—brooding—in the path model: The raw correlation is positive, and likely a side effect of the positive correlation between brooding and rumination. When (and only when) we separate out the two types of rumination and take their intercorrelation into account, the null-effect of self-reflective pondering on mood becomes apparent.

A few minor differences can be noted as well. Verhaeghen et al. (2005) obtained a direct path from self-reflective pondering to creative fluency. The current study instead shows a path from self-reflective pondering to creative originality. The significant pathway between hours spent in creative activities and elaboration obtained in Verhaeghen et al. (2005) was not replicated. These differences are minor and have little theoretical consequence.

We note a few weaknesses in our study. Although we deployed a battery of often-used tests and scales in this literature, the internal consistency of some of those left to be desired, potentially suppressing correlations and/or obscuring paths. A second drawback is that our study (like most in the literature) is cross-sectional in nature, which makes causal inferences, even with path analysis, precarious.

Summarized, our results confirm that ruminative behavior can lead to both creative interests and behavior and depressed mood. They also confirm that ruminative behavior has at least two aspects—one aspect (brooding) that serves to undermine mood but does not influence creative behavior, and one aspect (self-reflective pondering) that serves to enhance creative interests and creative originality. Both types of ruminative behavior are, however, intercorrelated (s/he who ponders is also likely to brood, and vice versa), because of their deeper connection to the behavioral inhibition system. Further research is necessary to determine if one and only one of the rumination systems can be influenced, either to alleviate dysphoria or to enhance creative behavior. Our results do suggest that interventions aimed at decreasing brooding but enhancing self-reflective pondering might be particularly beneficial to the individual.

References


ality and Social Psychology, 49, 704–709. doi:10.1037/0022-3514.49.3.704


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