EFFECTS OF DIFFERENT WRITTEN DISCLOSURE INTERVENTIONS AND
THE MECHANISMS OF ACTION RESPONSIBLE FOR REDUCING
MALADAPTIVE RUMINATION AMONG BROODERS

BY

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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGEMENT</td>
<td>iii</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>vi</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>viii</td>
</tr>
<tr>
<td>CHAPTER</td>
<td></td>
</tr>
<tr>
<td>1. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>1.1 Epidemiology of Depression</td>
<td>1</td>
</tr>
<tr>
<td>1.2 Cognitive Vulnerabilities to Depression</td>
<td>1</td>
</tr>
<tr>
<td>1.3 Rumination and Depression</td>
<td>2</td>
</tr>
<tr>
<td>1.4 Expressive Writing Intervention</td>
<td>4</td>
</tr>
<tr>
<td>1.5 Written Disclosure Theories</td>
<td>6</td>
</tr>
<tr>
<td>1.6 Problem Solving</td>
<td>22</td>
</tr>
<tr>
<td>1.7 Subjective Benefits of the Writing Intervention</td>
<td>26</td>
</tr>
<tr>
<td>1.8 Overview of the Study</td>
<td>26</td>
</tr>
<tr>
<td>1.9 Hypotheses</td>
<td>27</td>
</tr>
<tr>
<td>2. METHOD</td>
<td>30</td>
</tr>
<tr>
<td>2.1 Participants</td>
<td>30</td>
</tr>
<tr>
<td>2.2 Power Analysis</td>
<td>36</td>
</tr>
<tr>
<td>2.3 Measures</td>
<td>37</td>
</tr>
<tr>
<td>2.4 Procedure</td>
<td>48</td>
</tr>
<tr>
<td>2.5 Writing Instructions</td>
<td>54</td>
</tr>
<tr>
<td>3. RESULTS</td>
<td>59</td>
</tr>
<tr>
<td>3.1 Missing Data</td>
<td>59</td>
</tr>
<tr>
<td>3.2 Subjective Experience Results</td>
<td>60</td>
</tr>
<tr>
<td>3.3 Correlations among Study Variables at Time1</td>
<td>63</td>
</tr>
<tr>
<td>3.4 Hypothesis 1</td>
<td>64</td>
</tr>
<tr>
<td>3.5 Hypothesis 2</td>
<td>73</td>
</tr>
<tr>
<td>3.6 Hypothesis 3</td>
<td>80</td>
</tr>
</tbody>
</table>
4. DISCUSSION ........................................................................................................ 81

4.1 Did the Experimental Writing Conditions Produce a Reduction in Brooding ........................................................................ 81
4.2 Mediators of the Effects of Writing on Brooding ........................................................................................................ 86
4.3 Implications for Cognitive Processing Theory .............................................. 86
4.4 Implications for Self-Regulation Theory ........................................................ 91
4.5 Limitations in Study Design ........................................................................... 92
4.6 Potential Limitations of the Measures ............................................................ 95
4.7 The overall effectiveness of Writing Paradigms .............................................. 96
4.8 Subjective Benefits of Writing ....................................................................... 97
4.9 Future Directions ............................................................................................ 98
4.10 Clinical Applications .................................................................................... 100

APPENDIX

A. CONSENT FORMS ......................................................................................... 102
B. POSTINGS ..................................................................................................... 108
C. PHONE SCREEN QUESTIONNAIRE ............................................................. 111
D. SURVEY QUESTIONNAIRE .......................................................................... 114
E. WRITING INSTRUCTIONS ON WEB ............................................................ 154
F. WEBSITES AND URL’S ................................................................................ 164

BIBLIOGRAPHY .................................................................................................. 166
<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Demographics of Volunteers who Completed the Screen Survey</td>
<td>32</td>
</tr>
<tr>
<td>2</td>
<td>Demographics of Participants Included in the Analysis</td>
<td>34</td>
</tr>
<tr>
<td>3</td>
<td>Measures and Constructs</td>
<td>37</td>
</tr>
<tr>
<td>4</td>
<td>Number of People with Missing Items over Three Time Periods</td>
<td>60</td>
</tr>
<tr>
<td>5</td>
<td>ANOVA of Group Differences on PES</td>
<td>62</td>
</tr>
<tr>
<td>6</td>
<td>Correlations Among Study Variables at Time 1</td>
<td>64</td>
</tr>
<tr>
<td>7</td>
<td>CES-D Residuals: Means and Standard Deviations</td>
<td>66</td>
</tr>
<tr>
<td>8</td>
<td>Brooding subscale of the RRS Residuals: Means and Standard Deviations</td>
<td>66</td>
</tr>
<tr>
<td>9</td>
<td>DAS Residuals: Means and Standard Deviations</td>
<td>67</td>
</tr>
<tr>
<td>10</td>
<td>CSQ Residuals: Means and Standard Deviations</td>
<td>67</td>
</tr>
<tr>
<td>11</td>
<td>DERS Residuals: Means and Standard Deviations</td>
<td>68</td>
</tr>
<tr>
<td>12</td>
<td>SPSI residuals: Means and Standard Deviations</td>
<td>68</td>
</tr>
<tr>
<td>13</td>
<td>CES-D: Means and Standard Deviations</td>
<td>70</td>
</tr>
<tr>
<td>14</td>
<td>Brooding subscale of the RRS: Means and Standard Deviations</td>
<td>70</td>
</tr>
<tr>
<td>15</td>
<td>DAS: Means and Standard Deviations</td>
<td>71</td>
</tr>
<tr>
<td>16</td>
<td>CSQ: Means and Standard Deviations</td>
<td>71</td>
</tr>
<tr>
<td>17</td>
<td>DERS: Means and Standard Deviations</td>
<td>72</td>
</tr>
<tr>
<td>18</td>
<td>SPSI: Means and Standard Deviations</td>
<td>72</td>
</tr>
<tr>
<td>19</td>
<td>ANOVA of Group Differences on Word Categories from the LIWC</td>
<td>74</td>
</tr>
<tr>
<td>20</td>
<td>Total Affect Words: Means and Standard Deviations</td>
<td>76</td>
</tr>
</tbody>
</table>
Positive Emotion Words: Means and Standard Deviations ................................ 76
Negative Emotion Words: Means and Standard Deviations .......................... 77
Anxiety Words: Means and Standard Deviations .......................................... 77
Anger Words: Means and Standard Deviations ............................................. 78
Sadness Words: Means and Standard Deviations .......................................... 78
Total Cognitive Words: Means and Standard Deviations ............................. 79
Total Insight Words: Means and Standard Deviations .................................. 79
Total Causal Words: Means and Standard Deviations ................................. 80
ABSTRACT

Brooding is a maladaptive form of rumination associated with negative bias, emotion dysregulation, ineffective problem solving, and depression (Nolen-Hoeksema, 1991; Treynor, Gonzalez, & Nolen-Hoeksema, 2003). Some data indicate that writing interventions reduce brooding (Gortner, Rude & Pennebaker, 2006). What is less known are the mechanisms whereby writing counteracts brooding.

The primary aim of this study was: (1) to examine the effects of writing conditions on functioning in brooders and (2) to provide empirical support for the mechanisms of action for how writing reduces brooding. Those who wrote from specific instructions were hypothesized to increase their cognitive appraisal, emotion regulation, and problem-solving abilities, thereby reducing brooding more than those writing from expressive writing and control group instructions. Writing also was hypothesized to reduce brooding through these mechanisms. Gaining a greater understanding of which writing techniques were most effective in reducing brooding and of how brooding is reduced is important for rumination research and therapeutic practice.

Eighty-eight adults recruited from a mid-western university and the general population were divided into two experimental conditions (Expressive Writing (EW) and Self-Regulation/Problem-Solving (SR/PS) and one control group. A 3 X 2 MANOVA was conducted to determine whether improvements after the writing intervention were (a) greater in the EW and SR/PS conditions than in the control condition and (b) greater in the SR/PS condition than in the EW condition. A 3 X 2 MANOVA also was conducted to determine whether there were reductions in negative cognitive word use over time. Participants completed a survey of their subjective experience at the end of the study.
Contrary to predictions, none of the hypotheses were supported. Improvements were not greater in either experimental group compared to the control group or in the SR/PS condition compared to the EW on any of the outcome variables. Only the use of anger words was significantly reduced over time. Given there were no significant reductions in brooding and no relationship between the predictor and outcome variables, a mediation analyses was not conducted. In contrast, subjective reports indicated that participants in the experimental conditions perceived the study to have greater meaning and felt happier after the study compared to the control group. Participants also reported improved emotion regulation, cognitive processing and problem-solving abilities. The findings suggest considering of an individual’s perception of treatment benefits when determining effectiveness.
CHAPTER 1
INTRODUCTION

1.1 Epidemiology of Depression

Depression is a debilitating and widespread disorder. Lifetime prevalence rates are as high as 25% (Kessler, Avenevoli, & Merikangas, 2001). Once a first episode of depression occurs, approximately 75% to 80% have been found to have a recurrent episode (Judd, 1997), making depression a lifelong disability. The morbidity rates of depression emphasize the urgency for identifying vulnerabilities to depression so that interventions can target those individuals before an episode occurs.

1.2 Cognitive Vulnerabilities to Depression

There is compelling support that negative cognitive styles predict depression (Alloy, Abramson, Gibb et al., 2004). For example, maladaptive attributional styles, such as stable and global attributions made about negative events, have been found to serve as a diathesis for depression by the time individuals reach seventh or eighth grade and were related to depressive symptoms over a period of 7 years (Cole et al., 2008). In a review of studies of cognitive vulnerabilities for depression among children and adolescents (ages 7-19), 21 studies were found to support negative effects of maladaptive attributional style on depressed mood, and six prospective studies supported the role of dysfunctional attitudes in predicting depression (Jacobs, Reinecke, Gollan, & Kane 2008). Among adults, maladaptive attributional styles predicted significantly higher lifetime rates of major, minor and hopelessness depressive episodes (Fresco, Alloy & Reilly-Harrington, 2006). In addition, the interaction of negative cognitive styles and stress-reactive rumination was found to predict the prospective onset, number and duration of major
depressive episodes (Robinson & Alloy, 2003). Thus, negative cognitions and response styles to negative mood states play a key role in predicting vulnerability, onset, and course of depression.

1.3 Rumination and Depression

Much evidence points to maladaptive rumination as a response style that predicts the course and development of depressive symptoms (Ciesla & Roberts, 2007; Robinson & Alloy, 2003). A ruminative response style is defined as a response to negative mood states in which the individual passively and repeatedly focuses on mood state and its causes and consequences (Nolen-Hoeksema, 1987; Nolen-Hoeksema et al., 2008). This is in contrast to a distractive response style, whereby individuals turn attention away from their mood symptoms and their possible causes and consequences, to pleasant neutral activities (Nolen-Hoeksema, 1987).

Not all forms of rumination are maladaptive. For example, “reflection,” is an adaptive variant of rumination that refers to analyzing how one arrived at a particular state to increase self-awareness and understanding (Treynor, Gonzalea & Nolen-Hoeksema, 2003). In contrast, “brooding” is maladaptive because, although the aim of the amplified attention to mood state is to increase insight, this type of rumination increases negative cognitions and emotions. It also interferes with instrumental behavior and effective problems solving, leading to depression (Nolen-Hoeksema, 2003). For this study, because brooding and original usage of rumination are both conceptualized as maladaptive, the terms maladaptive rumination and brooding will be used interchangeably when discussing maladaptive responses to depressed mood. Reflection will be referred to when associating rumination with adaptive coping and improved
health outcomes.

There is considerable evidence that maladaptive rumination increases risk for the onset and severity of depressive symptoms (e.g. Lyubomirsky et al., 1999; Morrow & Nolen-Hoeksema, 1990; Nolen-Hoeksema & Morrow, 1991; Roberts, Gilboa & Gotlib, 1998) and that the tendency to ruminate is relatively stable (e.g. Just & Alloy, 1997; Morrow & Nolen-Hoeksema, 1990; Nolen-Hoeksema & Morrow, 1991). In longitudinal studies, maladaptive rumination was found to predict the onset of depressive disorders among both non-depressed and clinically depressed individuals (Just & Alloy, 1997; Keuhner & Weber, 1999; Lyubomirsky et al., 1999; Morrow & Nolen-Hoeksema, 1990; Nolen-Hoeksema & Morrow, 1991; Roberts et al., 1998). In one study of non-depressed adults, those who reported a tendency to ruminate were more likely to have a depressive episode within a period of 18 months than those with a distractive response style (Just & Alloy, 1997). In a study of inpatient adults diagnosed with clinical depression, a maladaptive rumination tendency was also significantly associated with episodes of depression four months after the initial assessment (Keuhner & Weber, 1999).

Maladaptive rumination also has been shown to increase the severity of depressive symptoms (Just & Alloy, 1997; Keuhner & Weber, 1999; Morrow & Nolen-Hoeksema, 1990; Nolen-Hoeksema & Morrow, 1991; Roberts et al., 1998). In a prospective longitudinal study conducted before and after an earthquake, individuals who reported a ruminative response style tendency were more likely to be clinically depressed and had more depressive symptoms 10 days and seven weeks after this event than those with a distractive response style (Morrow & Nolen-Hoeksema, 1990; Nolen-Hoeksema & Morrow, 1991). Prospectively and concurrently with depressed mood, rumination also
predicted the severity of participants’ first episode of depression (but not subsequent episodes) over an 18 month time period (Just & Alloy, 1997). Rumination has been found to predict the duration of symptoms in both experimental studies where mood was induced (Morrow & Nolen-Hoeksema, 1990), and in naturalistic longitudinal studies (Keuhner & Weber, 1999; Nolen-Hoeksema, 1993). The association between maladaptive rumination and depression suggests a need for preventive interventions that target rumination. Interventions should help to reduce maladaptive rumination while helping individuals develop adaptive coping skills such as increased self-awareness, insight and effective problem-solving skills associated with more reflective processing.

1.4 Expressive Writing Intervention

An expressive writing intervention pioneered by Pennebaker and colleagues (e.g. Pennebaker, 1997) is one such research intervention that aims to improve coping skills. Expressive writing has proven to be a beneficial therapeutic and preventive intervention for myriad physical and psychological problems (Chung & Pennebaker, 2008; Gortner, 2005; Lepore, 1997). An expressive writing paradigm typically follows a protocol where research participants are asked to write about traumatic experiences for 15-20 minutes a day for three to four consecutive days (Pennebaker, 1997). Control groups are asked to write about superficial topics, such as how they typically spend their day.

The research is robust supporting the benefits of expressive writing (e.g. Frattaroli, 2006, Gortner et al., 2006; Pennebaker, 1989, 1997; Sloan & Marx, 2004b; Sloan, Marx, Epstein & Lexington, 2007). The expressive writing procedure has positively affected the physical and psychological health of individuals diagnosed with cancer (Stanton et al., 2002), asthma or arthritis (Smyth, Stone, Hurewitz, & Kaell, 1999)
and chronic pain (Norman, Lumley, Dooley, & Diamond, 2004). Expressive writing also has been found to reduce illness-related visits (Pennebaker & Beall, 1986), improve immune functioning (Pennebaker, Colder & Sharp, 1990), reduce absenteeism rates from work due to illness (Francis & Pennebaker, 1992) and decrease self-reports of upper respiratory problems (Greenberg, Wortman & Stone, 1996).

Expressive writing also has been found to counteract symptoms of depression (Gortner et al., 2006; Lepore, 1997; Sloan et al., 2008). Lepore (n = 74) found that depressive symptoms were reduced in students about to take college entrance exams after just one writing session. In addition, Graf (2004, n = 44) found that written disclosure decreased symptoms of depression and anxiety among psychotherapy outpatients compared to a control group, as measured by the Depression Anxiety Stress Scales.

Expressive writing also reduced symptoms of depression among 47 female victims of spousal abuse who were clinically depressed (Koopman, Ismailji & Holmes et al., 2005) and reduced depressive symptoms in a sample of 49 women experiencing Post Traumatic Stress Disorder (PTSD) symptoms (Sloan & Marx, 2004a).

One way written disclosure buffers against depression is by reducing the tendency to ruminate. Sloan and colleagues (2008) found in a sample of 68 participants that expressive writing reduced maladaptive rumination to lower depressive symptoms. In addition, Gortner and colleagues (2006) found in a sample of 90 undergraduate students that maladaptive rumination mediated the relationship between thought suppression and depression in an expressive writing intervention. Individuals high on thought suppression prior to writing showed significantly fewer depression symptoms at a 6-month follow-up; treatment benefits were mediated by changes in the brooding, but not the reflection scale.
Thus, expressive writing may be particularly effective in treating mood symptoms by targeting ruminative response tendencies prior to a first onset of a depressive episode. Writing has even resulted in better adjustment outcomes compared to either thinking or talking alone (Lyubomirsky, Sousa, Dickerhoof, 2006), highlighting the effectiveness of utilizing writing interventions in prevention and treatment.

Much research and mental health resources have been dedicated to treatment rather than prevention of depressive episodes. There are several limitations to this approach. First, few individuals have the resources to access validated treatments, and among those that do, few seek professional psychological help (Carlton & Deane, 2000). Second, even treatments with empirical support are limited in their effectiveness. The recurrence rates of depression at 75%-80% highlight the limitations of treatment (Judd, 1997). Third, the chance of recurrences decreases lifelong productivity and functioning dramatically, which affects everyone, not just those who are depressed (Kessler et al., 2001). The limitations of current treatments highlight the importance of garnering empirical support for simple preventive interventions that are cost-efficient, easily accessible, and effective in a variety of settings.

1.5 Written Disclosure Theories

The research suggests that written disclosure counteracts rumination and depression-vulnerability. What is less understood is why and how the writing intervention process works to reduce the tendency to ruminate and to prevent depression. Several theories have been proposed that explain the mechanisms for how writing may benefit a wide range of problems, and how it may serve to reduce rumination and prevent depression.
The Inhibition Model. Early theories attempted to explain the benefits of writing based on the premise that inhibition of thoughts and feelings is harmful physically and mentally (Pennebaker, 1989). The Inhibition Theory proposes that some individuals inhibit painful thoughts in order to avoid negative feelings. Although this works in the short-term, long-term inhibition has been found to actually trigger unwanted ruminative and intrusive thoughts (Gold & Wegner, 1995; Lepore, 1997). Expression of those thoughts through writing was proposed to lead to reduced stress and improvement of a host of symptoms (Lepore, 1997; Pennebaker, 1989).

There are some data supporting inhibition theory, but the findings are inconsistent. For example, Kerner & Fitzpatrick (2007) found that expressive writing about a previously undisclosed trauma resulted in lower levels of physical symptoms at three-month follow up among cancer patients, suggesting that expression may be associated with improved physical symptoms. Gortner (2006) also found that written disclosure reduced thought suppression among those rated high on thought suppression.

On the other hand, results of other studies did not support the inhibition model. Francis and Pennebaker (1992) found that participants who were low in dispositional constraint benefited most from an experimental disclosure intervention compared to those rating high on dispositional constraint. If writing benefited individuals by promoting expression of thoughts, it would have been expected that individuals rating high in thought suppression would benefit most. Furthermore, writing has been found to equally benefit those writing about a real trauma and an imaginary one (Greenberg et al., 1996), suggesting that beneficial effects have little to do with expression of previously undisclosed personal problems. Populations thought to rate higher in thought suppression
(e.g. Asians, men) also did not always improve these inhibition tendencies or benefit more after writing disclosure (see Frattaroli 2006, for a review).

These findings challenge the notion that writing benefits individuals or reduces maladaptive rumination solely by facilitating expression of thoughts. In fact, expressing thoughts in an unstructured writing format has resulted in some individuals exhibiting no change, and, in some, reporting more symptoms after a writing process (Pennebaker, 1993). It is thus possible then that, among those rated high in maladaptive rumination, writing without structure does not reduce ruminative tendencies, but rather perpetuates a cycle of passive, repetitive dwelling of symptoms because no guidance for developing coping skills is provided in the intervention.

The Cognitive-Processing Model. Pennebaker (1993) later proposed that merely talking or writing about stressful events does not help individuals unless they express insight and resolution. Insight is understood as a form of cognitive engagement that helps the individual to integrate current traumas with pre-existing cognitions about the self, the world, and the future. To test this idea, Pennebaker and colleagues examined the words used over several past expressive writing studies (1997). They found that participants who benefited most in health outcomes were those that demonstrated increasing use of causation words (e.g. because, cause, effect) and insight words (e.g., consider, know) over 3 days of writing; words indicative of an active process of reappraisal and self-reflection. Pennebaker interpreted this to mean that changing from not processing productively to actively processing an event through written disclosure leads to better outcomes. Cognitions are altered, which helps individuals integrate, analyze, and understand problems, promoting greater insight, acceptance, and more effective solutions.
to problems (Lyubomirsky et al., 2006). In contrast, thinking alone is understood to be inherently disorganized. It may perpetuate a conscious attempt to control negative thoughts that actually can trigger a cycling of repetitive dwelling (i.e. brooding) on symptoms.

There is some empirical support for the cognitive processing model. For example, individuals using more words that were indicative of self-reflection (i.e. causal, insight words) over time had better outcomes after writing disclosure. These individuals also rated the process of writing as more meaningful to their lives (e.g. Pennebaker, Mayne, & Francis, 1997; Pennebaker & Seagal, 1999; Sloan et al., 2007). Increasing use of positive emotion words over time was also found to be associated with greater health improvements among participants (Pennebaker et al., 1997).

Written disclosure studies that examined the effects of writing by altering the writing instructions to facilitate cognitive processing also found the cognitive processing paradigm to produce better outcomes than the expression of emotions alone (Gidron, Duncan, Lazar, Biderman, Tandeter & Shvartzman, 2002). In a study among PTSD patients, merely having participants write about feelings without aiding them in the development of coping skills resulted in patients having more depressive symptoms after the intervention (Gidron, Peri, Connolly, & Shalev, 1996). A follow-up study that added increased guidance to promote cognitive processing in the writing instructions, resulted in better health outcomes in a second group of PTSD patients compared to individuals writing from unstructured instructions (Gidron et al., 2002). By asking participants to appraise their reactions to events (i.e. write about how they felt about their past solutions to problems, how an event affected their life, and how they would do things differently in
the future), cognitive processing instructions facilitate a greater opportunity to restructure negative cognitions, and to gain insight and acceptance of a situation. In contrast, writing about emotions without guidance in the instructions may perpetuate a repetitive dwelling and worsening of symptoms especially among those who are more vulnerable to maladaptive rumination.

**Cognitive Processing and Rumination: Brooding Versus Reflection.** The cognitive processing model, as it applies to writing, provides at least a partial explanation of how written disclosure helps individuals move from a destructive, passive, and repetitive focus toward a form of self-focus that reorganizes thoughts, increases insight, and ability to solve problems. These two forms of self-focus can be conceptualized in terms of two variants of rumination discussed previously (i.e. brooding and reflection), each leading to a differential outcome with respect to depression (Treynor, Gonzalez and Nolen-Hoeksema, 2003).

The maladaptive variant of rumination, “brooding” captures aspects closely aligned with Nolen-Hoeksema’s original conceptualization of depressive or maladaptive rumination. The thoughts are focused on one’s current depressive symptoms, the causes and the consequences, and contain the perception that the situation is hopeless. If one has the tendency to engage in brooding, thinking about feelings can perpetuate a passive, repetitive self-focus and inability to change a current situation. Brooding is associated with onset and course of depression (Treynor et al., 2003). Brooding is also associated with maladaptive disengagement coping strategies (Burwell & Shirk, 2007) and more abstract evaluative processing (Watkins & Teasdale, 2004), further contributing to the maintenance and severity of depressive symptoms.
The adaptive variant of rumination, “Reflection,” refers to a type of self-focus that is more neutral in valence. Reflection is associated with focus on the concrete meaning of feelings and experience, which promotes problem solving (Watkins, Moberly & Moulds, 2008). Concrete processing (a form of reflection) has also been shown to reduce negative global self-evaluations (Rimes & Watkins, 2005), global autobiographical memories (Watkins & Moulds, 2005b) and to improve social problem solving (Watkins & Moulds, 2005a), all of which led to improved mood.

On the original subscale of the Ruminative Response Scale (RRS) assessing Reflection, reflection was associated with initial depressed mood, but not with depression over time (Treynor et al., 2003). Once judgment-related items were removed from the RRS, reflection was not associated with depression (Rude, Maestas, and Neff (2007). Reflection is a more active confrontation, contemplation and evaluation of events and symptoms indicative of adaptive cognitive processing compared to brooding, which is a maladaptive form of cognitive processing of events and symptoms. By altering the writing instructions to promote insight, concrete processing, and cognitive appraisal of situations, brooding should be reduced and reflection should be enhanced.

**Cognitive Processing and Negative Cognitions.** Cognitive processing theories further speculate that written disclosure buffers against maladaptive rumination by altering negative cognitions associated with distress outcomes. Written disclosure is posited to help individuals make sense of the world by assimilating upsetting events into existing beliefs or by accommodating existing beliefs to integrate with negative experiences (Lepore, 1997). Dysfunctional attitudes and negative cognitions are altered because
writing tends to involve organizing thoughts to focus on problem solving, or at least on promoting a greater acceptance of a situation (Lyubomirsky et al., 2006).

Pennebaker and colleagues (1991) supported this notion by measuring the percentage of total words that were negative and positive emotion words, and causal/insight words over time among non-clinical participants. Participants who increased use of positive emotion words and causal/insight words over time had better health outcomes (e.g. fewer health related clinic visits) compared to those with no changes in their word use. A moderate use of negative emotion words overall also was associated with better health outcomes, whereas low use and high use of those words overall were associated with poorer health outcomes. The implication of these results is that writing facilitates cognitive processing. Writing is effective if individuals initially confront negative cognitions (as indicated by moderate negative emotion word use), and process and reappraise these cognitions in order to increase insight and understanding of events, thereby reducing negative emotions.

In general however, the examination of whether writing improves depressive symptoms by altering negative cognitions has been sparse or not supported. For example, Lepore (1997) found that writing reduced only the impact and not the frequency of intrusive (i.e. negative) thoughts. However, Lepore only conducted one writing session; thus the results need to be interpreted with caution. Several researchers have found that writing is beneficial because concurrent with exposure theory, repeated exposure and confrontation of negative events and feelings habituates individuals to the point where those thoughts are either altered to increase acceptance or eventually become extinct (Sloan & Marx, 2004b). Thus, more than one writing session appears to be essential to
habituate individuals to their negative thoughts and feelings. More research is needed to understand whether written disclosure benefits individuals by altering or reducing negative cognitions.

**Beck’s Theory and Hopelessness Theory of Depression.** Given that negative cognitions play a key role in depression and is proposed to be a factor in outcomes of written disclosure studies, it is important to discuss what is meant by negative cognitions. Beck (1967, 1983) described negative cognitions as reflecting themes of worthlessness, failure, low self-esteem, self-judgment and unlovability. According to Beck, negative thoughts are largely outside awareness, but become activated into consciousness when faced with stressful negative events. These cognitions then take on the form of negative or pessimistic cognitions about the self, the world and the future comprising the “negative cognitive triad” that function as a vulnerability to depression. Hopelessness theory similarly proposes that cognitive vulnerabilities interact with stressful events to increase risk for depression (Abramson, Metalsky & Alloy, 1989). The primary cognitive vulnerability (i.e. negative cognition) is defined as a tendency to attribute negative life events to internal (likely due to personal deficiencies), stable (likely to persist over time), and global (likely to impact several areas in one’s life) causes. Vulnerable individuals also are likely to infer negative consequences and negative characteristics about themselves when confronted with negative life events. Individuals with these attributions are at risk for increased hopelessness and lowered self-esteem, which serve as proximal mechanisms for depression (Abramson et al., 1989).

The Cognitive Vulnerability to Depression (CVD; Haeffel, Abramson & Voelz et al., 2003) project provides compelling support for negative cognitions serving as
vulnerabilities to depression. The CVD was a two-site study that used both a retrospective and a prospective behavioral high-risk design. It was based on Beck’s cognitive theory of depression and hopelessness theory of depression (Alloy et al., 2000; Alloy et al., 1999). Participants (n = 5378, college freshmen) in the CVD project were divided into cognitively high-risk and low-risk groups based on the Cognitive Style Questionnaire (CSQ; Abramson & Metalsky, 1989; Haeffel, Gibb & Metalsky, 2008), which examines maladaptive attributions, and the Dysfunctional Attitudes Scale (DAS; Weissman & Beck, 1978), assessing dysfunctional attitudes. Assessment of depressive symptoms was conducted every 6 weeks over 2 1/2 years. High-risk participants showed greater lifetime prevalence rates of Major and Minor Depressive Disorder and Hopelessness depression in the retrospective design. Prospective results showed that high-risk individuals showed a greater likelihood than low risk participants of a first episode of Major and Minor Depressive Disorder at the two and half year follow-up. These findings provide support for the cognitive vulnerability hypotheses that negative cognitions predict depression. No study has examined the effects of writing on reducing dysfunctional attitudes or maladaptive attributions. If cognitive processing is a mechanism by which writing reduces brooding and promotes reflection, then it is necessary to examine changes in negative cognitions.

**Negative Cognitions and Rumination.** It is also important to examine negative cognitions within the context of rumination. Ciesla and Roberts (2002) proposed that ruminative response style and negative cognitions mutually reinforce each other in relation to depression. In a study of the moderation effects of negative cognitions, negative self-beliefs, dysfunctional attitudes and low self-esteem moderated the effects of
rumination on dysphoria (Ciesla & Roberts, 2007). Dysphoric rumination was also found to be associated with more problem-focused thoughts, self-criticism, self-blame, pessimism and decreased perception of control over events (Lyubomirsky et al. 1999). Rumination produced more negative cognitive inferences, with more negative recall of autobiographical memories and more over generalized autobiographical memories (Lyubomirsky, Caldwell & Nolen-Hoeksema, 1998; Watkins, Teasdale & Williams, 2000). High levels of hopelessness also interacted with rumination to exacerbate negative mood, and negative thinking about future events compared to those instructed to distract themselves (Lavender & Watkins, 2004). The tendency to ruminate was more predictive of future episodes of depression if individuals had reported high levels of negative content, compared to those who reported low levels (Robinson & Alloy, 2003).

Rumination also mediates the relationship between negative cognitions and depressive symptoms. For example, Spasojevic and Alloy (2001) found that a ruminative response style mediated the effects of self-criticism, dependency and neediness on subsequent recurrent episodes of major depression. Rumination also mediated the effects of thought suppression, and judgment (Rude et al., 2007) and of poor problem solving (McMurrich & Johnson, 2008) on subsequent depression. Thus, there is robust evidence that maladaptive rumination and negative cognitions mutually interact with each other to increase depression.

There is a need for studies that examine the mechanisms for how writing benefits individuals who brood, i.e. to examine the relationship between negative cognitions and rumination. Negative cognitions influence brooding, leading to greater distress. Negative bias intrudes on ability to integrate events into existing beliefs to facilitate self-reflection,
insight and coping with a stressful situation. Brooding and negative cognitions are thus indicative of failed processing of events and their causes and consequences. Support for cognitive processing as the mechanism accounting for the effectiveness of the writing intervention would be indicated if structured written disclosure instructions alter negative cognitions to promote an active confrontation of events and if they alter one’s reactions to events. This reaction, in turn, would simultaneously reduced brooding.

**The Self-Regulation Model.** Although cognitive processing theories provide a good explanation for how written disclosure might buffer against maladaptive rumination to increase functioning, cognitive processing theories fail to provide an in-depth explanation of why some individuals initially are prone to ruminate and increase subjective distress (i.e. brooding), whereas others ruminate and alleviate a stressful situation (i.e., reflection). Self-regulation theories provide a compelling and more comprehensive argument for why some individuals are prone to maladaptive rumination. Self-regulation theories also enhance our understanding of how written disclosure might buffer against brooding and reduce negative cognitions to promote an active confrontation of one’s mood state and current situation.

The self-regulation model describes emotion regulation as the ability of individuals to influence which emotions they have, and how they experience and express these emotions (Gross, 1998). Marsha Linehan (1993) describes emotion dysregulation as a heightened sensitivity to emotional stimuli, whereby individuals experience emotions as extremely intense, and have a slow return to emotional baseline. Emotion dysregulation thus refers to a greater frequency and intensity of emotional response to stress than would be expected given the event. Brooding and increased access to negative cognitions are
understood according to this theory, to be a problem of emotion dysregulation.

Individuals who are emotionally dysregulated remain “stuck” in a cycle whereby repetitive thinking, and access to negative cognitions and depressed mood perpetuate each other to increase risk for depression.

**Self-Regulation and Rumination.** The self-regulation model posits that emotion dysregulation leads to intrusive, repetitive thoughts (i.e. brooding) that disrupt functioning (Linehan, 1993). A positive feedback loop forms whereby high levels of rumination on negative mood states increase emotional intensity, and, in response, this increase in emotional intensity results in increased rumination (Linehan, 1993). This cycle may generate a magnified emotional response to emotional stimuli, and this cycle is self-perpetuating so that it may last for an extended amount of time (Erber & Wegner, 1996; Gold & Wegner, 1995; Linehan, 1993; Selby & Joiner, 2009). Thus, individuals who become dysregulated lose a sense of control over their emotional experience, expression or behavior, which has negative effects on physical and psychological health.

Carver and Sheier (2006) describe emotion dysregulation as an inability to reconcile discrepancies between past goals and current situations when goals are not attained. Individuals who are able to adapt and reconcile these discrepancies initially direct their attention to their current reaction or emotional state and compare the current state to the desired state had they reached their goal (Carver & Scheier, 2006; Martin & Tesser, 1996). Inferences are made about the causes and consequences of the situation and implications of the event on self-worth are assessed. Healthy inferences (e.g. unstable and specific to the situation) are associated with an active confrontation of events (i.e. reflection) that eventually allow the individual to disengage in ruminative processes to
progress toward a goal. This is done by either relinquishing the desire for the current goal, by finding alternative solutions to the current problem, or by engaging in activities that promote self-worth (Carver & Scheier, 2006). This type of ruminative processes is synonymous with reflection. Problems thus do not impact mood or self-worth in the long-term.

However, among individuals with emotion dysregulation, although attention is directed to negative affect associated with unattained goals, individuals become “stuck” in the self-focused process or brooding. The prolonged vigilance to mood state impedes on the ability to reconcile perceived discrepancies between a current state and previous unattained goals, which in turn, perpetuates further brooding. Emotion dysregulation also exacerbates negative evaluations of the self, the world and the future. Inferences about the causes and consequences of unattained goals are more global and stable, leading to increased risk for depression (Ingram, 1990). Thus, most individuals respond to stress by initially engaging in a self-focused attention or ruminative process in the aim to gain insight and understanding. However, based on the ability to regulate emotions, this self-focused attention (i.e. rumination) becomes adaptive or maladaptive.

Three mechanisms were proposed to explain why some individuals have difficulty disengaging from rumination, making it maladaptive (Abramson, Alloy, Hankin, Haeffel, MacCoon, & Gibb, 2002). First, if an individual makes global attributions (e.g. will fail in all situations), by maintaining self-focus, and the belief that one is not capable of changing the situation, hopelessness is further increased (Lavender & Watkins, 2004). The tendency to make stable and global attributions links the current negative situation to other outcomes. Second, when one’s entire self-worth is dependent on whether the goal
in the current situation was reached (e.g. if I failed this test I am stupid and that stupidity is going to make me fail in many situations), there is a tendency to brood over negative affect (Martin & Tesser, 1996). Individuals become stuck ruminating on the reasons why they failed rather than finding alternatives to progress toward a goal. This kind of thinking makes relinquishing the current goal impossible. Third, negative cognitions associated with brooding instill the belief that the situation cannot be changed, and therefore impede on the ability to distract oneself by engaging in alternative activities (Nolen-Hoeksema, 1987).

In summary, the extent to which rumination becomes maladaptive (i.e. leading to increases in depressive symptoms rather than problem-solving behavior) depends largely on whether one is able to regulate their emotional responses to stress. Emotion dysregulation is associated with increased negative cognitions, and global and stable causal inferences made when in depressed mood, which further decrease the ability to regulate emotions and cause more tendency to ruminate (Ciesla & Roberts, 2002; Spasojevic & Alloy, 2001). The self-regulation model provides a compelling explanation for how and why maladaptive rumination and negative cognitions mutually reinforce each other to disrupt problem solving and increase risk for depression.

**Self-Regulation Theories and Writing.** Self-regulation theories incorporate exposure theories and cognitive processing theories into a theory of emotion regulation to explain the mechanisms by which written disclosure benefits individuals. As previously discussed, exposure theories argue that when a person repeatedly confronts, describes and re-experiences thoughts and feelings about negative experiences, the repetition should lead to extinction of those thoughts and feelings (Foa & Kozak, 1986; Sloan & Marx,
Continued exposure also allows for cognitive restructuring of thoughts resulting in reduced distress. Lepore and Smyth (2002) proposed that written disclosure also helps to normalize the capacity to regulate emotions through three processes. First, writing helps individuals focus attention and confront thoughts and feelings about stressful events instead of trying to avoid them. Derived from exposure theory, repeated confrontation facilitates habituation to the stressful stimuli and the negative associated feelings. Finally, similar to cognitive processing theories, negative thoughts are reorganized to have less negative content (e.g. stable and global attributions are reduced) and less impact on functioning, which, in turn, improves mood (Smyth, Nazarian, Arigo, 2008). Lepore and Smyth (2002) further added to cognitive processing theories by proposing that written disclosure allows people to observe themselves expressing their emotions and provides a perceived sense of control over the emotions and negative events. This process may give people a new or stronger sense of self-efficacy for their ability to regulate their emotions and solve problems.

In attempts to understand whether self-regulation is a primary mechanism for change from the writing process itself, researchers have altered writing instructions to incorporate cognitive appraisals and emotions. Individuals within the self-regulation group had more beneficial effects compared to the traditional writing procedure. For example, Greenberg and colleagues (1996) found that writing about imagined trauma had equal benefits to writing about real trauma when participants were asked to appraise and express emotions. In attempting to explain this effect, Greenberg stated that the writing process serves to self-regulate emotions such that there is an increased perceived sense of control over events. To further this notion, Ullrich and Lutgendorf (2002) found that
instructions including both cognitive processing and emotional expression produced more changes in insight/causal words over time, leading to better health outcomes compared to the emotional expression group alone and the control group.

If cognitive restructuring of negative thoughts were the primary mechanism by which written disclosure improves health, writing about positive events should not have as much impact as writing about negative events. However, King and Miner (2000) found that writing about positive aspects of traumatic events was equally beneficial as writing about the negative aspects. Writing about one’s best possible future self also was comparable to writing about one’s most traumatic event. Finally, Cameron and Nicholls (1998) found equal health benefits from writing about thoughts and feelings concerning one’s plans for coping with coming to college compared to writing about trauma. These studies highlight the notion that altering instructions to promote emotion regulation (e.g. cognitive appraisals and emotional expression) may help people reduce their tendencies to brood or maintain negative beliefs regardless of the topic discussed in the writing.

If self-regulation is the mechanism by which the written disclosure paradigm benefits individuals, one would expect that individuals rated high in brooding would benefit most. This is because writing would be assumed to help regulate emotions that would otherwise spiral into a passive unproductive focus of experience leading to increased negative cognitions, hopelessness, a feeling that the situation is out of control, and overall distress. In summary, self-regulation theories argue that cognitive appraisal of events alone is not enough to promote better outcomes. Writing instructions need to facilitate appraisal and emotion regulation by asking participants to express and confront both thoughts and feelings about the situation and one’s reactions, so that one can feel a
sense of control over feelings and gain hope that the situation can be changed or at least accepted.

1.6 Problem Solving

Good problem solving skills are associated with benefits of self-focus (Nolen-Hoeksema et al., 2008), experiential processing of negative events (Watkins, 2008); altering negative cognitions (Sloan et al., 2008) and reducing hopelessness (Alloy et al., 2004). The level of perceived control one has over the situation also predicts problem-solving skills (Szabo & Lovibond, 2006). Researchers who focus on cognitive theories (Lepore, 1997), emotion-regulation strategies (Cameron & Nicholls, 1998; Gortner et al., 2006; Sloan et al., 2008) and rumination (Lyubomirsky et al., 2006) speculate that problem solving is the key to improvements in coping. In this study, problem solving was considered to be a key component in counteracting the detrimental effects of maladaptive rumination after a writing intervention.

Social problem solving (SPS) is a specific construct that refers to the perception of one’s ability to identify effective or adaptive ways of coping with problematic situations encountered in every day life (D’Zurilla & Nezu, 1995). Problems could be intrapersonal (e.g. something about yourself: cognitive, behavioral, or emotional), interpersonal (e.g. something about relationships) or about broader work and community situations. D’Zurilla and Nezu identified five dimensions of SPS in a measure called the Social Problem-Solving Inventory-Revised (SPSI-R). In this measure, a distinction is made between orientation to problems (positive and negative) and problem-solving skills (rational problem-solving, impulsivity, and avoidance). Orientation refers to having a positive or negative belief of one’s ability to solve problems. Problem-solving skills refer
to the perception whether one possesses the skills, and the types of skills used to solve problems. Individuals might perceive problems as threatening, while still being able to devise effective strategies to solve them. Thus, it is important to distinguish the different components of problem solving that are related to poorer functioning among brooders. The SPSI-R is a self-report that measures attitudes and beliefs about problems (e.g. are they perceived to be severe, uncontrollable, threatening vs. challenging but controllable), motivation, and effectiveness in carrying out solutions. It is not a reliable measure for measuring actual problem-solving skills.

Deficits in SPS have been associated with many clinical problems including maladaptive rumination, worry, and depression (Bates & Lavery, 2003; Lyubomirsky et al., 1999; McMurrich & Johnson, 2008; Szabo & Lovibond, 2006; Marx, Claridge, & Williams, 1992; Watkins & Moulds, 2005a). Depression is related to overall poorer SPS (Bates & Lavery, 2003), whereas maladaptive rumination in non-depressed individuals may be more related to pessimistic attitudes and decreased motivation toward solving problems even when strategies are effectively in place (Szabo & Lovibond, 2006). For example, comparing depressed/anxious with never depressed and previously depressed individuals, depression was related to overall poorer problem solving (Shewchuk, Johnson, & Elliot, 2000). In a study of dysphoric ruminators in remission from past episodes of depression, rumination was significantly related to only Negative Problem Orientation. They had more pessimistic attitudes about problems and their ability to solve them, although their strategies were intact (McMurrich & Johnson, 2008). Dysphoric ruminators also tend to rate their problems as more severe and unsolvable. They report
less belief in the likelihood of actually implementing solutions even when their strategies to solve problems were comparable to non-ruminators (Lyubomirsky et al., 1999).

Negative problem-solving orientation among ruminators is dependent on several factors. For example, the mode of rumination impacts whether individuals will express more pessimistic accounts of a problem. Rumination characterized by abstract thinking at a general level (i.e. brooding) is associated with poorer problem-solving skills and orientation compared to rumination focused on concrete processing of situations and events (Watkins & Moulds, 2005a). Within the context of self-regulation theory, the perceived level of uncontrollability of problems also creates more negative attitudes about SPS (Lyubomirsky et al., 1999; Szabo & Lovibond, 2006). As previously stated, dysregulation occurs when an individual cannot resolve discrepancies between goals and a current situation. The more one believes a situation is uncontrollable, the more one is likely to ruminate, which further perpetuates the belief that problems are unsolvable. Finally, negative cognitions play a key role in problem-solving effectiveness. Greater negative tone, self-criticism, self-blame for problems, and reduced self-confidence among dysphoric ruminators has been found to predict more negative attitudes toward problems (Lyubomirsky et al., 1999). Thus, maladaptive rumination and negative cognitions exacerbate emotion dysregulation (i.e. lack of perceived control), leading to more pessimistic attitudes about problems and ability to solve them. The relationships among rumination, abstract processing, self-regulation, negative cognitions, and problem solving suggest that brooders perceive problems to be more severe, threatening and unsolvable. In contrast, reflection is a more proactive attempt to confront, appraise and solve
problems (Watkins & Moulds, 2005a). Problems are likely perceived to be challenging, but solvable, leading to more productive methods and skills to solve them.

**Problem solving and Writing.** Based on the research, written disclosure was expected to improve attitudes about the nature and solvability of problems. Writing should promote more positive attitudes about problems because it provides a forum for organizing thoughts to create a narrative. The writing narrative is indicative of a more concrete mode of processing, a mode associated with more effective SPS (Watkins & Moulds, 2005b). The writing instructions in the experimental condition for this study (i.e. Self-Regulation/Problem-Solving condition; SR/PS) facilitate concrete processing by instructing individuals to appraise their solutions and their thoughts and feelings regarding specific real-life problems (Sloan et al., 2008). Written disclosure also helps individuals regulate their emotions and reactions to their own responses and to the situation being discussed. As emotions are regulated, individuals should obtain more perceived control over events and over their ability to generate solutions to problems. Finally, written disclosure promotes SPS by reducing pessimistic attitudes, maladaptive attributions, and beliefs that a situation cannot be changed, all of which contribute to poorer problem-solving skills.

In summary, for this study, a mechanism through which written disclosure buffers against brooding to promote more reflective processing was posited to be related to the development of a more positive problem orientation. Written disclosure was geared toward assisting individuals to move toward more positive beliefs that problems are less threatening and more solvable.
1.7 Subjective Benefits of the Writing Intervention.

Research has shown that participants report subjective benefits of writing studies. Participants in experimental conditions who had overall better health outcomes also have reported feeling that the studies were more subjectively meaningful (Pennebaker, Mayne, & Francis, 1997; Pennebaker & Seagal, 1999; Sloan et al., 2007) and that they were thinking about and talking to friends more about problems months after writing compared to controls (Gortner, 2005). In other studies, participants in experimental conditions (including cognitive processing and emotional expression in the instructions) subjectively reported increased awareness of problems and a better sense of control over situations (Ullrich & Lutgendorf, 2002). These findings suggest several benefits to writing that are not always easily identified using objective measures. When individuals perceive an intervention to be helpful, individuals may have a more positive perspective on problems, improved ability to find solutions (Lyubomirsky et al., 1999), and a greater sense of control over situations (Szabo & Lovibond, 2006). It also should help to facilitate the belief that one can change a situation or move forward to cope with negative past events to provide a greater sense of self-efficacy and overall health.

1.8 Overview of the Study

The written disclosure intervention has multiple pathways of action for improving functioning in those considered depression-vulnerable due to scoring high on the brooding subscale of the Ruminative Response Scale (RRS). No prior research has empirically examined the relationship among brooding, self-regulation, negative cognitions, and problem-solving skills in a written disclosure intervention. Gaining greater understanding of reasons the writing paradigm is effective, and of the
mechanisms buffering against brooding, was aimed at providing clinicians and researchers with tools to reduce brooding and prevent depression.

This study explored the preventive effects of a written disclosure intervention among adults considered at risk for depression because of scoring high on the Brooding scale of the RRS. The purpose of this study was twofold: (1) to determine whether Self-regulation/Problem-Solving (SR/PS) or Expressive Writing (EW) promote the greatest benefit in reducing brooding and depressive symptoms compared to the control group and (2) to determine the mechanisms underlying the impact of written disclosure on reducing brooding. Subjective benefits derived from the study were also explored.

1.9 Hypotheses

The hypotheses for the different writing conditions are as follows:

1. Improvements both immediately after the writing intervention and at 1-month follow-up are (a) greater in the Expressive Writing (EW) and Self-regulation/Problem Solving (SR/PS) conditions than in the control condition and (b) greater in the SR/PS condition than in the EW condition, as manifested on the following outcome variables: (i) Brooding (RRS), (ii) Depressive symptom severity (CES-D), (iii) Dysfunctional attitudes (DAS), (iv) Maladaptive attributions (CSQ) (v) Problem-solving orientation (SPSI-R), and (vi) Self-regulation (DERS). The direction of change for the outcome variables is as follows: Brooding (RRS), Depressive Symptom Severity (CES-D), Dysfunctional Attitudes (DAS), Maladaptive attributions (CSQ), Negative Problem Solving Orientation (SPSI-R-Short) and Emotion Dysregulation
(DERS) are reduced. Positive Problem Solving Orientation (SPSI-R-Short) is increased.

2. Negative cognitions are reduced over the course of the three writing sessions as indicated by numbers of positive verses negative emotion words, and causal/insight words used in written disclosure. Changes (i.e. increases in positive, and causal/insight words) in numbers of words are (a) greater in the EW and SR/PS conditions than in the control condition and (b) greater in the SR/PS condition than in the EW condition.

The following are the hypotheses of the mechanisms of action for how brooding scores and depressive symptoms are reduced:

3. Changes in Dysfunctional Attitudes, Maladaptive Attributions, Problem-solving, and self-regulation mediate the effects of the writing on brooding.

There are three writing conditions. The first condition had the typical instructions for expressive writing that were recommended by Pennebaker (1997; see procedures). The second experimental condition modified instructions that incorporated facts and emotions. This was based on research where Pennebaker and Beall (1986) found that people whose writing focused on facts and emotions showed the most improvements. The control group was asked to write about superficial topics. By manipulating the instructions, the aim was to examine whether the cognitive and emotional mechanisms through which written disclosure is hypothesized to reducing brooding was impacted by the type of instructions presented.

This study aimed to provide empirical evidence for an effective prevention intervention that reduces depression risk by reducing cognitive vulnerabilities to
depression, such as brooding. The writing intervention has potential to empower individuals, help them to regulate emotions, process thoughts more effectively, and problem solve to develop more adaptive coping skills.

Better understanding of underlying mechanisms through which brooding is reduced should help clinicians to utilize writing to alter brooding to form more productive forms of self-reflection, coping, and cognitive and emotional processing, ultimately helping to prevent depression. The modified writing instructions provide further evidence for the types of writing interventions that most effectively benefit those who brood. The clinical implications of this study are important in that the written disclosure paradigm is cost-effective, capable of reaching a wide population, and provides an easy venue for helping high-risk individuals reduce brooding, a known risk for depression.
CHAPTER 2

METHOD

2.1 Participants

Adult participants who were at least 18 years of age were recruited by several methods. (1) An announcement was placed on Craig’s List in the Chicago area. (2) Flyers were also placed throughout the Chicago area at various posting sites, including local coffee shops and grocery stores. (3) Announcements were made in psychology classrooms at a mid-western university. The announcements (see Appendix B) stated that the purpose of the study was to better understand how writing can help improve mood, thoughts and feelings. The announcements also included the following questions: (1) Have you ever experienced problems with mood or excessive worrying in the past, but are doing better now (2) Do you have access to a computer and the Internet in a quiet and private setting (3) Can you type well enough to write for at least 20 minutes and (4) Are you fluent in reading and writing English? These questions were asked in order to screen for individuals who were more likely to meet criteria for the study. The inclusion criteria for the study included the following:

1. Scoring 10 or greater on the Brooding subscale of the RRS during the pre-test screening. This was based on a review of the literature where scores were comprised of the five items of the RRS recommended by Treynor et al. (2003) for the Brooding subscale. The means for brooding in past studies ranged from 9-13 (SD ranged from 3- 3.5) among non-clinical samples (Roelofs, Hulbers, Peeters, Arntz, & van Os, 2008; Olson, & Kwon, 2008; O’Connor & Noyce, 2008; & Jimenez, 2008).
2. Age at least 18 years
3. Currently not depressed
4. Fluent in reading and writing English.
5. Access to a computer and the Internet in a quiet setting and able to type well enough to continue writing for twenty minutes.

Although some mild depressive symptoms were desirable because of increased likelihood of individuals scoring high on brooding, individuals who currently met criteria for major depression were excluded from the study. A history of depression was not assessed.

Of the 498 volunteers for the study, 420 completed the online screen survey, which included the Demographics Questionnaire, Diagnostic Inventory for Depression (DID) and RRS. The other 78 volunteers either did not pass the phone screen or never completed the online screen survey. Of the 420 individuals who completed the screen survey, 194 were female and 226 were male (see Table 1 for demographics).
Table 1

Demographics of Volunteers who Completed the Screen Survey

<table>
<thead>
<tr>
<th>Variable</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>420</td>
</tr>
<tr>
<td>Age in Years, $M (SD)$</td>
<td>23.71 (8.8)</td>
</tr>
<tr>
<td>Gender</td>
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</tr>
<tr>
<td>Female</td>
<td>194 (46.2)</td>
</tr>
<tr>
<td>Male</td>
<td>226 (53.8)</td>
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<tr>
<td>Education</td>
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<tr>
<td>Some High School</td>
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<tr>
<td>High School Graduate</td>
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</tr>
<tr>
<td>Some College</td>
<td>296 (70.5)</td>
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<tr>
<td>College Graduate</td>
<td>33 (7.9)</td>
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<tr>
<td>Some Grad School</td>
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<tr>
<td>Grad School Graduate</td>
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<tr>
<td>Ethnicity</td>
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<tr>
<td>Caucasian</td>
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<tr>
<td>Asian</td>
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<tr>
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<td>Other</td>
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<td>Occupation</td>
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<tr>
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<td>-------</td>
</tr>
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</tbody>
</table>

Of the 420 volunteers who completed the online screen survey, 151 were eligible to participate in the study. Thirty-three individuals (19 females, 14 males) were not eligible due to meeting criteria for major depression, as measured by the DID. These individuals were emailed to encourage them to meet with a local mental health counselor and they were provided a list of local mental health resources. The other 236 volunteers were not eligible due to being below the cutoff (scoring less than 10 points) on the Brooding subscale of the RRS. The remaining 151 eligible individuals included 78 females and 73 males. The mean (SD) age was 23.65(8.3) years, with the youngest at 18 and the oldest at 56 years of age. The majority were Caucasian (44.4%), single (81.5%) college students (71.5%) with a household income of less than $20,000 (41.1%). Of the 151 eligible individuals, 23 either decided against participating due to scheduling or transportation issues or did not respond to scheduling efforts made by this researcher. The demographics of those who were eligible and dropped out after the screen survey were similar to the participants: the majority were Caucasian, full-time students. 17 of those who dropped out were female and 6 were male.

One hundred twenty-eight participants were successfully contacted, scheduled, and participated in the initial laboratory session (Time 1; pre-writing survey and writing session day 1). Sixty-one were female and 67 were male. The mean (SD) age of those who initially participated was 22.8(6.9) years. The majority again were Caucasian.
(43.8%), single (82.8%) college students (69.5%) with a household income of less than $20,000 (40.6%).

Of the 128 participants with complete data at Time 1 (pre-writing survey and writing session day 1), 122 completed all three writing sessions, and the Time 2 post-writing survey. All but 3 of the 122 participants (i.e. 119) completed the Time 3 one-month follow up survey.

**Participants used in analyses.** Of the 119 participants who completed the study, 31 were later eliminated from the data analysis. A strength of this study was to have participants complete the RRS again at the first writing session. Thirty participants were eliminated because although they met criteria for the study in the initial screen, they did not score 10 or above on the brooding subscale of the RRS at the first writing session. One participant was eliminated because scores were outliers on almost all the scales across time periods.

See Table 2 for demographics of the 88 participants included in the final analyses.

### Table 2

*Demographics of Participants Included in the Analyses*

<table>
<thead>
<tr>
<th>Variable</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>88</td>
</tr>
<tr>
<td>Age in Years, <em>M (SD)</em></td>
<td>22.32 (6.65)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>39 (44.3)</td>
</tr>
<tr>
<td>Male</td>
<td>49 (55.7)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>Some High School</td>
<td>0</td>
</tr>
<tr>
<td>High School Graduate</td>
<td>4 (4.5)</td>
</tr>
<tr>
<td>Some College</td>
<td>71 (80.7)</td>
</tr>
<tr>
<td>College Graduate</td>
<td>8 (9.1)</td>
</tr>
<tr>
<td>Some Grad School</td>
<td>4 (4.5)</td>
</tr>
<tr>
<td>Grad School Graduate</td>
<td>1 (1.1)</td>
</tr>
<tr>
<td>Variable</td>
<td>n (%)</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td><strong>Ethnicity (cont.)</strong></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>41 (46.6)</td>
</tr>
<tr>
<td>Asian</td>
<td>15 (17.0)</td>
</tr>
<tr>
<td>African American</td>
<td>13 (14.8)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>7 (8.0)</td>
</tr>
<tr>
<td>Multiple Ethnicities</td>
<td>12 (13.6)</td>
</tr>
<tr>
<td><strong>Occupation</strong></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>64 (72.7)</td>
</tr>
<tr>
<td>Employed Full Time</td>
<td>8 (9.1)</td>
</tr>
<tr>
<td>Employed Part Time</td>
<td>2 (2.3)</td>
</tr>
<tr>
<td>Unemployed</td>
<td>3 (3.4)</td>
</tr>
<tr>
<td>Homemaker</td>
<td>1 (1.1)</td>
</tr>
<tr>
<td>Student/Part-time Employed</td>
<td>10 (11.4)</td>
</tr>
<tr>
<td><strong>Household Income</strong></td>
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<tr>
<td>Less than $20,000</td>
<td>41 (46.6)</td>
</tr>
<tr>
<td>$20,000-$35,000</td>
<td>9 (10.2)</td>
</tr>
<tr>
<td>$35,000-$50,000</td>
<td>10 (11.4)</td>
</tr>
<tr>
<td>$50,000-$100,000</td>
<td>15 (17.0)</td>
</tr>
<tr>
<td>Over $100,000</td>
<td>13 (14.8)</td>
</tr>
<tr>
<td><strong>Relationship Status</strong></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>75 (85.2)</td>
</tr>
<tr>
<td>Married</td>
<td>4 (4.5)</td>
</tr>
<tr>
<td>Living with Someone</td>
<td>7 (8.0)</td>
</tr>
<tr>
<td>Divorced</td>
<td>2 (2.3)</td>
</tr>
</tbody>
</table>

**Criteria of screen survey.** In order to meet criteria for major depression on the DID and thus be excluded from the study, individuals needed to have endorsed (1) Low Mood or Anhedonia, (2) Criterion A: five items from the symptoms severity criterion, and (3) Criterion C: Impairment as required in the DSM-IV. Those who met criteria for major depression were excluded from the study. Of the 128 participants who were eligible (i.e. did not meet criteria for depression) and who participated in the study, the mean (SD) number of symptoms endorsed on the symptom severity subscale of the DID was 2.12(1.66). Sixteen eligible participants endorsed Low Mood and/or Anhedonia, but
either did not endorse five symptoms on the symptoms severity subscale or meet criteria for clinical levels of impairment. Forty-eight participants met the criteria for impairment, but either did not endorse low mood or anhedonia or five of the symptoms on the symptom severity subscale. In sum, the majority of participants had mild depressive symptoms, but did not meet criteria for major depression. Mild depressive symptoms were expected among brooders and were expected to contribute to sufficient distress to trigger pre-existing negative cognitions.

For the Brooding subscale of the RRS, the mean was 12.5 with a standard deviation of 2.5. Internal consistency of the Brooding subscale of the RRS (Cronbach’s $\alpha = .40$) was moderate. The internal consistency of total RRS scale ($\alpha = .82$) was good.

### 2.2 Power Analysis

Prior to collecting data, a power analysis was conducted using G* Power (Erdfelder, Faul, & Buchner, 1996) based on a MANOVA between factors (three group x two time), with a six dependent variable MANOVA and looking for power of between subject effect. An effect size of $f = 0.25$ was used based on an approximate average of effect sizes found in previous research findings (Frattaroli, 2006; Sloan & Marx, 2004; Smyth, 1998). Other parameters were a significance level of $p < 0.05$ and a correlation of $r = 0.40$ among dependent variables. Results indicated that 111 participants (approximately 36 per group) were needed for a power of .80. When the program was run with a power of 0.75, 102 participants were required. Thus, 34-36 participants per group were suggested to maintain sufficient power to detect significant effects. Of the 119 participants who completed the study, 31 were eliminated from the data analysis (see Participants section). The resulting groups had 33 participants in the EW, 28 in the
SR/PS, and 27 in the Control conditions; slightly less than ideal to attain the recommended amount of power.

2.3 Measures

Table 3

**Measures and Constructs**

<table>
<thead>
<tr>
<th>Questionnaire</th>
<th>Constructs Measured</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Diagnostic Inventory for Depression (DID)</td>
<td>Screening Measure for diagnosis of MDD</td>
</tr>
<tr>
<td>Center for Epidemiological Studies Depression Scale (CES-D)</td>
<td>Frequency and severity of depressive symptoms in past week</td>
</tr>
<tr>
<td>Ruminative Response Scale (RRS)</td>
<td>Brooding</td>
</tr>
<tr>
<td>Dysfunctional Attitudes Scale (DAS)</td>
<td>Dysfunctional Attitudes</td>
</tr>
<tr>
<td>Cognitive Styles Questionnaire (CSQ)</td>
<td>Causal attributions, consequences, and self-worth characteristics</td>
</tr>
<tr>
<td>Difficulties in Emotion Regulation Scale (DERS)</td>
<td>Multiple aspects of emotion dysregulation</td>
</tr>
<tr>
<td>Social Problem-Solving Inventory-Short Form Revised (SPSI-R-Short)</td>
<td>Problem solving orientation and Problem Solving Styles</td>
</tr>
<tr>
<td>Linguistic Inquiry and Word Count (LIWC)</td>
<td>Categorizes words into standard language variables (e.g. psychological categories and cognitive processes)</td>
</tr>
<tr>
<td>Participants Subjective Experience Questionnaire</td>
<td>Subjective experience of the study</td>
</tr>
<tr>
<td>Demographics Questionnaire</td>
<td>Name, Age, Address, Phone, Email, Ethnicity, Education, Marital Status, Income, and Occupation.</td>
</tr>
</tbody>
</table>

**The Diagnostic Inventory for Depression (DID; Zimmerman, Sheeran, & Young, 2004).** The Diagnostic Inventory for Depression is a 38-item self-report inventory divided into three subscales (i.e. symptoms, psychosocial functioning, quality of life). The DID was used to exclude participants who met criteria for major depression. Nineteen questions assess symptom severity, and three questions assess symptom frequency. The
19 symptom-severity questions assess the DSM-IV inclusion criteria for MDD. Compound DSM-IV criteria referring to more than one construct (e.g. problems concentrating or making decisions; insomnia or hypersomnia) were subdivided into their respective components, and a DID item was written for each component. The three symptom-frequency questions assess the frequency of necessary symptoms for meeting criteria for diagnosis DSM-IV Major Depressive Disorder (MDD; i.e. depressed mood, loss of interest in usual activities, or loss of pleasure in usual activities).

The six-item psychosocial functioning subscale assess the amount that symptoms of depression have interfered with meeting daily responsibilities, relationships, and overall level of functioning. Items are rated on a Likert-type scale of 0 (no difficulty) to 4 (extreme difficulty). An additional item assessed the number of days in the past week the respondent was completely unable to perform their usual daily responsibilities. The items were written so a cutoff value (e.g. 2, 3, or 4 in most cases) can be used to evaluate the presence or absence of a symptom.

The items were designed for a dichotomous decision regarding symptom presence or absence to be made. For all items except loss of interest or pleasure in activities, an item score of 0 represents no disturbance, a score of 1 represents subclinical severity, and a score of 2 or more indicates that the symptom is present. For the loss of interest and pleasure in usual activities items, a score of three or more indicates that the symptom is present.

Based on past research (Zimmerman, Sheeran & Young, 2004), the DID provides a diagnosis of MDD in four ways: symptom presence alone, symptom presence and symptom frequency, symptom presence and impairment, and symptom presence,
frequency and impairment. The DSM-IV’s diagnostic algorithm for criterion A was followed such that the participant must have scored above the a-priori thresholds on the DID depressed mood (Item score of 2,3, or 4), decreased interest (Item score of 3 or 4) or decreased pleasure items (Item score of 3 or 4), and above the threshold (Item score of 2,3, or 4) on at least one item in five of the nine DSM-IV symptom component groupings. A score above threshold on 2 items, which are components of the same DSM-IV criterion (e.g. impaired concentration and indecisiveness), only counted as one symptom. To meet the symptom-frequency requirements, the participant needed to indicate that low mood, loss of interest, or loss of pleasure were present every day or nearly every day of the past 2 weeks. The impairment criterion was met if the participant reported at least a moderate level of impairment on the global rating of functioning.

The DID has excellent levels of internal consistency on all three subscales: symptoms (Cronbach’s $\alpha = 0.91$), psychosocial functioning ($\alpha = 0.89$), and quality of life ($\alpha = 0.90$). The test-retest reliability coefficients were above 0.75 for the total scores for all three subscales: (symptoms $r = 0.91$, psychosocial functioning $r = 0.82$, and quality of life $r = 0.78$). The DID also has good convergent validity with the Beck Depression Inventory ($r = 0.83$) and good divergent validity from measures of symptoms other than depression (e.g. Beck Anxiety Inventory, $r = 0.53$, Posttraumatic Stress Disorder Scale $r = 0.40$).

Center for Epidemiological Studies Depression Scale (Radloff, 1977). The Center for Epidemiological Studies Depression Scale (CES-D) is a self-report 20-item depression scale developed by the National Institute of Mental Health Center for epidemiological studies to assess the frequency and severity of depressive symptoms in the past week.
The scale was designed for research in the general population and has been extensively validated (Lewinsohn, Hoferman, & Rosenbaum, 1988; Weissman, Prusoff, Sholomskas & Greenwald, 1992). The CES-D was used for pre-test and post-test assessment of depressive symptoms. The CES-D is strongly correlated with other self-report depression inventories (e.g., BDI-II, Beck, Guth, Steer et al., 1997). Respondents were asked to rate a number of statements about their mood in the past week on a four-point Likert-type scale (from 0 = rarely or never to 3 = most of the time). Four items (i.e. Items 4, 8, 12, and 16) are reverse scored (Radloff, 1977). The scale was designed to measure cognitive and somatic symptoms of depressed mood. Examples of items included on the scale are had trouble keeping your mind on what you were doing, felt fearful, slept restless, and felt hopeful about the future. Radloff and Teri (1986) found that internal consistency reliabilities were similar to previous reports (Cronbach’s alpha = 0.95) and that test-retest reliability was 0.71. The Cronbach’s alpha for this study was also good at .86.

**Ruminative Response Scale (Nolen-Hoeksema & Morrow, 1991).** The Ruminative Responses Scale (RRS) is a 22-item subscale of the Response Styles Questionnaire (RSQ) that is a self-report measure of responses to depressed mood that are focused on the self, symptoms, or possible causes and consequences of mood. Participants were asked to indicate on a four-point scale (one = almost never, sometimes to four = almost always) what they typically do in response to feeling down, sad, or depressed, with higher scores indicating greater ruminative tendencies. Nolen-Hoeksema and Morrow reported high internal consistency (Cronbach’s alpha = 0.89) and significant convergent validity ($r = 0.62$) with ruminative responses to depressed mood in a 30-day diary study (Nolen-Hoeksema, Morrow, & Frederickson, 1993). Test-retest reliability of the RRS
scale was reported to be 0.67 over a one-year period (Treynor et al., 2003). The internal consistency on the RRS scale for this study was also good (Cronbach’s alpha = .82).

Brooding and Reflection Subscale scores were calculated using items identified by Treynor et al. (2003) in a principal components analysis. The Brooding Scale consists of five items. These include, “Think, why do I have problems other people don’t have?;” “Think, what am I doing to deserve this?;” “Think, why do I always react this way?;” “Think, why can’t I handle things better?;” and “Think about a recent situation wishing it had gone better.” At baseline, Gortner et al. (2006) reported that the Brooding Scale correlated .82 with the RRS total score in their sample, and that it had good internal consistency (Cronbach’s alpha = 0.80). Test-retest correlation of the Brooding subscale was 0.62 over a one-year period. The Reflection Scale consists of five items that describe a neutrally valenced form of self-reflection for the purpose of solving problems without negative bias. The items include “Go away by yourself and think about why you feel this way;” “Write down what you are thinking and analyze it,” “Go someplace alone to think about your feelings,” “Analyze recent events to try to understand why you are depressed,” and “Analyze your personality to try to understand why you are depressed.” The Reflection Scale correlated 0.46 with the RRS total score and had moderate internal consistency (Cronbach’s alpha = 0.72; Treynor et al., 2003). Test-retest correlation of the Reflection subscale was 0.60 over a one-year period. Higher scores on the Brooding and Reflection scales indicate a greater tendency toward brooding and reflective pondering respectively. For this study, the internal reliability of the Brooding subscale was strong (Cronbach’s alpha = .91). The internal consistency for the Reflection scale was moderate (Cronbach’s alpha = .67).
**Dysfunctional Attitudes Scale (DAS; Weissman & Beck, 1978).** The DAS is a 40-item self-report inventory that measures maladaptive attitudes such as concern with evaluation, perfectionistic performance standards, pessimism, expectations of control (e.g. rigid ideas about the world), and causal attributions (Ciesla & Roberts, 2007; Spasojevic and Alloy, 2001). Scores can range from 40 to 280, with higher scores reflecting more negative cognitive styles. The DAS has demonstrated good internal consistency, with alphas ranging from 0.89 to 0.93 (Hamilton & Abramson, 1983). The DAS has demonstrated retest reliability, and validity in both non-clinical and patient samples (e.g. Weissman & Beck, 1978). No mood induction was conducted prior to administering this measure, but subjective stress was considered sufficient for priming preexisting negative cognitions as measured by the DAS. Participants in this study were assumed to be under stress because individuals rated high on brooding have been found to report higher levels of subjective distress (O’Connor et al., 2007; Rude et al., 2007). Only those scoring high on brooding items of the RRS at the beginning of this study were eligible to participate. The DAS demonstrated good internal consistency (Cronbach’s alpha = .95) for this study.

**Cognitive Styles Questionnaire (CSQ; Abramson & Metalsky; 1989).** The CSQ is a self-report questionnaire that measures the three components that compose the cognitive vulnerability factor featured in the hopelessness theory of depression (causal attributions, consequences, and self-worth characteristics). It is a modified and expanded version of the Attributional Style Questionnaire (ASQ; Peterson, Semmel, von Baeyer et al., 1982), which assesses individuals’ tendency to make internal, stable, and global attributions. The ASQ was modified in two major ways to create the CSQ. The number of hypothetical negative events increased to 12 (6 interpersonal/6 achievement). Second, ratings of the
probable consequences and self-worth implications of the events were added for each hypothetical event.

For each hypothetical event, participants were first instructed to imagine themselves in that situation (example: you take an exam and receive a low grade on it). They were then asked to write down what they believed to be the one major cause of the event. Participants rated the cause that they have specified on dimensions of internality, stability, and globality on a 7-point Likert type scale. Finally, participants were asked to think about what the occurrence of the hypothetical situation would mean to them, using a 7-point Likert-type scale to rate the consequences and self-worth implications of the event. The final score was the average rating across the scales relevant to the vulnerability factor featured in hopelessness theory (stability, globality, consequences, and self-worth characteristics). This composite score (mean) can range from 1 to 7, with higher scores reflecting more negative cognitive styles, and greater levels of cognitive vulnerability to depression. Because this study was focused on attributions associated with negative events, only the 12 negative events were used for this study.

In a review of the reliability and validity of the CSQ (Alloy et al., 1997; Haeffel et al., 2008), the CSQ was found to have excellent internal consistency with coefficient alphas ranging from 0.88 to 0.96 across studies (Haeffel et al., 2008). A composite score was computed by summing scores on four inference dimensions (stability, globality, consequences, and self-worth implications) generated in response to negative events (Alloy et al., 1997). Test-retest reliability was reported by Alloy and colleagues (2000) to be 0.80 over a one-year period. Findings from the CVD Project (1997) indicated that the construct validity of the CSQ is good across three factors: (1) The CSQ interacts with
measures of negative life events to predict depression (e.g. BDI & CESD) (2) Research using the CSQ has supported the etiological chain featured in hopelessness theory such that the CSQ interacts with negative life events to predict event specific negative inferences as well as hopelessness (Gibb, Alloy, Abramson & Marx, 2003; Hankin et al., 2001). (3) The CSQ also was found to be related to a history of maltreatment; a hypothesized potential antecedent of cognitive vulnerability (Gibb et al., 2003). For this study, the CSQ demonstrated strong internal consistency (Cronbach’s alpha =.86).

The CSQ and the Dysfunctional Attitudes Scale (DAS) tend to be moderately correlated (ranging from .4 to .5), but Hankin and colleagues (2007) found that the CSQ and DAS load on distinct factors. A factor analysis of the CSQ and the Response Style Questionnaire (RSQ) also found that the CSQ and RSQ load onto different factors (Hankin et al., 2007) and that they exhibit different relations with daily depressive symptoms and levels of negative cognitions (Hankin et al., 2005), suggesting good divergent validity.

**Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004).** The DERS is a 36-item self-report questionnaire designed to assess multiple aspects of emotion dysregulation. The DERS is comprised of six subscales: (1) *Non-acceptance* reflects a tendency to have negative secondary emotional responses to one’s negative emotions, or non-accepting reactions to one’s distress. (2) *Goals* has items reflecting difficulties accomplishing tasks when experiencing negative emotions; (3) *Impulse* has items reflecting difficulties remaining in control of one’s behavior when experiencing negative emotions; (4) *Awareness* consists of the tendency to attend to and acknowledge emotions; (5) *Strategies* reflects the belief that there is little that can be done to regulate emotions.
effectively; and (6) *Clarity* reflects the extent to which individuals know the emotions they are experiencing.

Participants were asked to respond to each question on a 5-point Likert scale (ranging from one=*almost never* to five=*almost always*). Sample items include: “*When I’m upset, I know that I can find a way to eventually feel better*” and “*When I’m upset, I feel ashamed with myself for feeling that way.*” Higher scores indicate greater difficulty in emotion regulation. Scores for the DERS were calculated by determining the mean of the whole scale and by calculating the means of each of the six DERS subscales.

The DERS has high internal consistency (Cronbach’s alpha = 0.93; Gratz & Roemer, 2004). Gratz and Roemer found all of the DERS subscales to have adequate internal consistency, with Cronbach’s α > 0.80 for each subscale. As evidence of construct validity, the DERS is significantly correlated with the Negative Mood Regulation Scale (NMR; Catanzaro & Mearns, 1990). The DERS also exhibited good test-retest reliability (r = 0.88) over 4 to 8 weeks. For this study the DERS also had good internal consistency (Cronbach’s alpha = .88).

**Social Problem Solving Inventory-Short Form-Revised (SPSI-R; Maydeu-Olivares & D’Zurilla, 1996).** The SPSI-R short form is a 25-item self-report measure that evaluates how people solve problems and their different problem-solving styles. There are four dimensions: Two types of problem orientation (i.e. Positive Problem Orientation (PPO) and Negative Problem Orientation (NPO) and three types of problem solving styles (i.e. Rational Problem Solving (RPS), Impulsivity/Careless Style (ICS), and Avoidant Problem Style (AS). The RPS assesses a constructive, rational, deliberate and systematic application of effective problem solving. The ICS is characterized by active
attempts to apply problem-solving strategies and techniques that are narrow, impulsive, careless, hurried and incomplete. The AS style is characterized by procrastination, passivity, or inaction and dependency. The items ask respondents how they typically respond to current problems on a 5-point Likert scale (ranging from “Not at all true of me” to “Extremely true of me”). Higher scores on the two adaptive scales (PPO and RPS) indicate more constructive and effective problem solving. Higher scores on the three dysfunctional scales (NPO, ICS, AS) indicate more defective problem solving. (McMurrich & Johnson, 2008). The SPSI-R-S has good concurrent validity with the Problem Solving Inventory (r = -.58). All SPSI–R-S scales have good predictive validity with distress measures in the expected direction, with NPO being the best predictor across the different distress measures (eg. Anxiety r = .61). For this study the internal consistency was moderate for all the subscales (Cronbach’s alpha for PPO = .74, NPO = .74, RPS = .77, ICS = .77, AS = .83).

**Linguistic Inquiry and Word Count (LIWC; Pennebaker, Francs, & Booth, 2001).**

The LIWC (pronounced “Luke”) categorizes words into standard language variables (e.g. articles, pronouns) and psychological categories (e.g. emotion words, cognitive processes). Scores are provided as percentages of total word use in the LIWC program. The LIWC was used for two purposes in this study. (1) To check if the intervention was administered successfully. If so, the participants in the SR/PS and EW conditions were expected to: (a) show greater increases in the percentage of emotional words over the three writing sessions than participants in the control writing condition; and (b) write more words per essay. (2) To determine if participants in the SR/PS condition would increase their percentage of words reflecting cognitive processing (insight, causal, know,
problem-solving) significantly more over the three writing sessions than participants in either the EW or control groups changes in LIWC percentage scores were evaluated. Higher change scores indicated an increase in the use of a particular word category. Changes in LIWC percentage scores over the course of three writing sessions was used because such changes have been shown to be important predictors of positive outcomes in prior research. The changes in LIWC scores were thought to be suggestive of improvements in participants’ ways of understanding and perceiving personal stressors.

Demographics Questionnaire. A demographics questionnaire was included in the initial screening of participants. Questions included name, age, sex, ethnicity, address, phone, email, education, occupation, household income, and whether the participant is fluent in English. Descriptive statistics describe the demographic profiles of initial volunteers (i.e. percentages), those eligible for the study, numbers of dropouts, and of participants who completed the study.

Participants Subjective Experience of the Study Questionnaire (PES ; Pennebaker et al., 1990). This follow-up questionnaire assessed participants’ subjective experience of a study. It is typically used at the end of writing studies or as manipulation check to obtain a sense of subjective benefits participants acquired from the study (e.g. Pennebaker & Francis, 1996). The questionnaire consists of a series of eight questions scored on a Likert-type scale (1=not at all; 7= a great deal) and one open-ended question. The questions asked about how much participants thought and talked about what they wrote, how much the study had positive and negative effects, how happy and sad they have felt since the beginning of the study, how meaningful the study was to them, and whether they would participate in the study again. Participants in the experimental
conditions were expected to report more beneficial effects and to perceive the writing intervention as more meaningful.

2.4 Procedure

Interested college student volunteers provided names and email addresses to this researcher after an announcement was made in undergraduate and graduate psychology classes. This researcher then emailed volunteers with the website for the screen survey. In order to recruit volunteers from the general population, there was an announcement on Craig’s list and flyers were distributed in the Chicago area (described previously in the Participants section. For postings see Appendix B).

Telephone Screen. Interested participants from the general population were asked to call or email the researcher with their phone number and a good time to return their call. The researcher then called each participant and conducted a brief telephone screen. Participants were asked (1) Their age (2) Whether they were depressed presently (3) Whether they had access to a computer and Internet in a quiet setting (4) Whether they can type (4) Five questions from the Brooding subscale and (5) Whether they spoke and wrote English fluently. If volunteers met criteria over the phone they were voluntarily directed to a website to fill out a more complete online screening survey. This researcher followed a script with eligible participants stating the following:

Thank you for answering these questions. I would like to now send you to a website to answer a few more questions to determine if you are eligible for this study. Are you willing to do that? Great, go to http://www.surveymonkey.com/s/XCX76GY. I will also email you the website address.

Can you tell me your email address? This will not be shared with anyone. It will be used to contact you in the event that you participate in the study. EMAIL:____________________

What is your name? ___________________. All identifying information
will be kept confidential and will be only accessible to qualified research staff.

Once you have completed this online survey, I will email you to let you know whether you are eligible to participate in the remainder of the study. If you are eligible, once you complete the study, you will have the option to participate in the raffle for $500, to get paid $25.00 at the end of your participation in the study, or to have me donate to Haiti Red Cross.

If a participant did not meet the basic criteria for the study after the phone screen, they were told:

Thank you for answering these questions. Unfortunately, we are examining very specific characteristics about the way people think for this study. This is not good or bad, but the way you answered these questions is not consistent with what we are looking for. Thank you for your interest and have a great day!

Screening Survey. The screen is an online survey that contained an (1) Online consent form, (2) A demographics form, (3) The DID, (4) The RRS, and a questionnaire asking for available times for meeting for the first writing session. The consent form explained the purpose of the study, what participants were asked to do, that the study is voluntary, and that they should consult with a psychologist, medical doctor, or other mental health professional if under stress (see Appendix A). Participants were not allowed to answer the remaining questions in the screening session until there was agreement (by pressing the “yes” box at the end of the form) of the terms described in the consent form.

Participants were asked to print a copy of the consent form for their records.

Identifying information was asked for on the Demographic questionnaire, including name, email address and telephone number (see Appendix D). Demographic information was recorded and identifying information was immediately discarded for individuals excluded from the study. For those eligible to participate in the study, identifying information was kept in a locked file drawer separate from all other data.
Identifying information was matched to a Code ID and was treated as confidential material available only to qualified research staff. The Code ID was the participant’s initials including middle name. If a participant did not have a middle name an “X” was substituted. All data analysis used only the Code ID.

The screening survey was scored within 48 hours of completion of the survey. Participants who met criteria for Major Depression on the DID or who did not score 10 or above on the brooding subscale of the RRS were excluded from the study. Individuals not eligible for the study were informed by email within 48 hours after completing the survey. The email stated the following:

*Thank you for participating in the screening survey. Unfortunately, we are examining very specific characteristics in people for this study. This is not good or bad, but the way you answered these questions is not consistent with what we are looking for. Thank you for your interest and best of luck to you. Have a great day!*

Those individuals excluded due to meeting criteria for Major Depression were also encouraged to go to a local community mental health center. A list of local centers was provided. If participants were eligible to participate, they were also emailed within 48 hours of completing the screening survey. The email stated the following:

*Thank you for participating in the screening survey. The answers you provided indicate that you are eligible to participate in the remainder of the study! From now on, you will use a Code ID instead of your name. Your Code ID will be your initials, including your middle name. You indicated that your initials are ______. Please use these initials as your Code ID for the remainder of the study. Email me at weincyn@iit.edu as soon as possible if these initials are incorrect. Your appointment time is ____________. This is one of the times you indicated on the survey that you are available. Please email me back as soon as possible to confirm your appointment time. If this time no longer works for you, please indicate other options (an appointment is approximately 1 ½ hours)*
that you could be available in the next week. The location of the first session is at the campus of Illinois Institute of Technology (IIT) in the Life Sciences building. This is located at the southwest corner of State and 31st street. You can take the Red Line to 35th street and walk North to 31st street. There is also a visitor parking lot that costs $2.00 per hour, which is just South of 31st street on the East side of State Street. There is free street parking 1-2 blocks East of State street on Michigan Avenue. Don’t forget that once you complete the study, you will have the option to participate in a raffle for one grand prize of $500 (or one of 3 $20 Amazon.com gift certificate prizes), to get paid $25.00 once you complete the study, get course credit if you are a student at IIT, or to have me donate $25.00 to Haiti Red Cross!

Thank you again for your participation in this study!

Sincerely,

Cynthia Weinstein, M.S.
Illinois Institute of Technology-Institute of Psychology

**First Session.** The first session was held in a classroom or testing room at the Illinois Institute of Technology (IIT) campus. This session included signing a consent form (see Appendix A), filling out the pre-writing survey, and the first writing session. Participants voluntarily signed a paper version of the consent form, which included all the information provided on the screening consent form, plus a list of community mental health centers and information that participants should seek an appointment should they feel increased stress, anxiety or mood symptoms at any time during the course of the study. The consent form was kept with the other identifying information separate from the data in a locked file drawer.

Once the consent form was signed, participants were directed to a website, (http://www.surveymonkey.com/s/XCFLMS5) to fill out the pre-writing survey. Participants were asked to provide their Code ID (i.e. initials) prior to completing the survey. The pre-writing survey included the CES-D, RRS, DERS, DAS, CSQ, and the
SPSI-R questionnaires. This survey took approximately 30-45 minutes to complete. This researcher then provided a website address (depending on which writing group they were assigned: see Appendix F) for the participant to do their first online writing session, which took approximately 20-30 minutes to complete. They were also provided this website on a sheet of paper at the end of the session so that they had the website information to complete their remaining online writing sessions at a place and time of their convenience.

Remaining Sessions. Participants were asked to complete two additional online writing sessions, an online post-writing survey, and a follow-up survey. The writing sessions each took 20-30 minutes to complete. Participants were strongly encouraged to write (i.e. type) for three consecutive days, but were allowed to have one week to complete all three writing sessions. At the end of the writing session there were instructions to go to a website (http://www.surveymonkey.com/s/J7XQWSH) the day after the writing portion of the study was completed to fill out the post-writing survey. They again filled out a follow-up survey one month later. The post-writing and follow up surveys again included the RRS, DERS, DAS, CSQ, and SPSI-R, and the CES-D. The one-month follow-up survey had an additional subjective experience questionnaire in order to determine if and why participants valued the writing experiment. The post-writing and follow-up surveys each took approximately 30-45 minutes to complete. At the end of post-writing survey, there were instructions to fill out the follow-up survey in one month, and the website (http://www.surveymonkey.com/s/J98P22S) was provided. Participants were emailed reminders with the appropriate websites for the surveys within a few days and again within a day of each deadline.
**Writing Protocol.** Writing procedures were based on previous research findings of the different methods producing the greatest effects, and based on a meta-analysis conducted by Frattaroli (2006). Consistent with several previous studies, there were three writing sessions (Pennebaker, 1989, 1997). All three sessions were conducted online. A meta-analysis (Frattaroli, 2006) found that mode of disclosure (i.e. writing, vs. talking vs. typing) did not significantly moderate the effect for any of the outcome types. Frattaroli (2006) found that studies with sessions that lasted at least 15 minutes had significantly larger effect sizes than studies with sessions lasting less than 15 minutes. Most studies in the metaanalysis were 20 minutes, thus, this study maintained 20 - minute writing sessions. There were time alerts on the website to indicate when the writing time was completed.

The first session was held at the IIT campus with the presence of this researcher in order to ensure the participant understood the instructions and to enhance the level of engagement with the study. The second and third sessions were online at a quiet place and time of convenience for the participant. Research based on exposure theories found that writing about the same topic each session had greater effect (Sloan & Marx, 2004b). Thus, participants were asked specifically to write about the same problems each day.

Participants were asked to provide a Code ID (i.e. initials) at the beginning of each writing session. This was to ensure that participants were not participating repeatedly or giving the link to friends who were not previously screened. This researcher had a sheet of paper matching Code IDs with identifying information that was kept in a locked drawer of a file cabinet separate from the other data. Participants who forgot their Code ID had the opportunity to email this investigator.
The three writing conditions were randomly distributed within blocks of the three writing conditions (i.e. Each block including one SR/PS, EW, and Control writing condition will be in random order). This was to ensure that equal numbers of participants were writing in each writing condition.

2.5 Writing Instructions

General Instructions for the Expressive Writing (Write 1) and Control (Write 3) conditions. The general instructions described confidentiality terms and the basic procedures for writing. They were derived from a previous study on expressive disclosure that was conducted by Sloan and colleagues (2007) and were as follows:

This study looks at writing and how people think about things. On each of the three writing sessions, you will be asked to write for 20 minutes. Please read your instructions carefully. You will then begin writing. After 20 minutes, you will be alerted to stop, at which time you should stop writing. Please write continuously for the entire time. If you run out of things to say, just repeat what you have already written. Do not worry about grammar, spelling, or sentence structure. Just write. Please do not talk with anyone about the experiment. Because we are trying to make this a valid experiment, we cannot tell you what other people are writing about or anything about the specific nature or the predictions of the study. Once the study is complete, however, we will tell you everything if you want. We expect the study to be complete in about six to eight months. Another thing is that sometimes people feel a little sad or depressed after writing. If that happens, it is completely normal. Most people say that these feelings go away in an hour or so. If at any time over the course of the study you feel upset or distressed, please contact a psychologist, medical doctor, or other mental health professional. Several resources are listed on your consent form. You can also email me at weincyn@iit.edu if you need the list of resources again.

General Instructions for the Self–Regulation/Problem–Solving (SR/PS) Condition. The general instructions for the SR/PS condition were the same as for the other groups except for the first paragraph, which reflects the two sets of
instructions that were implemented in this condition. The first paragraph for this
condition were as follows:

*This study looks at writing. On each of the three writing sessions, you will be asked to write for 20 minutes altogether. Please read your instructions carefully. You will then begin writing. After 15 minutes, you will be alerted to stop, at which time you should stop writing. You will then be given new instructions and you will have an additional five minutes to write. When your time is up, you will be alerted to stop, at which time you should stop writing.*

**Expressive Writing (EW) Condition.** The writing instructions for the EW condition were replicated from the standard instructions developed by Pennebaker (1989, 1997). The only modification was that participants were instructed to write about the same general issues each day instead of having the option to switch topics. This change was based on research findings that showed greater effect sizes for specifying instructions and for staying with the same topic to provide a chance for cognitive restructuring and/or greater acceptance of a negative situation (Frattaroli, 2006; Sloan & Marx, 2004b). At the end of the writing session, participants wrote down their Code ID and general topic on two pieces of paper. One was handed to this researcher and the other was asked to be kept with them for the remaining sessions to help participants remember what they previously wrote. The instructions for the EW condition were as follows:

*I would like you to write for 20 minutes about your very deepest thoughts and feelings about any difficult or emotionally disturbing events you are experiencing in your life right now. You may also tie your topic in with any past stressful or traumatic experiences you’ve had. In your writing, I’d like you to really let go and explore your very deepest emotions and thoughts. You might link your topic to your relationships with others, including your parents, people you love, friends, or relatives. You may also want to link your experience to your past, your present, or your future, or to who you have been, who you would like to be or who you are now. You should write about*
the same general issues or experiences in all 3 days of writing. Don’t worry about grammar or spelling—that is not important. All of your writing will be completely confidential. Remember, in your writing, examine your deepest emotions and thoughts.

Self – Regulation/Problem - Solving (SR/PS) Condition. The instructions for the first day of the SR/PS condition were derived from a combination of self-regulation and cognitive processing instructions devised by Cameron and Nicholls (1998) and Ullrich and Lutgendorf (2002), respectively. The instructions were similar to the expressive writing condition except they asked participants to take another step that explains the solutions they have devised and how they coped with the stress associated with the topic discussed in their writing. There was more focus on how current problems might impact future plans. In addition, participants were asked to write freely for only fifteen minutes. During the remaining 5 minutes, they were asked to write about their plans for dealing with problems. The instructions aimed to facilitate expression of emotions, cognitive processing and social problem solving skills that were ultimately expected to reduce the tendency to brood. The participants were instructed on the first day to write as follows:

First Day.

I would like you to spend fifteen minutes writing about your very deepest thoughts and feelings about a difficult or emotionally disturbing event you are experiencing in your life right now. In your writing, I’d like you to really let go and explore your very deepest emotions and thoughts. I would like you to tie your topic directly with how you may be feeling about your future plans. Feel free to discuss any stresses, concerns or challenges you are facing and/or how you imagine your next experiences to be.

I am particularly interested in understanding how you have tried to make sense of your fears or concerns regarding this issue and what you tell yourself about it to help you deal with it. For example, what kinds of problems or challenges have you had in dealing with your experience and how is it affecting your life now? How might it affect future plans? If the situation you’re describing does not yet make sense to you or it is
difficult to deal with, describe how you are trying to understand it, make sense of it, and deal with it and how your feelings may change about it. You should write about the same general issue or experience in all 3 days of writing. Do not worry about grammar or spelling—that is not important.

There was a computer alert telling the participant to stop after 15 minutes. In the remaining 5 minutes, participants in this group were given problem-solving instructions, which asked them to “list three things that you can do that will help you to deal with one or more of the problems or challenges you just wrote about.” Participants were also asked to write their Code ID and their plans on a reminder slip to take with them for their next two writing sessions.

Second and Third Day. The second and third sessions for the problem solving/self-regulation condition involved three self-regulation tasks: disclosure of problems, appraisal of coping strategies, and revision of coping plans to reflect the processes hypothesized by Lepore (2002) to promote regulation of emotions and thoughts. The disclosure segment should trigger attention to thoughts and feelings. The appraisal and revision of coping plans aimed to facilitate cognitive restructuring, problem solving, self-efficacy and more perceived control over the situation. For the disclosure segment, the instructions were identical to the first day.

For the appraisal segment, (which occurred in the last 5 minutes), participants were instructed to list the actions identified in the previous session and to indicate for each one a) whether the participant had tried it; b) if they had tried it, to what extent it was helpful; and c) if they had not tried it, why not. The problem-solving segment again instructed participants to list three actions for dealing with any related problems, noting that they could be the same or different from those listed in the prior sessions. Participants again
wrote the actions on a reminder slip to be kept with them for their third writing session.

The third session was identical to the second session.

**The Control Condition.** The control condition also was derived from the instructions devised by Pennebaker (1989; 1997), but changed slightly each day to reflect each day in the writing portion of the study. The instructions for the first day were as follows:

> For the next 20 minutes, I would like for you to write about how you have used your time over the past week. In your writing, please go into as much detail as possible in how you have spent your days and managed your time. In your account of your activities, please be as objective as possible. You should describe your activities in detail without discussing any of your own thoughts or feelings related to the topic.

For the second day, the instructions were identical to the first, except they asked the participant to describe activities in the past 24 hours instead of the past week. The final day asked participants to describe how they planned to use their time during the next 2 weeks. All other instructions were the same in the 3 days.

**Incentives.** Participants who completed the study were offered the opportunity choose one incentive. Included was the choice to either (1) enter a raffle (2) have me donate 25.00 to Haiti Red Cross or (3) get paid $25.00 upon completion of the study. The raffle included one grand prize of $500.00 and three $20.00 Amazon.com gift certificate prizes. After all the data were collected and analyzed, the raffle was held by placing all the names written on small sheets of paper into a basket and randomly picking one piece of paper for the grand prize and three for the smaller prizes. Students recruited from Illinois Institute of Technology could choose to receive course credit for their participation instead of the other incentives. The individual instructors of each class determined the number of credits offered, but the average number was approximately 4-5 credits.
3.1 Missing Data

Missing data were imputed using the expectation-maximization (EM) method as implemented in SPSS 18.0 (ref). All scales, including the CES-D, RRS, DAS, CSQ, DERS, and SPSI, and all three-time points, were included in the imputation analysis. Depending on the scale, 2-17 people were missing one item, one to three people were missing two items, and one person was missing more than two items on the CSQ, DAS and the SPSI scales. See Table 4 for a summary of the number of items missing for each scale.
Table 4

*Number of People Missing Items Over Three Time Periods*

<table>
<thead>
<tr>
<th>Scale</th>
<th>Time</th>
<th># of People Missing 1 item</th>
<th># of People Missing 2 items</th>
</tr>
</thead>
<tbody>
<tr>
<td>CES-D</td>
<td>1</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>RRS</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>DAS</td>
<td>1</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>8</td>
<td>1 *</td>
</tr>
<tr>
<td>CSQ</td>
<td>1*</td>
<td>9</td>
<td>1 *</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>17</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>16</td>
<td>2</td>
</tr>
<tr>
<td>DERS</td>
<td>1</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td>SPSI</td>
<td>1*</td>
<td>6</td>
<td>1 *</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>PES</td>
<td>3</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Time 1 (N=127), Time 2 (N=121) Time 3 (N=118)

*Note: 1 person was missing 3 items on the CSQ and one person was missing 3 items on the SPSI at Time 1. 1 person was missing 4 items on the DAS at Time 3.

3.2 Subjective Experience Results

At the end of the 1-month follow-up, participants answered several questions on a Likert-type scale and open-ended questions about their subjective experience being in the study. The questionnaire (Pennebaker et al., 1990) consists of questions about how much participants felt the study was meaningful, thought and talked about what they wrote, how happy and sad they have felt since the beginning of the study, and whether they would participate in the study again. Results of the ANOVAs for group differences for
these questions are presented in Table 5. As predicted, there were differences between the groups on several questions regarding the subjective experience of the study. The simple contrasts indicate that the EW condition \((d = .834)\) and the SR/PS condition \((d = .586)\) each were significantly different than the control group on the subjective meaning derived from the study report. The mean report of feeling happier after the study was significantly greater for the SR/PS group \((d = .857)\) compared to the control group, but there was no significant difference between the EW group and the control group \((d = .364)\). The perceived positive effect the study had on participants had a non-significant overall main effect \((p = .054)\) among the groups. However, the mean score of positive effect was significantly greater for the EW condition compared to the control group \((d = .637)\), but not for the SR/PS condition \((d = .353)\). No significant effects were found among groups regarding how much participants thought about \((p = .804)\) or talked out \((p = .378)\) what they wrote. No significant effects were found for reported negative effects of the study \((p = .193)\). There were also no differences among groups on reports of feelings of sadness after the study \((p = .702)\).
Table 5

ANOVA of Group Differences on PES (N=88)

<table>
<thead>
<tr>
<th>Question</th>
<th>Group</th>
<th>Mean (SD)</th>
<th>F (2, 85)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Time thought about what you wrote</td>
<td>EW</td>
<td>4.45 (1.72)</td>
<td>.218</td>
<td>.804</td>
</tr>
<tr>
<td></td>
<td>SR/PS</td>
<td>4.32 (2.07)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>4.15 (1.54)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Talked about what you wrote</td>
<td>EW</td>
<td>2.21 (1.56)</td>
<td>.984</td>
<td>.378</td>
</tr>
<tr>
<td></td>
<td>SR/PS</td>
<td>2.18 (1.56)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>1.74 (0.98)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Positive effect</td>
<td>EW</td>
<td>4.00 (1.54)</td>
<td>3.02</td>
<td>.054</td>
</tr>
<tr>
<td></td>
<td>SR/PS</td>
<td>3.57 (1.71)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>3.04 (1.22)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Negative effect</td>
<td>EW</td>
<td>2.03 (1.19)</td>
<td>1.68</td>
<td>.193</td>
</tr>
<tr>
<td></td>
<td>SR/PS</td>
<td>1.54 (1.20)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>1.63 (0.97)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Happiness</td>
<td>EW</td>
<td>4.33 (1.47)</td>
<td>5.11</td>
<td>.008</td>
</tr>
<tr>
<td></td>
<td>SR/PS</td>
<td>5.04 (1.50)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>3.81 (1.27)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Sadness</td>
<td>EW</td>
<td>3.39 (1.54)</td>
<td>.356</td>
<td>.702</td>
</tr>
<tr>
<td></td>
<td>SR/PS</td>
<td>3.14 (1.38)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>3.48 (1.74)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Meaning</td>
<td>EW</td>
<td>4.76 (1.73)</td>
<td>5.315</td>
<td>.007</td>
</tr>
<tr>
<td></td>
<td>SR/PS</td>
<td>4.36 (1.70)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>3.40 (1.37)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Expressive Writing (EW; n = 33), Self-Regulation/Problem Solving (SR/PS; n = 28), Control (n = 27)

Note: Groups with different superscripts are significantly different based on simple contrasts.

Note: PES=Participant Subjective Experience of the Study Questionnaire

Finally, there were no differences among groups (p = .26) on reported interest in doing the study again. The majority of participants reported that they would probably do the study again (43.2%) and 26.1% said they would definitely do the study again. 22.7% stated they didn’t know whether they would do the study again, 6.8% said they probably
would not, and only 1 person (1.1%) reported that they definitely would not do the study again.

3.3 Correlations among Study Variables at Time 1

Table 6 shows Pearson correlations among study variables at Time 1. As expected CES-D scores at Time 1 were significantly and positively correlated with Brooding, DAS, CSQ and DERS scores. In all these scales, higher scores were indicative of more dysfunctional cognitive styles. CES-D scores were significantly and negatively correlated with SPSI scores. In contrast to the other scales, higher SPSI scores indicate a more adaptive social problem solving style. Thus, higher CES-D scores were expected to be negatively correlated with SPSI scores.

In addition to CES-D scores, Brooding scores were significantly and positively correlated with CSQ and DERS scores and negatively correlated with SPSI scores. Brooding scores were not significantly correlated with Reflection scores or DAS scores. Reflection scores were only significantly and positively correlated with DAS scores and no other scores. See Table 8 for a summary for the correlations of all other scores.
Table 6

**Correlations Among Study Variables at Time 1 (N = 88)**

<table>
<thead>
<tr>
<th>Measure</th>
<th>CESD</th>
<th>Brood</th>
<th>Ref</th>
<th>DAS</th>
<th>CSQ</th>
<th>DERS</th>
<th>SPSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>CESD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brood</td>
<td>.24*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ref</td>
<td>.05</td>
<td>.15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAS</td>
<td>-.50**</td>
<td>-.15</td>
<td>.23*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSQ</td>
<td>.36**</td>
<td>.25*</td>
<td>-.11</td>
<td>-.32**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DERS</td>
<td>.50**</td>
<td>.27*</td>
<td>-.04</td>
<td>-.46**</td>
<td>.49**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPSI</td>
<td>-.41**</td>
<td>-.26*</td>
<td>.13</td>
<td>.40**</td>
<td>-.33**</td>
<td>-.62**</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* CESD = Center for Epidemiological Studies Depression Scale. Brood (Brooding) and Ref (Reflection) = subscales for the Ruminative Response Scale. DAS = Dysfunctional Attitudes Scale. CSQ = Cognitive Styles Questionnaire. DERS = Difficulties in Emotion Regulation Scale. SPSI = Social Problem Solving Inventory.

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

### 3.4 Hypothesis 1

Hypothesis 1 stated that improvements will occur a day after the end of the writing intervention and will be maintained at one-month follow-up. These improvements were predicted to be (a) greater in the EW group and SR/PS group than in the control group and (b) greater in the SR/PS group than in the EW group, as manifested by the following outcome variables: (1) Brooding (RRS) (2) Depressive symptom severity (CES-D) (3) Dysfunctional attitudes (DAS) (4) Maladaptive attributions (CSQ) (5) Self-regulation (DERS) (6) Problem-solving orientation (SPSI-R). Specifically, the direction of changes were hypothesized to be the following: Scores on the CES-D, Brooding on the RRS, DAS, CSQ, and Negative Problem Orientation (NPO) subscale scores on the SPSI-R, and DERS should be reduced, whereas Reflection, Positive Problem Orientation (PPO) subscale scores on the SPSI-R should be increased.
For analyses addressing these hypotheses, residual change scores were computed relative to baseline for post-test and for follow-up scores for each of the outcome variables. To determine the effect of writing on each outcome variable, a 3 X 2 repeated measures MANOVA was conducted. Group was the between-subjects factor and Time (Post-test, One month follow-up) was the within-subjects factor. Tables 7 - 12 contain the means and standard deviations on the residuals of the dependent variables for the three groups across 3 time periods. Significant differences were found among the three writing groups, Wilks’s $\Lambda = .75$, $F(14, 158) = 1.78$, $p = .047$. The multivariate of $\eta^2 = .14$, indicated that 14% of multivariate variance of the dependent variables was associated with the group factor. The effect of time (Wilks’s $\Lambda = .99$, $F(7, 79) = .02$, $p = 1.00$) and the group x time interaction (Wilks’s $\Lambda = .88$, $F(14, 158) = .78$, $p = .69$) were not significant. In a follow-up analysis of the univariate effects (3X2 ANOVAS) of the residual change scores for each measure, none of the group effects were significant. There were also no significant time effects or interaction effects.
Table 7

*CES-D Residuals: Means and Standard Deviations (N=88)*

<table>
<thead>
<tr>
<th>Group</th>
<th>Time</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EW</td>
<td>2</td>
<td>-.19 (6.70)</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>-.06 (10.10)</td>
</tr>
<tr>
<td>SR/PS</td>
<td>2</td>
<td>.31 (7.79)</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>-1.92 (9.47)</td>
</tr>
<tr>
<td>Control</td>
<td>2</td>
<td>.41 (7.96)</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>3.10 (8.57)</td>
</tr>
</tbody>
</table>

Expressive Writing (EW; n = 33), Self-Regulation/Problem Solving (SR/PS; n = 28), Control (n = 27)

*Note: CES-D = Center for Epidemiological Studies-Depression Scale*

Table 8

*Brooding subscale of the RRS Residuals: Means and Standard Deviations (N=88)*

<table>
<thead>
<tr>
<th>Scale</th>
<th>Group</th>
<th>Time</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brooding</td>
<td>EW</td>
<td>2</td>
<td>-.35 (2.90)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>-.74 (3.30)</td>
</tr>
<tr>
<td></td>
<td>SR/PS</td>
<td>2</td>
<td>.69 (2.45)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>.71 (2.91)</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>2</td>
<td>-.02 (2.81)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>.51 (3.42)</td>
</tr>
</tbody>
</table>

Expressive Writing (EW; n = 33), Self-Regulation/Problem Solving (SR/PS; n = 28), Control (n = 27)

*Note: RRS=Ruminative Response Scale*
Table 9

*DAS Residuals: Means and Standard Deviations (N=88)*

<table>
<thead>
<tr>
<th>Group</th>
<th>Time</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EW</td>
<td>2</td>
<td>-.30 (13.20)</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>-2.50 (15.27)</td>
</tr>
<tr>
<td>SR/PS</td>
<td>2</td>
<td>-2.10 (15.93)</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>-.52 (15.97)</td>
</tr>
<tr>
<td>Control</td>
<td>1</td>
<td>-.64 (17.24)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1.04 (15.74)</td>
</tr>
</tbody>
</table>

Expressive Writing (EW; n = 33), Self-Regulation/Problem Solving (SR/PS; n = 28), Control (n = 27)

*Note:* DAS = Dysfunctional Attitudes Scale

Table 10

*CSQ Residuals: Means and Standard Deviations (N=88)*

<table>
<thead>
<tr>
<th>Group</th>
<th>Time</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EW</td>
<td>2</td>
<td>.10 (.78)</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>-.04 (.75)</td>
</tr>
<tr>
<td>SR/PS</td>
<td>2</td>
<td>.16 (.75)</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>.17 (.76)</td>
</tr>
<tr>
<td>Control</td>
<td>2</td>
<td>-.13 (.67)</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>.01 (.71)</td>
</tr>
</tbody>
</table>

Expressive Writing (EW; n = 33), Self-Regulation/Problem Solving (SR/PS; n = 28), Control (n = 27)

*Note:* CSQ = Cognitive Styles Questionnaire
Table 11

**DERS Residuals: Means and Standard Deviations (N=88)**

<table>
<thead>
<tr>
<th>Group</th>
<th>Scale</th>
<th>Time</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EW</td>
<td>DERSTotal</td>
<td>2</td>
<td>-1.10 (9.59)</td>
</tr>
<tr>
<td></td>
<td>DERSTotal</td>
<td>3</td>
<td>.02 (15.08)</td>
</tr>
<tr>
<td>SR/PS</td>
<td>DERSTotal</td>
<td>2</td>
<td>-1.46 (13.01)</td>
</tr>
<tr>
<td></td>
<td>DERSTotal</td>
<td>3</td>
<td>.05 (1.39)</td>
</tr>
<tr>
<td>Control</td>
<td>DERSTotal</td>
<td>1</td>
<td>3.75 (14.92)</td>
</tr>
<tr>
<td></td>
<td>DERSTotal</td>
<td>2</td>
<td>.04 (1.69)</td>
</tr>
</tbody>
</table>

Expressive Writing (EW; n = 33), Self-Regulation/Problem Solving (SR/PS; n = 28), Control (n = 27)

*Note.* DERS = Difficulties in Emotion Regulation Scale.

Table 12

**SPSI Residuals: Means and Standard Deviations (N=88)**

<table>
<thead>
<tr>
<th>Group</th>
<th>Scale</th>
<th>Time</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EW</td>
<td>SPSI Total</td>
<td>2</td>
<td>-.18 (1.30)</td>
</tr>
<tr>
<td></td>
<td>SPSI Total</td>
<td>3</td>
<td>-.30 (1.82)</td>
</tr>
<tr>
<td>SR/PS</td>
<td>SPSITotal</td>
<td>2</td>
<td>.05 (1.39)</td>
</tr>
<tr>
<td></td>
<td>SPSITotal</td>
<td>3</td>
<td>.34 (1.56)</td>
</tr>
<tr>
<td>Control</td>
<td>SPSITotal</td>
<td>1</td>
<td>.04 (1.69)</td>
</tr>
<tr>
<td></td>
<td>SPSITotal</td>
<td>2</td>
<td>-.05 (1.54)</td>
</tr>
</tbody>
</table>

Expressive Writing (EW; n = 33), Self-Regulation/Problem Solving (SR/PS; n = 28), Control (n = 27)

*Note.* SPSI = Social Problem Solving Inventory

Because the primary outcome variable was brooding, a 3(group) x 3 (time) repeated measures ANOVA was conducted. Similarly, neither the group effects ($p = .438$), time effects (Wilks’s $\Lambda = .052$, $F(2, 84) = 3.06, p = .052$) or interaction effects
Wilks’s $\Lambda = .946, F(4, 168) = 1.17, p = .325$) were significant. In addition, in order to examine more specifically changes from before to after the writing interventions, an exploratory $3 \times 2$ (group X pre-post) repeated measures MANOVA examining all the dependent variables was conducted assessing whether there were significant changes between pre and post-writing session. Tables 13 – 18 contain the means and standard deviations on the residuals of the dependent variables for the three groups across 3 time periods. No significant differences were found among the three writing groups (Wilks’s $\Lambda = .89, F(14, 158) = .66, p = .812$). The effect of time (Wilks’s $\Lambda = .85, F(7, 79) = 1.96, p = .072$) and the group x time interaction (Wilks’s $\Lambda = .81, F(14, 158) = 1.26, p = .238$) also were not significant on any of the dependent variables. Overall, there was no evidence for group, time or interaction effects in any of the constructs assessed.
Table 13

*CES-D: Means and Standard Deviations (N=88)*

<table>
<thead>
<tr>
<th>Group</th>
<th>Time</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EW</td>
<td>1</td>
<td>20.55 (9.04)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>18.79 (8.24)</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>19.15 (10.81)</td>
</tr>
<tr>
<td>SR/PS</td>
<td>1</td>
<td>18.96 (10.14)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>18.39 (9.69)</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>16.46 (11.78)</td>
</tr>
<tr>
<td>Control</td>
<td>1</td>
<td>21.30 (7.14)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>19.81 (9.81)</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>22.70 (9.50)</td>
</tr>
</tbody>
</table>

Expressive Writing (EW; n = 33), Self-Regulation/Problem Solving (SR/PS; n = 28), Control (n = 27)

*Note: CES-D = Center for Epidemiological Studies-Depression Scale*

Table 14

*Brooding subscale of the RRS: Means and Standard Deviations (N=88)*

<table>
<thead>
<tr>
<th>Scale</th>
<th>Group</th>
<th>Time</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brooding</td>
<td>EW</td>
<td>1</td>
<td>12.82 (2.56)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>11.67 (3.06)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>11.24 (3.66)</td>
</tr>
<tr>
<td></td>
<td>SR/PS</td>
<td>1</td>
<td>12.75 (2.44)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>12.68 (2.73)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>12.64 (3.84)</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>1</td>
<td>12.74 (2.29)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>11.96 (3.09)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>12.44 (3.60)</td>
</tr>
</tbody>
</table>

Expressive Writing (EW; n = 33), Self-Regulation/Problem Solving (SR/PS; n = 28), Control (n = 27)

*Note: RRS=Ruminative Response Scale*
### Table 15

**DAS: Means and Standard Deviations (N=88)**

<table>
<thead>
<tr>
<th>Group</th>
<th>Time</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EW</td>
<td>1</td>
<td>176.61(25.76)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>176.91(26.88)</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>175.76(25.54)</td>
</tr>
<tr>
<td>SR/PS</td>
<td>1</td>
<td>177.11(25.43)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>175.57(26.73)</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>178.14(25.23)</td>
</tr>
<tr>
<td>Control</td>
<td>1</td>
<td>174.56(23.86)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>174.70(29.41)</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>177.59(27.54)</td>
</tr>
</tbody>
</table>

Expressive Writing (EW; \( n = 33 \)), Self-Regulation/Problem Solving (SR/PS; \( n = 28 \)), Control (\( n = 27 \))

*Note: DAS = Dysfunctional Attitudes Scale*

### Table 16

**CSQ: Means and Standard Deviations (N=88)**

<table>
<thead>
<tr>
<th>Group</th>
<th>Time</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EW</td>
<td>1</td>
<td>4.13 (.87)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>4.00 (1.20)</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>3.90 (1.00)</td>
</tr>
<tr>
<td>SR/PS</td>
<td>1</td>
<td>3.79 (.95)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>3.71 (1.27)</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>3.87 (1.07)</td>
</tr>
<tr>
<td>Control</td>
<td>1</td>
<td>3.93 (.91)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>3.59 (1.25)</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>3.80 (1.12)</td>
</tr>
</tbody>
</table>

Expressive Writing (EW; \( n = 33 \)), Self-Regulation/Problem Solving (SR/PS; \( n = 28 \)), Control (\( n = 27 \))

*Note: CSQ = Cognitive Styles Questionnaire*
### Table 17

**DERS: Means and Standard Deviations (N=88)**

<table>
<thead>
<tr>
<th>Group</th>
<th>Scale</th>
<th>Time</th>
<th>Mean   (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EW</td>
<td>DERS Total</td>
<td>1</td>
<td>92.79 (20.18)</td>
</tr>
<tr>
<td></td>
<td>DERS Total</td>
<td>2</td>
<td>89.27 (17.48)</td>
</tr>
<tr>
<td></td>
<td>DERS Total</td>
<td>3</td>
<td>90.36 (23.98)</td>
</tr>
<tr>
<td>SR/PS</td>
<td>DERS Total</td>
<td>1</td>
<td>87.57 (17.79)</td>
</tr>
<tr>
<td></td>
<td>DERS Total</td>
<td>2</td>
<td>86.93 (16.74)</td>
</tr>
<tr>
<td></td>
<td>DERS Total</td>
<td>3</td>
<td>84.39 (17.76)</td>
</tr>
<tr>
<td>Control</td>
<td>DERS Total</td>
<td>1</td>
<td>89.11 (19.32)</td>
</tr>
<tr>
<td></td>
<td>DERS Total</td>
<td>2</td>
<td>90.15 (23.51)</td>
</tr>
<tr>
<td></td>
<td>DERS Total</td>
<td>3</td>
<td>90.93 (24.96)</td>
</tr>
</tbody>
</table>

Expressive Writing (EW; \(n = 33\)), Self-Regulation/Problem Solving (SR/PS; \(n = 28\)), Control \((n = 27)\)

*Note.* DERS = Difficulties in Emotion Regulation Scale.

### Table 18

**SPSI: Means and Standard Deviations (N=88)**

<table>
<thead>
<tr>
<th>Group</th>
<th>Scale</th>
<th>Time</th>
<th>Mean   (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EW</td>
<td>SPSI Total</td>
<td>1</td>
<td>10.70 (3.13)</td>
</tr>
<tr>
<td></td>
<td>SPSI Total</td>
<td>2</td>
<td>10.78 (3.39)</td>
</tr>
<tr>
<td></td>
<td>SPSI Total</td>
<td>3</td>
<td>10.88 (2.93)</td>
</tr>
<tr>
<td>SR/PS</td>
<td>SPSI Total</td>
<td>1</td>
<td>11.88 (2.66)</td>
</tr>
<tr>
<td></td>
<td>SPSI Total</td>
<td>2</td>
<td>12.14 (2.85)</td>
</tr>
<tr>
<td></td>
<td>SPSI Total</td>
<td>3</td>
<td>12.48 (2.78)</td>
</tr>
<tr>
<td>Control</td>
<td>SPSI Total</td>
<td>1</td>
<td>10.65 (3.01)</td>
</tr>
<tr>
<td></td>
<td>SPSI Total</td>
<td>2</td>
<td>10.96 (3.35)</td>
</tr>
<tr>
<td></td>
<td>SPSI Total</td>
<td>3</td>
<td>11.10 (2.99)</td>
</tr>
</tbody>
</table>

Expressive Writing (EW; \(n = 33\)), Self-Regulation/Problem Solving (SR/PS; \(n = 28\)), Control \((n = 27)\)

*Note.* SPSI = Social Problem Solving Inventory
Although not statistically significant, the direction of change was reduced as hypothesized, on the CES-D scale and the Brooding subscale of the RRS for the EW and SR/PS groups. The direction was reduced for the EW condition on the CSQ, but not for the SR/PS condition. Participants’ scores on the DERS were reduced in the SR/PS and initially reduced, but not sustained after one month, in the EW condition. The direction of change was not increased as expected, but in fact, reduced on the Reflection subscale of the RRS and on the PPO scale of the SPSI-R. NPO scores were also in the direction opposite (increased) to what was hypothesized.

Another exploratory MANOVA was conducted to examine whether there were effects using only the student sample (N = 77), eliminating 11 participants who were from the general population. Multivariate effects showed no significant group effects (Wilks’s $\Lambda = .85, F (14, 158) = .97, p = .485$), time effects (Wilks’s $\Lambda = .80, F (14, 72) = 1.32, p = .219$) or interaction effects (Wilks’s $\Lambda = .64, F (28, 142) = .1.28, p = .173$) on the dependent variables.

3.5 **Hypothesis 2**

Hypothesis 2 stated that negative cognitions would be reduced/altered over the course of the three writing sessions as indicated by percentage of emotion words in what was written (i.e. overall affect, positive and negative emotion words, causal words and insight words.) These words were analyzed using the LIWC program (Pennebaker et al., 2001). Based on prior research using this program (Gortner, 2005; Ulrich, Francis, & Booth, 2001), a manipulation check was conducted by analyzing the text of the participants’ first essays. Univariate ANOVA’s were conducted to evaluate differences between the EW, SR/PS and control conditions for each major word category (Positive
and Negative emotion words, Insight and Causal words). Results of oneway ANOVAs for each word category are displayed in Table 15. Based on the instructions given to each group, it was expected that participants in the EW and SR/PS condition would display significantly more emotional and cognitive words than participants in the control group. Simple contrasts indicated, as predicted, that the mean total affect, positive emotion and negative emotion (including anxiety, anger and sadness), total cognitive (including insight, and causal) word use was greater for both the EW and the SR/PS groups than the control group, indicating the participants in the EW and SR/PS conditions wrote significantly more emotion and cognitive words per essay than participants in the control condition.

Table 19

**ANOVA of Group Differences on Word Categories from the LIWC (N=88)**

<table>
<thead>
<tr>
<th>Word Category</th>
<th>EW Mean (SD)</th>
<th>SR/PS Mean (SD)</th>
<th>Control Mean (SD)</th>
<th>F(1, 85)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Affect</td>
<td>5.99 (1.29)</td>
<td>5.90 (1.58)</td>
<td>3.31 (1.68)</td>
<td>28.62</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Total Negative Emotions</td>
<td>2.68 (.90)</td>
<td>2.58 (1.57)</td>
<td>.97 (.96)</td>
<td>18.97</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Anxiety</td>
<td>.66 (.54)</td>
<td>.90 (.91)</td>
<td>.20 (.33)</td>
<td>8.56</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Anger</td>
<td>.50 (.44)</td>
<td>.35 (.36)</td>
<td>.13 (.24)</td>
<td>7.57</td>
<td>.005</td>
</tr>
<tr>
<td>Sadness</td>
<td>.50 (.44)</td>
<td>.35 (.36)</td>
<td>.13 (.24)</td>
<td>7.57</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Total Positive Emotions</td>
<td>3.23 (.99)</td>
<td>3.26 (.99)</td>
<td>2.28 (1.14)</td>
<td>7.98</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Total Cognitive Mechanisms</td>
<td>21.08(3.07)</td>
<td>19.68 (5.12)</td>
<td>15.04(3.49)</td>
<td>18.49</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Causal Thinking</td>
<td>2.13 (.73)</td>
<td>2.09 (.72)</td>
<td>1.12 (.96)</td>
<td>14.27</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Insight</td>
<td>3.60 (1.17)</td>
<td>3.48 (1.41)</td>
<td>1.35 (1.24)</td>
<td>27.88</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

Expressive Writing (EW; n = 33), Self-Regulation/Problem Solving (SR/PS; n = 28), Control (n = 27)

*Note: LIWC = Linguistic Inventory Word Count*

These results indicated that participants followed instructions and that those in the experimental conditions incorporated more thoughts and feelings into the study than
participants in the control condition. Participants’ essays in the experimental conditions included traumatic issues such as relationship problems (19%), identity problems and future goal concerns (19%), family problems (15%), adjustment to college and loneliness problems (14%), academic problems (13%), mental or physical health problems (7%), bereavement (6%), and financial problems (6%).

To determine if there were group differences from the first day of essay writing entries to the third day of essay writing entries on word use scores, a repeated measures 3 x 2 MANOVA was conducted with Group (EW, SR/PS, and Control) as the between subjects factor, Time (pre-test, post-test) as the within-subjects factor, and the dependent variables (i.e. total affect, positive emotion words, negative emotion words, anxiety, sadness, anger, total cognitive, causal, and insight words). Tables 16-24 contain the means and standard deviations on the dependent variables for the three groups across two time periods. Significant differences were found among the three writing groups, Wilks’s $\Lambda = .32, F(18, 154) = 6.70, p < .001$. The effect of time (Wilks’s $\Lambda = .84, F(9, 77) = 1.67, p = .111$) and the group x time interaction (Wilks’s $\Lambda = .73, F(18, 154) = 1.46, p = .112$) were not significant. Univariate effects (3X2 ANOVAS) of the word use scores showed significant group effects on all of the dependent variables [i.e. total affect, positive emotion, negative emotion (including anger, anxiety and sadness) and total cognitive word use (including insight and cause words)]. Simple contrasts showed that EW ($p < .001$) and SR/PS ($p < .001$) showed significantly greater emotion word use than group three (control) on all emotional word use at baseline, but no significant effects over time. Anger was the only dependent variable that was found to have a significant time x group interaction (Wilks’s $\Lambda = .93, F(2, 85) = 3.21, p = .045$). Simple contrasts revealed
that the EW condition significantly decreased anger word usage from day one of writing to day three. The SR/PS and Control conditions actually increased anger word use, although changes were not significant. There were no time effects or additional interaction effects on any of the other dependent variables.

Table 20

_Total Affect words: Means and Standard Deviations (N=88)_

<table>
<thead>
<tr>
<th>Group</th>
<th>Time</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EW</td>
<td>1</td>
<td>5.99 (1.29)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>5.92 (1.62)</td>
</tr>
<tr>
<td>SR/PS</td>
<td>1</td>
<td>5.90 (1.58)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>5.89 (1.50)</td>
</tr>
<tr>
<td>EW</td>
<td>1</td>
<td>3.31 (1.68)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2.62 (1.35)</td>
</tr>
</tbody>
</table>

Expressive Writing (EW; n = 33), Self-Regulation/Problem Solving (SR/PS; n = 28), Control (n = 27)

Table 21

_Positive Emotion Words: Means and Standard Deviations (N=88)_

<table>
<thead>
<tr>
<th>Group</th>
<th>Time</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EW</td>
<td>1</td>
<td>3.22 (.99)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>3.28 (1.34)</td>
</tr>
<tr>
<td>SR/PS</td>
<td>1</td>
<td>3.26 (.99)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>3.26 (1.11)</td>
</tr>
<tr>
<td>Control</td>
<td>1</td>
<td>2.28 (1.14)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1.80 (.96)</td>
</tr>
</tbody>
</table>

Expressive Writing (EW; n = 33), Self-Regulation/Problem Solving (SR/PS; n = 28), Control (n = 27)
Table 22

**Negative Emotion Words: Means and Standard Deviations (N=88)**

<table>
<thead>
<tr>
<th>Group</th>
<th>Time</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EW</td>
<td>1</td>
<td>2.68 (.90)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2.79 (1.16)</td>
</tr>
<tr>
<td>SR/PS</td>
<td>1</td>
<td>2.58 (1.57)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2.67 (1.41)</td>
</tr>
<tr>
<td>Control</td>
<td>1</td>
<td>.97 (.96)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.93 (.90)</td>
</tr>
</tbody>
</table>

Expressive Writing (EW; $n = 33$), Self-Regulation/Problem Solving (SR/PS; $n = 28$), Control ($n = 27$)

Table 23

**Anxiety Words: Means and Standard Deviations (N=88)**

<table>
<thead>
<tr>
<th>Group</th>
<th>Time</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EW</td>
<td>1</td>
<td>.66 (.54)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.66 (.58)</td>
</tr>
<tr>
<td>SR/PS</td>
<td>1</td>
<td>.90 (.91)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.81 (.67)</td>
</tr>
<tr>
<td>Control</td>
<td>1</td>
<td>.20 (.33)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.20 (.24)</td>
</tr>
</tbody>
</table>

Expressive Writing (EW; $n = 33$), Self-Regulation/Problem Solving (SR/PS; $n = 28$), Control ($n = 27$)
Table 24

Anger Words: Means and Standard Deviations (N=88)

<table>
<thead>
<tr>
<th>Group</th>
<th>Time</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EW</td>
<td>1</td>
<td>.50 (.44)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.45 (.58)</td>
</tr>
<tr>
<td>SR/PS</td>
<td>1</td>
<td>.35 (.36)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.60 (.70)</td>
</tr>
<tr>
<td>Control</td>
<td>1</td>
<td>.13 (.24)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.19 (.28)</td>
</tr>
</tbody>
</table>

Expressive Writing (EW; n = 33), Self-Regulation/Problem Solving (SR/PS; n = 28), Control (n = 27)

Table 25

Sadness Words Means and Standard Deviations (N=88)

<table>
<thead>
<tr>
<th>Group</th>
<th>Time</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EW</td>
<td>1</td>
<td>.75 (.45)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.69 (.59)</td>
</tr>
<tr>
<td>SR/PS</td>
<td>1</td>
<td>.65 (.60)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.67 (.53)</td>
</tr>
<tr>
<td>Control</td>
<td>1</td>
<td>.24 (.23)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.21 (.29)</td>
</tr>
</tbody>
</table>

Expressive Writing (EW; n = 33), Self-Regulation/Problem Solving (SR/PS; n = 28), Control (n = 27)
Table 26

*Total Cognitive Words: Means and Standard Deviations (N=88)*

<table>
<thead>
<tr>
<th>Group</th>
<th>Time</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EW</td>
<td>1</td>
<td>21.08 (3.07)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>21.29 (3.09)</td>
</tr>
<tr>
<td>SR/PS</td>
<td>1</td>
<td>19.68 (5.11)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>20.14 (4.88)</td>
</tr>
<tr>
<td>Control</td>
<td>1</td>
<td>15.04 (3.49)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>13.96 (3.12)</td>
</tr>
</tbody>
</table>

Expressive Writing (EW; n = 33), Self-Regulation/Problem Solving (SR/PS; n = 28), Control (n = 27)

Table 27

*Total Insight Words: Means and Standard Deviations (N=88)*

<table>
<thead>
<tr>
<th>Group</th>
<th>Time</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EW</td>
<td>1</td>
<td>3.60 (1.17)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>3.69 (1.11)</td>
</tr>
<tr>
<td>SR/PS</td>
<td>1</td>
<td>3.48 (1.41)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>4.00 (1.24)</td>
</tr>
<tr>
<td>Control</td>
<td>1</td>
<td>1.36 (1.24)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1.37 (1.09)</td>
</tr>
</tbody>
</table>

Expressive Writing (EW; n = 33), Self-Regulation/Problem Solving (SR/PS; n = 28), Control (n = 27)
Table 28

*Total Causal Words: Means and Standard Deviations (N=88)*

<table>
<thead>
<tr>
<th>Group</th>
<th>Time</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EW</td>
<td>1</td>
<td>2.13 (.73)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1.83 (.64)</td>
</tr>
<tr>
<td>SR/PS</td>
<td>1</td>
<td>2.09 (.72)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2.02 (.84)</td>
</tr>
<tr>
<td>Control</td>
<td>1</td>
<td>1.12 (.96)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1.20 (.71)</td>
</tr>
</tbody>
</table>

Expressive Writing (EW; n = 33), Self-Regulation/Problem Solving (SR/PS; n = 28), Control (n = 27)

**3.6 Hypothesis 3**

Hypothesis 3 predicted the mechanisms for how brooding scores were reduced. Given there were no significant reductions in brooding across the three groups, and no relationship between the predictor and outcome variables, the mechanisms of action (i.e. mediation analyses) were not explored.
CHAPTER 4
DISCUSSION

The primary purpose of this study was to gain greater understanding of some of the reasons the writing paradigm devised by James Pennebaker (1986) is effective in reducing maladaptive rumination in the aim of reducing risk for depression. Specifically, the purpose of this study was twofold: (1) to determine whether the SR/PS promotes the greatest benefit over the EW condition and control condition in reducing brooding and depressive symptoms among brooders and (2) to determine the mechanisms underlying the impact of written disclosure on reducing brooding. Adults considered to be at risk for depression because of scoring high on the Brooding scale of the RRS were evaluated. Better understanding of why and for whom the writing paradigm is effective will aid clinicians and researchers in focusing the intervention on those for whom it is most appropriate. Overall, the findings of this study did not support the predictions, suggesting that writing might not be the most beneficial therapeutic intervention for those who score high in brooding compared to those with other areas of mental and physical health problems. Due to not finding support for the hypotheses, it is important to evaluate possible reasons why there were no significant effects.

4.1 Did the experimental writing conditions produce a reduction in brooding?

Contrary to hypothesis 1, there were no differences between the treatment groups in the change in brooding after the writing intervention compared to the control group. Neither the Expressive writing group nor the Self Regulation/Problem solving group was effective in creating significant change as manifested by any of the outcome variables (i.e. brooding, depressive symptoms, maladaptive cognitions, emotion regulation, or
problem-solving). Although the direction of change pre- and post-writing suggested some minor non-significant improvements on the tendency to brood and on depression scores after writing in the experimental conditions, the effects were not statistically significant.

In addition to the experimental (EW and SR/PS conditions) being predicted to be more beneficial than the control group, the SR/PS condition was predicted to be more beneficial than the EW condition (hypothesis 1; part 2). Brooding has been associated with emotion dysregulation (Linehan, 1993). It was predicted that among brooders, the unstructured instructions associated with the standard instruction protocol devised by Pennebaker (1986) might not help individuals to regulate emotions as much as instructions that guide participants to reflect on past approaches to problems and to devise new solutions to problems (i.e. the SR/PS condition). However, the data did not support the predictions. The SR/PS condition was not more effective than the EW condition. Based on these findings, the type of writing instruction does not appear to be a factor in improving brooding. Nor was it a factor in improving depressive symptoms, maladaptive cognitions, emotion regulation or problem-solving.

There are several possible explanations for the current findings. In general, there might be some problems with the initial assumptions and the interpretations of the existing literature that need to be further explored in order to understand limitations in the theory behind the current study. Second, it needs to be determined whether weaknesses in design account for null findings. Third, the measures chosen may not have been the best vehicle for measuring the chosen constructs within this paradigm. Finally, it is possible that the findings from this study are correct and reveal that the writing paradigm is just not very effective in a population of brooders.
Upon further examination there appears to be limitations in the research that may at least partially account for why the findings in this study were not as expected. This study was based on the premise derived from the literature that Expressive Writing interventions are effective in reducing brooding, a known risk factor to depression. To date, there are only two studies (Sloan et al., 2008, Gortner et al., 2006) that examined the effects of writing on brooding.

First, as indicated by the title of the article, *Expressive writing buffers against rumination*, and based on their conclusions, Sloan et al. (2008) made the assumption that Expressive Writing buffers against brooding. However, the authors only measured changes in depression, a known effect of brooding, but not changes in brooding itself. Expressive Writing was found to reduce symptoms of depression, as measured by the BDI, and brooding moderated the effects of writing on depressive symptoms. This was determined by observing that participants who initially scored high on Brooding had larger reductions in depressive symptoms after writing compared to those who scored low on Brooding. Changes in Brooding scores were never statistically evaluated. It is likely that this is because the brooding construct (Nolen-Hoeksema, 1989) has been found to measure a relatively stable coping style in dealing with distressing experience across time and situations. It is understandable that one would assume that the writing intervention, requiring one to write only 20 minutes for three days, might not impact brooders enough to create a significant change in coping style. However, Sloan et al. (2008) extend their conclusion to include the notion that Expressive Writing buffers against brooding. The authors also speculated on some of the mechanisms of action for why this change occurs, including improved problem-solving, emotion-regulation, and decreased negative
cognitions, and then proposed that future research explore these mechanisms. The current study examined these mechanisms based on the assumption that brooding would be reduced. However, in reevaluating the Sloan et al. study, the research was limited. It might have been more appropriate in this study to first evaluate whether expressive writing reduces brooding prior to evaluating mediating mechanisms.

Gortner et al. (2006) conducted the second study on which the assumption that writing reduces brooding was based. In this study, expressive writing was reported to significantly reduce brooding over time compared to the control group. However, Gortner et al. (2006) found no significant effects on brooding at the first post-writing evaluation, but only at a six-month follow up. Although it is possible that the intervention contributed to changes in brooding after six months, several other factors might also have accounted for changes in brooding scores. For example, the study used participants from a university. The first post-writing evaluation was conducted toward the beginning of the school year, making the six-month follow-up at the end of the school year or during the summer. Perhaps students were in a much better mood knowing summer was approaching. Although brooding is understood to be relatively stable, the RRS is a self-report measure, and when in a better mood, participants might be less likely to report a tendency to brood. Thus, scores may have been unrelated to the writing intervention, but rather reflected an increase in mood and a tendency to interpret coping tendencies more positively. Second, consistent with standard procedures of expressive writing interventions, participants in the experimental condition were assessed on depressive symptoms and then asked to write about deep emotions regarding a stressful experience. In contrast, control groups were asked to write about events of the day, without emotions.
Perhaps demand characteristics inherent in responding to questionnaires focused on internal thoughts and mood caused participants in the experimental condition to develop the expectation that the writing intervention was supposed to improve coping and contributed to reporting less of a tendency to brood over time.

Gortner et al. (2006) conducted the initial post-writing assessment one month after the last writing session. The post-writing assessment for this study was within 48 hours after the final writing session. Although it might be argued that the differences in the timing of post-test assessments partially accounted for the differing outcomes between Gortner et al.’s study and the current one, a meta-analysis conducted by Frattaroli (2006) found that studies in which the post-test assessment was conducted within one month after the final writing session showed larger effect sizes ($r = .11$ vs. $r = .06$) than those in which post-test assessments were conducted after one month. Thus, if timing of post-test evaluation accounted for the results, it would be more plausible that the current study would have larger effect sizes than the study conducted by Gortner et al. (2006). If indeed, the timing of post-test assessment contributed to the current findings, the time of the semester the data were collected likely played a larger role in weakening the current results than the time between the last writing session and the post-writing assessment. In the current study, the majority of participants were assessed during the first 10 weeks of the semester and the follow-up assessment was one month later, around the time of final exams. Perhaps the increased stress with approaching final exams contributed to the maintenance of increased brooding scores.

The current study was based on the premise drawn from previous studies that indicated that expressive writing reduces brooding. Although this was a fair assumption,
it was perhaps overstated because it was based on research with several limitations. The current results highlight the notion that brooding is a relatively stable coping style that might be resistant to change from a brief intervention such as expressive writing.

4.2 Mediators of the effects of writing on brooding

This study also did not support hypothesis 3 that expressive writing produces changes in depressive symptoms, maladaptive cognitive styles, emotion regulation, and problem-solving, respectively. These variables were chosen for evaluation primarily because they were proposed as mechanisms of action for why writing is effective and for why brooding is reduced (Sloan et al., 2008). For this study, it was predicted that these variables would mediate the effects of writing on brooding (hypothesis 3). However, in order for this to be the case there first must be a significant relationship between the predictor and the outcomes. Given that a significant association was not found between any of the predictors (writing condition) and outcomes (brooding, depressive symptoms, negative cognitions, emotion regulation, problem-solving), a mediation analysis was not conducted. Explanations for these results will be discussed below.

4.3 Implications for Cognitive Processing Theory

First, although cognitive processing theories postulate that written disclosure buffers against maladaptive rumination by altering maladaptive cognitions, the empirical evidence that writing actually alters cognitions is mixed (Smyth et al., 1998). For the current study, the CSQ and DAS were used to measure maladaptive cognitions. However, no previous study was found that used these actual measures. Instead, most studies that reported alterations in negative cognitions based the findings on changes in numbers of cognitive words used in written essays. Actual thoughts or attitudes associated with those
changes in words were often not evaluated. For example, Schoutrop, Lange, Hanewald et al. (1997) reported fewer intrusive thoughts after writing in the experimental condition, as measured by changes in use of negative words in the writing. Other studies that examined word use to evaluate changes in intrusive thoughts did not even find reductions (Lepore, 1991). Since word use did not significantly change, written disclosure was interpreted to only alter the perceived impact of intrusive thoughts on sense of well-being, but not the actual frequency of negative thoughts. Thus, the evidence of expressive writing reducing negative cognitions is sparse and those studies that do support cognitive processing theories are correlational in nature (Sloan and Marx, 2004b), making most conclusions speculative.

This study explored whether actual cognitions were altered during the course of three writing sessions by using well-established measures such as the DAS and CSQ. These measures evaluate dysfunctional attitudes and maladaptive attributions, respectively. Given the paucity of research examining maladaptive cognitions within the writing paradigm, this portion of the study was exploratory. It was proposed that if alterations in cognitions were found, they could be understood as changes in the organization and processing of thoughts as proposed by cognitive processing theory (Ullrich & Lutgendorf, 2002). However, the findings did not support cognitive processing theory in that expressive writing did not alter cognitions. A possible explanation for this finding is that the constructs measured (i.e. dysfunctional attitudes about the self, the world and the future, and the attributions one makes to account for negative events) have commonly been understood to be trait-like tendencies that were acquired through early experiences (Romens, Abramson & Alloy, 2009) and that are resistant to change. The
CSQ and DAS measure relatively stable constructs (Alloy & Abramson, 1999), but they have also been found to have the potential to be modified through intervention (Jacobs, R.H., Silva, S.G., Reinecke et al., 2009), which is why they were utilized in the current study. Perhaps the limited time and mental resources required for the writing intervention might not have provided the necessary opportunity to allow participants to confront, organize, and integrate sensitive issues enough to alter maladaptive cognitions. A more intensive intervention, such as cognitive behavior therapy conducted over several weeks, might be necessary to alter maladaptive cognitions. Although it was predicted that maladaptive cognitions would be reduced based on cognitive processing theory and past research, the current study did not produce significant results to support cognitive processing theory as the mechanism for why the writing paradigm is effective.

Another explanation for maladaptive cognitions not being altered might be the timing of assessments of maladaptive cognitions. Participants were asked to write for three consecutive days (although they had a week to complete this portion of the study). Assimilation of new experiences into existing thoughts or accommodation of previous attitudes to new situations might require more time and experiences between sessions. There has been much speculation (Pennebaker, 1993; Pennebaker & Francis, 1996) and follow up research (Lyubomirsky, Sousa & Dickerhoof, 2006) to support the notion that expressive writing requires reorganization and structuring of thoughts. Smyth (1998) reported in a meta-analysis that longer span of time between writing sessions produced greater effects, but Frattaroli (2006) did not find differences in effect size based on spacing of sessions. Given the mixed findings in previous studies, it is possible the
spacing between writing sessions in this study was not enough to give the participants a chance to sufficiently process and organize their thoughts.

Finally, there is evidence that maladaptive cognitive patterns lie dormant until triggered in times of distress (Alloy & Abramson, 1999). Those individuals who report higher levels of subjective distress score higher on the DAS and CSQ than those with lower levels of distress (Romens et al., 2008, Haeffel et al., 2003) and were found to be at greater risk for depression. For this study, only participants who did not meet criteria for depression were selected. The high brooding scores were assumed to be sufficient for triggering negative cognitions because higher levels of subjective stress have been found to be associated with higher scores on brooding (O’Connor et al., 2007 & Rude et al., 2007). However, it is possible that the subjective distress was not high enough prior to the intervention to trigger negative cognitions. Significant reductions in maladaptive cognitions would be difficult if initial negative cognition scores were not high at baseline.

In one study that examined individuals considered at high risk for depression by their scores on the CSQ (Oliver, Murphy, Ferland et al., 2007), the mean (sd) score was 4.95 (.40). For this study, the mean score prior to the first writing session was more than a standard deviation lower (i.e. 4.13 (.87) for group one and 3.79 (.95) for group two). Expressive writing has been found to be more beneficial to individuals rating higher at baseline in various forms of distress because it allows for more room for improvement (Gortner et al, 2006, Frattaroli, 2006, Sloan et al., 2008). In the current study, baseline scores might not have been high enough on these measures to show improvements after the writing intervention.
Overall, the lack of change in scores on the CSQ and DAS suggest that expressive writing might not be a substantial enough intervention to actually alter deeply rooted cognitions such as maladaptive attributions and dysfunctional attitudes. As previously discussed, this might partially be due to limitations in the design of the study, to not having more stringent screening criteria to select those scoring higher in various measures, or to not choosing the most sensitive measures for assessing maladaptive cognitions in this paradigm. However, given the writing paradigm involves very minimal intervention, it is also very likely that expressive writing is not an intensive enough treatment intervention to impact the more trait-like tendencies measured by the RRS, CSQ, and DAS compared to more malleable constructs commonly found to change, such as maladaptive behaviors.

A more common method found in the research to assess alterations in cognitions is to assess whether the percentage of total words that were negative and positive emotion words, and causal/insight words, changed over time and whether these changes were associated with various measures of well-being (Pennebaker, 1991). In order to explore whether there is further support for cognitive processing theory in the current study, it was predicted that negative cognitions will be reduced/altered over the course of the three writing sessions as indicated by percentage of emotion words, causal insight words, and problem-solving words (hypothesis 2). Word use was associated with negative cognitions being reappraised in order to increase insight and understanding of events. Although a manipulation check conducted in this study suggested that the study was valid in that participants in experimental conditions wrote significantly more emotion and cognitive words than the control condition, there was no significant reductions/alterations in this
word use over time in any group. The exception was anger word use, which was reduced, but only in the EW condition, not the SR/PS condition. These findings again suggest that the writing intervention was not robust enough to alter cognitions (as measured by changes in word use). Thus, cognitive processing theory was not supported.

4.4 Implications for self-regulation/emotion-regulation theory

Several researchers have postulated that expressive writing also improves psychological health (and physical health) by helping individuals to regulate emotions and become better problem solvers (Frattaroli, 2006, Greenberg et al., 1996, Sloan et al., 2008), which is summarized in self-regulation theory. According to this theory, individuals who are able to regulate emotions initially direct their attention to their current reaction or emotional state and compare the current state to the desired state had they reached their goal (Carver & Scheier, 2006; Martin & Tesser, 1996). They are able to step back and assess their emotions, keeping them in perspective, before making decisions or taking action to pursue goals. Increased emotion regulation was postulated to be associated with increased perception of the ability to solve problems and actual ability to problem-solve. Emotion regulation and problem-solving were predicted to mediate reductions in brooding. However, neither experimental writing condition improved ability to regulate emotions (as measured by the DERS) or the perception that one has good ability to solve problems (as measured by the SPSI). Although there is much speculation that writing is effective through aiding people to regulate emotions and problem solve, the empirical data supporting these predictions has been mixed. The current lack of significant findings mirror other studies where effects were not found for emotion regulation measures (i.e. rumination, emotional processing, emotional
expression; Gortner, 2006) and, thus provide further evidence that the writing paradigm might not be functioning to help individuals regulate emotions.

In summary, neither cognitive processing theory nor self-regulation theory was supported by the data in this study. The results suggest that the writing paradigm might not be explained adequately by a single theory. It is possible that limitations in the design of the study or in the measures chosen partially prevented the study from having significant effects. It is also possible that the study reveals limitations in the effectiveness of the writing paradigm in general. Expressive writing might not be as effective in improving emotional and cognitive symptoms as it is in improving health related behaviors and physical health problems.

4.5 Limitations in the study design

The methodology of the studies’ procedures must also be re-evaluated to further understanding of why the current study did not support any of the predictions. Several variables that could have an impact on outcomes were considered in designing the current study. Frattaroli (2006) conducted a meta-analysis of 146 published and unpublished research studies evaluating the methodological variables effecting outcomes of the Expressive Writing intervention. The current study was designed according to most of these findings. In this review, studies with the larger and significant effect sizes for expressive writing included those that asked participants to disclose at home in a private versus a more open setting, had at least three sessions of 15 minutes or more, had fewer participants (e.g. an average n = 78 across 146 studies) in studies assessing psychological health variables, offered to pay participants, instructed participants whether or not to switch topics over the course of three days, and those with follow-up periods of less than
one month. The current study followed this protocol on all accounts. In the meta-
analysis, larger effect sizes were also found in those studies that had directed questions
instilled in the directions; questions similar to those in the SR/PS condition (see methods)
of this study.

Other study design factors that were associated with larger effect sizes, but that
were not considered in the current study, included using only participants with current
health problems or with a history of trauma. Pre-existing psychological health conditions
were evaluated, but were found to not moderate the effect size. Screening for participants
with a history of trauma or current physical health problems in this study might have
produced different results. Frattaroli (2006) also found that studies with instructions to
discuss previously undisclosed topics and individuals to write about more recent events
had larger effect sizes. However, a previous review conducted by Sloan et al. (2004)
found that effect size was not dependent on the time of events discussed. In addition, in at
least one study, writing has been found to equally benefit those writing about a real
trauma and an imaginary trauma (Greenberg et al., 1996), suggesting that beneficial
effects have little to do with expression of previously undisclosed personal problems.
Based on mixed conclusions regarding previously discussed topics, it appears justified to
not have included these specifications. The spacing of sessions, age, ethnicity, education
or mode of disclosure (typing vs. writing vs. talking) did not impact findings in
Frattaroli’s review and, therefore, should not be considered a factor in the current
findings.

There were some other methodological factors that might have contributed to not
having effects in the current study. Although Frattaroli (2006) did not find the spacing of
writing sessions to have an impact on effect size, given the nature of the variables measured for this study, variable spacing of sessions in the current study might have been found to have differing benefits. In addition, the meta-analysis indicated that studies that recruited from the general population had larger effect sizes than those working with student populations. The current study recruited from both the student and general population, but had significantly more participants from the student population (Student population, \( n = 77 \) vs. general population \( n = 11 \)). Due to such a small number of people form the general population, an analysis could not be completed comparing whether one population benefited more from this study. It is unknown whether this study would have found significant effects had there been more participants from the general population. Overall, the majority of methodological variables predicted to produce the most robust results were accounted for in the current study.

Given that the current study predominantly used participants from the student body of a university, the findings cannot be generalized to a general population. Although attempts were made to recruit from the general population as well as the student population (as previously discussed), the stringent screening criteria (e.g. scoring high on brooding, not meeting criteria for depression) eliminated the majority of volunteers from the general population.

A study with more robust power might also have produced better results. The power analysis conducted for this study indicated that 111 participants were needed to have power of \( .80 \). Although this study originally had 128 participants, data from 40 participants were not used due primarily to scoring below 10 at the time of the first writing session. The minimum score on the brooding subscale is five, so scores below 10
were not considered high enough to have room for improvement after the intervention. In addition, below 10 scores were below the cutoff for being considered high in brooding. These participants scored 10 and above on the screen, which is why they were initially included in the study. The post-study analysis revealed that their scores significantly decreased at session one prior to the intervention, which is why they were later dropped from the sample. A larger sample size may have increased statistical power to be able to detect group differences for both experimental conditions along at least some, if not all, of the dependent measures.

4.6 Potential limitations of the measures

The fact that most of the variables were measured by self-report could be an important indicator for why this study failed to produce significant effects. In general, expressive writing has been more successful in producing benefits in physical health and well-being as measured by physical indicators or observable behaviors. For example, writing has been found to improve asthma or arthritis symptoms (Smyth, Stone, Hurewitz, & Kaell, 1999), upper respiratory problems (Greenberg, Wortman & Stone, 1996), chronic pain (Norman, Lumley, Dooley, & Diamond, 2004), and immune functioning (Pennebaker, Colder & Sharp, 1990). Behaviorally, expressive writing has been found to improve grades (Cameron & Nicholls, 1998), and reduce illness-related medical visits (Pennebaker & Beall, 1986) and absenteeism rates from work due to illness (Francis & Pennebaker, 1992). Self-report measures are dependent on the participants’ self-awareness and acknowledgement of change, and subtle signs of progress in mental health might not be detected. These measures might not be sensitive enough to detect
small but meaningful changes that are often associated with cognitive and emotional factors.

4.7 The overall effectiveness of writing paradigms

After evaluating the potential limitations in the current study, a final consideration for the lack of findings is the notion that the writing intervention paradigm itself might not be a robust enough intervention to improve factors such as brooding, depressive symptoms, or the other associated constructs. The meta-analysis conducted by Frattaroli (2006) revealed that in general, the overall effect size for writing intervention studies, although significant, was quite small ($r = .075$, Cohen’s $d = .151$). This effect size could have been significant because 146 studies were evaluated. In a single study, numbers equivalent to these might not even be considered significant. In general, given the effect size is quite small, it is very likely that the two previous studies looking at brooding would likely have little impact on the effect size in a meta-analysis of this magnitude. It is generally assumed that a meta-analysis of this magnitude would have greater reliability than that of two combined studies and especially a single study such as this one. The current study had a sample of only 88 participants. Although the current sample size was comparable to other writing studies, if the effect size was that small in a large meta-analysis, it is likely that there were not enough participants to show significant effects from the current study. However, it is important to note that an effect size even as small as in the meta-analysis may be important in demonstrating that Expressive writing can be successful, which is why this study was justified. The writing intervention is easy to administer, cost-effective and accessible to a wide-population, thus any effect size is sufficient to justify future research to further develop an intervention.
4.8 Subjective benefits of writing

Interestingly, the majority of participants reported that they benefited from the experience of writing. Examples of comments at the end of the study that appear to be anecdotal evidence of participants at least subjectively experiencing the writing intervention as beneficial in promoting cognitive processing of negative events to improve emotion regulation and increase insight. Some comments included “This study helped me to think about new ways to consider how to feel good,” “I learned how to think about problems and why I am thinking certain ways about things,” “…helped me identify the source of my unhappiness and “It made me connect to thoughts and understand situations better and how I am feeling.” Writing also appeared to give participants the subjective sense that problems were manageable and that they were able to solve problems more effectively. Some comments made included, “Makes me want to make better decisions. I got to learn a little about myself and recognized that I am doing pretty well overall,” “I learned that I should talk more about my problems and that overall my life is a success even if I am sometimes sad,” “It made me think about how I solve problems and approach,” and “It helped me to organize my feelings so I can make adjustments.” In addition, participants in the experimental conditions found the study to be significantly more meaningful and reported feeling happier after the study compared to the control group. Regardless of which group they were in, the majority of participants reported that they would either definitely, or at least probably participate in the study again, further suggesting that participants found the study worthwhile, helpful and meaningful.
The contrasting results among the subjective, qualitative reports and the quantitative, objective self-report measures suggest the possibility that the objective self-reports were not sensitive enough to detect the subtle changes in psychological health derived from this intervention. The other possibility is that although participants feel that they have improvements in overall well-being, no significant improvements were actually made after writing. Perhaps the process of filling out self-reports that measure mood, thought processes and emotion regulation created the expectation that there should be improvements, therefore improvements were reported although not officially made.

The discrepancy between subjective reports of global impressions of the study and other results assessing specific cognitive constructs does, however, highlight the importance of an individual’s perception of an intervention. It would seem that if an intervention enables individuals to recognize that a situation is not global or that they have better ability to adjust and move forward, the intervention should be deemed as helpful. This should warrant further study even when these improvements were not detected on objective self-report measures.

4.9 Future Directions

The current study did not support the predictions, but it did reveal that participants at least subjectively found the writing intervention to be meaningful and helpful in facilitating cognitive processing and improving emotion regulation and problem-solving. As previously mentioned, subjective benefits should not be minimized as having clinical significance and even very small effects on other writing studies should be enough to justify future research that furthers understanding of when and why expressive writing is most effective and whom it will most benefit. There is general consensus that the writing
paradigm is effective in improving physical and psychological well being at least among some populations. This warrants the need to further develop this intervention and to better understand why and who benefits most.

There are several issues to consider when designing future studies evaluating brooding and the mechanisms underlying why some individuals benefit. First, a larger sample derived from the general population will provide more statistical power to better detect effects. Second, stricter inclusion criteria might ensure that participants are high brooders and are initially experiencing distress in order to provide more opportunity (i.e. less floor effect) for improvements. Third, the findings, at least in this study, highlight the notion that neither theories of cognitive processing nor emotion regulation account for beneficial effects found in other studies at least by the current measures used. Future studies should either use different measures, such as more objective measures of effects of negative cognitions or emotion dysregulation, should continue to compare objective measures to subjective reports, or should consider other theories for understanding the effects of writing interventions. Fourth, studies should include objective measures of behaviors that are easy to measure (e.g. grades in school, health related visits, health symptoms) in conjunction with measures of more abstract constructs like emotions and cognitions. Fifth, different methodologies should be compared when looking at psychological variables. Specifically, spacing out the sessions to allow for more time to reduce ruminative tendencies, to process and restructure perception of negative events, and to regulate emotions, should be evaluated before eliminating the possibility that writing has an effect on reducing brooding and ultimately depressive symptoms. It would be interesting to examine how results would differ with varying length of each writing
session and spacing between sessions. Studies might also want to look at whether varying response times result in differing benefits (e.g. in this study participants were asked to write for three consecutive days but had a week to complete the writing portion. They were also asked to complete the post-writing survey anytime within 48 hours of completing the final writing session). Finally, future studies might want to evaluate which word use changes predict better mental health outcomes by comparing word use change over the course of writing sessions to objective measures of mental health. Pennebaker et al. (1997) found that increased causal and insight word use over time mediated the health outcomes. Future studies examining these relationships could potentially at least partially predict who is likely to benefit most from writing.

4.10 Clinical Applications

The findings in this study suggest that writing interventions might not be sufficient for reducing symptoms like brooding that are associated with increased risk for depression. However, the majority of participants perceived the writing process to be beneficial. They reported that they found the writing process to be beneficial in better understanding the nature of problems, how to apply solutions to problems and in helping to develop the recognition that overall their life is in a better situation than they thought prior to the intervention. Participants also reported increased subjective feelings of happiness even if measures did not detect these changes. Thus, the results of this study have some clinical importance in that they suggest that writing might be utilized as an adjunct to therapy in order to aid individuals in feeling a greater sense of control over problems, increased mood regulation, and a sense that one is able to manage and solve problems. At the very least, the writing paradigm may be especially helpful in
facilitating openness with a clinician and in increasing the realization that expressing thoughts and feelings about problems results in the subjective experience of increased self-efficacy and well-being.
APPENDIX A

CONSENT FORMS
EFFECTS OF WRITING ON THOUGHTS, ATTITUDES AND MOOD

By indicating my consent to participate, I understand that I will complete a few
questionnaires concerning my background, mood, and thought content. I understand that
the total time to do this is approximately 15 minutes. If asked to participate in remainder
of the study, I will be asked to complete several additional questionnaires concerning my
background, mood, thoughts, and attitudes. I also will participate in three writing sessions
that will take approximately 20 minutes each. The researcher will contact me by email
within 48 hours of completing this survey to let me know whether I am eligible to
participate in the remainder of the study.

I understand that I will provide my name and other demographic information at the
beginning of this screening process. My identifying information (e.g. name, email,
address) will be kept separately from the rest of the data in a locked file cabinet. All the
information I provide will be kept confidential.

I understand that my participation is completely voluntary and that I may stop or
withdraw at any time. I understand that this research provides no benefits to me other
than if I find the writing exercises helpful. If at any time I have questions or comments
about the study I can contact the researchers, Cynthia Weinstein, M.S. at 312-567-3500
or weincyn@iit.edu, or Michael Young, Ph.D. at 312-567-3503 or youngm@iit.edu.

There is little risk involved in participating in this study other than any discomfort I
might feel in thinking about some of the life situations I am asked about. If, at any time, I
am concerned about how I am feeling, I understand that I should consult with a
psychologist, medical doctor, or other mental health professional.

I understand that the Illinois Institute of Technology is not responsible for any injuries or
medical conditions I may suffer during the time I am a research subject unless those
injuries or medical conditions are due to IIT’s negligence. I may address questions and
complaints to Glenn Krell, MPA, CRA, Executive Officer of IIT Institutional Review
Board at (312) 567-7141.

I have been informed about this study’s purpose, procedures, possible benefits and risks. I
understand that I voluntarily agree to participate in this study, and that I may withdraw
without penalty at any time. By writing my name and then clicking the “Yes” button in
the box below, I have signed this consent form, indicating that I have agreed to the terms
in this study.

Written Name                      Date
[box here] *YES, I agree to the terms of the study
[box here] *NO, I do not agree to the terms of the study

*We recommend that you keep a copy of this form for your records
CONSENT FORM

EFFECTS OF WRITING ON THOUGHTS, ATTITUDES AND MOOD

Informed Consent
Illinois Institute of Technology-Chicago, Illinois

This study examines how writing affects your mood, thoughts and feelings. By signing this form, I understand that I will complete several questionnaires online concerning my background, mood, thoughts, and attitudes about problems. I will also participate in three writing sessions that will take approximately 20 minutes each. I will complete the first survey and the first writing session in the same day. The writing session will take place directly after completing the first survey. The second and third writing sessions will be online at a time and place of my convenience, on the two consecutive days following the first writing session. Within 48 hours after I complete the final writing session and again one month later, I will complete two additional online questionnaires online concerning mood, thoughts and attitudes about problems. I understand that the total time required is approximately 4 hours, but that it may end up being anywhere from 2 hour to 5 hours over the course of five weeks. The researcher will send me e-mails to remind me of my times to do these tasks. I agree to respond to emails in order to have a mutually agreed upon time with the researcher for all appointments.

I understand that for participating in the study, I can choose one of several options. (1) I can enter a raffle for a chance to win one grand prize of $500 or one of three $20.00 Amazon.com gift certificates. (2) I can choose to have the researcher donate $25.00 to Haiti Red Cross. (3) I can choose to get paid $25.00 at the end of the study and (4) If I am a college student at IIT, I have the option to choose receiving course credit for participating in this study (pending instructor’s approval).

I understand that my name, and other demographic information that I provided at the beginning of the screening process was matched to an ID Code and placed in a locked file cabinet, separate from the questionnaires and writing information I provide. The connection between my name and all the other information I provide will be destroyed at the end of the study. All data analysis will be identified by the ID Code only. In addition, although I my email address will be used throughout the study, it will not be shared with anyone other than the qualified research staff. All information will be kept confidential.

I understand that my participation is completely voluntary and that I may stop or withdraw at any time. I understand that this research provides no benefits to me other than if I find the writing exercises helpful. For example, in the past some people have gained insight into themselves and their experiences. If at any time I have questions or comments about the study I can contact the researchers, Cynthia Weinstein, M.S. at 312-567-3500 or weincyn@iit.edu, or Michael Young, Ph.D. at 312-567-3503 or youngm@iit.edu.
There is little risk involved in participating in this study other than any discomfort I might feel in thinking about some of the life situations I am asked about. If, at any time, I am concerned about how I am feeling, I understand that I should contact one of the several mental health resources provided on this consent form. If, at any time, I am seriously concerned about how I am feeling, I understand that I should not continue with this study and should consult with a psychologist, medical doctor, or other mental health professional. I should contact a mental health professional immediately if I am ever feeling intent to harm others or myself. I can contact my local hospital or one of the mental health centers provided on this consent form.

I understand that the Illinois Institute of Technology is not responsible for any injuries or medical conditions I may suffer during the time I am a research subject unless those injuries or medical conditions are due to IIT’s negligence. I may address questions and complaints to Glenn Krell, MPA, CRA, Executive Officer of IIT Institutional Review Board at (312) 567-7141.

I have been informed about this study’s purpose, procedures, possible benefits and risks. I understand that I voluntarily agree to participate in this study, and that I may withdraw without penalty at any time.

Signature
Print
Date

*We recommend that you keep a copy of this form for your records
MENTAL HEALTH CONTACT SHEET

DEPRESSION / SUICIDE CRISIS LINE Dial: (800) 784-2433

CLINICS

Advocate Northside
836 W. Wellington
Chicago, IL
Phone: (773) 296-3220

Bobby E Wright MHC
9 So. Kedzie
Chicago, IL 60612
Phone: (773) 722-7900
Fax: (773) 722-0644

Counseling Center of Lake View
3225 N. Sheffield
Chicago, IL 60657
Phone: (773) 549-5886

Englewood MHC
641 W. 63rd Street
Chicago, IL 60621
Phone: (312) 747-7496

Heartland Health Outreach
4750 N. Sheridan Suite 300
Chicago, IL 60613
Phone: (773) 751-4107

Metropolitan Family Services
3062 E. 91st Street
Chicago, IL 60617
Phone: (773) 371-2900

Note: Also located at: 10537 S. Roberts Rd, Palos Hills, IL 60465, Phone 708-974-2300

HOSPITALS

Cook County Hospital
1901 W. Harrison St
Chicago, IL 60612
Phone: (312) 633-6000

Evanston Hospital
2650 Ridge Avenue
Evanston, IL 60201
Phone: (847) 570-2720

Northwestern Memorial Hospital
446 E. Ontario Suite 6-200
Chicago, IL 60601
Phone: (312) 926-8744

Note: Dept of Psychiatry

Resurrection Healthcare/St. Francis Hospital
355 Ridge
Evanston, IL 60201
Phone: (847) 316-6254

University of Chicago Hospital-Psychiatry Dept.
The University of Chicago
5841 S. Maryland Ave
Chicago, IL 60637
Adult Intake: (773) 702 3858
Emergency on-Call: (773) 753-1880, PIN: 7032
APPENDIX B

POSTINGS
RESEARCH STUDY SEEKING PARTICIPANTS AT LEAST 18 YEARS OLD

This study examines how writing influences thoughts and mood.
* Are you at least 18 years old?
* Do you have regular access to a computer and the Internet in a quiet setting?
* Can you type well enough to write for at least 20 minutes?
* Is English your primary language? Can you read and write fluently in English?

If you answered “yes” to all these questions you may be able to participate.

- Eligible participants will complete questionnaires three times in the first week, and again 4 weeks later: Each time will take about 20-45 minutes.
- Participants also will write online three times for 20 minutes each time in the first week.

*** Option to (1) enter a raffle to win $500.00 or one of three $20.00 gift certificates for Amazon.com (2) get paid $25.00 or (3) have me donate $25.00 to Haiti Red Cross!
*Phd candidate conducting a Psychological Research Study to Explore How Writing Helps to Improve Thoughts and Mood

SEEKING PARTICIPANTS
• Are you at least 18 years old?
• Do you have regular access to a computer/internet in a quiet setting?

Once study is complete, you have a chance to (1) Enter a RAFFLE for $500.00 (or one of 3 $20.00 gift certificates to Amazon.com (2) Have me donate to Haiti Red Cross or (3) Get paid $25.00

If eligible, participants meet with me one time. The rest of the study is done online

Contact Cynthia from Illinois Institute of Technology at 312-388-7552 or by email at weincyn@iit.edu if interested!!
APPENDIX C

PHONE SCREEN QUESTIONNAIRE
Hello. Thanks for your interest in this study. I am going to ask you a few questions to help me determine if you are appropriate for this study. If you are appropriate, I will give you a website to complete the official screening surveys. Is it ok with you that I ask you some questions? Great…..

1. What year were you born?
2. Do you have regular access to a computer and the Internet?
3. Can you type well enough to write continuously for at least 20 minutes?
4. Do you read and write English fluently?

People think and do many different things when they feel depressed. I am going to ask you some questions about how YOU think when you feel depressed. Please indicate on a scale of 1-4 whether you 1, never; 2, sometimes; 3, often; or 4, always; think or do each one of the following when you feel down, sad, or depressed. Please indicate what you generally do, not what you think you should do. How often do you…… (must score 10 or greater to be eligible)

<table>
<thead>
<tr>
<th>Always</th>
<th>Never</th>
<th>Sometimes</th>
<th>Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

1. Think “What am I doing to deserve this?”
2. Think “Why do I always react this way?”
3. Think about a recent situation, wishing it had gone better?
4. Think “Why do I have problems other people don’t have?”
5. Think “Why can’t I handle things better?”

Do you feel that you are currently depressed? (IF YES, ask the following questions to clarify, if NO got to the bottom of the page)

a. Do you have sad mood most of the day nearly every day
b. Do you have less interest or pleasure in your usual activities?
c. Have you had any changes in weight? (gain or loss)
d. Are you sleeping much less or more than you usually do?
e. Do you feel like you are moving much more slowly than usual? Have your friends noticed?
f. Do you feel tired often?
g. Do you feel worthless or excessive guilt?
h. Are you having difficulty concentrating?
i. Are you having thoughts of death or dying?

---------------------------------------------------------------------------

IF ELIGIBLE: “Thank you for answering these questions. I would like to now send you to a website to answer a few more questions to determine if you are eligible for this study. Are you willing to do that? Great, go to http://www.surveymonkey.com/s/XCX76GY. I will also email you the website address. Can you tell me your email address? This will not be shared with anyone. It will be used to contact you in the event that you participate in the study.

EMAIL: ________________________________
What is your name? ____________________________________________. All identifying information will be kept confidential and will be only accessible to qualified research staff.

“Once you have completed the online surveys, I will email you to let you know whether you are eligible to participate in the remainder of the study. If you are eligible, once you complete the study, you will have the option to either (1) participate in the raffle for either a grand prize of $500.00 or 3 prizes of $20.00 gift certificates for Amazon.com or (2) have us donate $25.00 to Haiti Red Cross.”

IF NOT: “Thank you for answering these questions. Unfortunately, we are examining very specific characteristics about the way people think for this study. This is not good or bad, but the way you answered these questions is not consistent with what we are looking for. Thank you for your interest and have a great day!”
APPENDIX D

SURVEY QUESTIONNAIRES
The Diagnostic Inventory for Depression (DID; Zimmerman, Sheeran, & Young, 2004).

Name: _______________________________________
Date:____________________ ID #:______________

INSTRUCTIONS: This questionnaire is about how you have been feeling during the past week. After each question there are 5 statements (numbered 0-4). Read all 5 statements carefully. Then decide which one best describes how you have been feeling. Choose only one statement per group. If more than one statement in a group applies to you, choose the one with the higher number.

-----------------------------------------------------------------------------------------------------------
-----
(1) During the past week, have you been feeling sad or depressed?

0 No, not at all.
1 Yes, a little bit.
2 Yes, I have felt sad or depressed most of the time.
3 Yes, I have been very sad or depressed nearly all the time.
4 Yes, I have been extremely depressed nearly all the time.

(2) How many days in the past 2 weeks have you been feeling sad or depressed?

0 No days
1 A few days
2 About half the days
3 Nearly every day
4 Every day

(3) Which of the following best describes your level of interest in your usual activities during the past week?

0 I have not lost interest in my usual activities.
1 I have been less interested in 1 or 2 of my usual activities.
2 I have been less interested in several of my usual activities.
3 I have lost most of my interest in almost all of my usual activities.
4 I have lost all interest in all of my usual activities.

(4) How many days in the past 2 weeks have you been less interested in your usual activities?

0 No days
1 A few days
2 About half the days
3 Nearly every day
4 Every day

(5) Which of the following best describes the amount of pleasure you have gotten from your usual activities during the past week?

0 I have gotten as much pleasure as usual.
1 I have gotten a little less pleasure from 1 or 2 of my usual activities.
2 I have gotten less pleasure from several of my usual activities.
3 I have gotten almost no pleasure from most of the activities that I usually enjoy.
4 I have gotten no pleasure from any of the activities that I usually enjoy.

(6) How many days in the past 2 weeks have you gotten less pleasure from your usual activities?

0 No days
1 A few days
2 About half the days
3 Nearly every day
4 Every day

(7) During the past week, has your energy level been low?

0 No, not at all.
1 Yes, my energy level has occasionally been a little lower than it normally is.
2 Yes, I have clearly had less energy than I normally do.
3 Yes, I have had much less energy than I normally have.
4 Yes, I have felt exhausted almost all of the time.

(8) Which of the following best describes your level of physical restlessness during the past week?

0 I have not been more restless and fidgety than usual.
1 I have been a little more restless and fidgety than usual.
2 I have been very fidgety, and it has been somewhat difficult to sit still.
3 I have been extremely fidgety, and I have been pacing a little bit almost every day.
4 I have been pacing more than an hour a day, and I have been unable to sit still.

(9) Which of the following best describes your physical activity level during the past week?

0 I have not been moving more slowly than usual.
1 I have been moving a little more slowly than usual.
2 I have been moving more slowly than usual, and it takes me longer than usual to do most activities.
3 Normal activities are difficult because it has been tough to start moving.
4 I have been feeling extremely slowed down physically, like I am stuck in mud.

(10) **During the past week, have you been bothered by feelings of guilt?**

0 No, not at all.
1 Yes, I have occasionally felt a little guilty.
2 Yes, I have often been bothered by feelings of guilt.
3 Yes, I have often been bothered by strong feelings of guilt.
4 Yes, I have been feeling extremely guilty.

(11) **During the past week, what has your self esteem been like?**

0 My self-esteem has not been low.
1 Once in a while, my opinion of myself has been a little low.
2 I often think I am a failure.
3 I almost always think I am a failure.
4 I have been thinking I am a totally useless and worthless person.

(12) **During the past week have you been thinking about death or dying?**

0 No, not at all
1 Yes, I have occasionally thought that life is not worth living.
2 Yes, I have frequently thought about dying in passive ways such as going to sleep and not waking up.
3 Yes, I have frequently thought about death, and that others would be better off if I were dead.
4 Yes, I have been wishing I were dead.

(13) **During the past week, have you been thinking about killing yourself?**

0 No, not at all
1 Yes, I had a fleeting thought about killing myself.
2 Yes, several times I thought about killing myself, but I would not act on these thoughts.
3 Yes, I have been seriously thinking about killing myself.
4 Yes, I have thought of a specific plan for killing myself.

(14) **Which of the following best describes your ability to concentrate during the past week?**

0 I have been able to concentrate as well as usual.
1 My ability to concentrate has been slightly worse than usual.
2 My attention span has not been as good as usual and I have had difficulty collecting my thoughts, but this hasn't caused any serious problems.
3 I have frequently had trouble concentrating, and it has interfered with my usual activities.
4 It has been so hard to concentrate that even simple things are hard to do.

(15) **During the past week, have you had trouble making decisions?**
0 No, not at all.
1 Yes, making decisions has been slightly more difficult than usual.
2 Yes, it has been harder and has taken longer to make decisions, but I have been making them.
3 Yes, I have been unable to make some decisions that I would usually have been able to make.
4 Yes, important things are not getting done because I have had trouble making decisions.

(16) **During the past week, has your appetite been decreased?**
0 No, not at all.
1 Yes, my appetite has been slightly decreased compared to how it normally is.
2 Yes, my appetite has been clearly decreased, but I have been eating about as much as I normally do.
3 Yes, my appetite has been clearly decreased, and I have been eating less than I normally do.
4 Yes, my appetite has been very bad, and I have had to force myself to eat even a little.

(17) **How much weight have you lost during the past week (not due to dieting)?**
0 None (or the only weight I lost was due to dieting)
1 1-2 pounds
2 3-5 pounds
3 6-10 pounds
4 More than 10 pounds

(18) **During the past week, has your appetite been increased?**
0 No, not at all.
1 Yes, my appetite has been slightly increased compared to how it normally is.
2 Yes, my appetite has clearly been increased compared to how it normally is.
3 Yes, my appetite has been greatly increased compared to how it normally is.
4 Yes, I have been feeling hungry all the time.

(19) **How much weight have you gained during the past week?**
0 None
1 1-2 pounds
2 3-5 pounds
3 6-10 pounds
4 More than 10 pounds
During the past week, have you been sleeping less than you normally do?
0  No, not at all.
1  Yes, I have occasionally had slight difficulty sleeping.
2  Yes, I have clearly been sleeping less than I normally do.
3  Yes, I have been sleeping about half my normal amount of time.
4  Yes, I have been sleeping less than 2 hours a night.

During the past week, have you been sleeping more than you normally do?
0  No, not at all.
1  Yes, I have occasionally slept more than I normally do.
2  Yes, I have frequently slept at least 1 hour more than I normally do.
3  Yes, I have frequently slept at least 2 hours more than I normally do.
4  Yes, I have frequently slept at least 3 hours more than I normally do.

During the past week, have you been feeling pessimistic or hopeless about the future?
0  No, not at all.
1  Yes, I have occasionally felt a little pessimistic about the future.
2  Yes, I have often felt pessimistic about the future.
3  Yes, I have been feeling very pessimistic about the future most of the time.
4  Yes, I have been feeling that there is no hope for the future.

0= no difficulty 1= mild difficulty 2= moderate difficulty 3= marked difficulty
4= extreme difficulty

INSTRUCTIONS
Indicate below how much symptoms of depression have interfered with, or caused difficulties in, the following areas of your life during the past week. (Circle DNA [Does Not Apply] if you are not married or have a boyfriend/girlfriend.)

During the PAST WEEK, how much difficulty have symptoms of depression caused in your...

23. usual daily responsibilities (at a paid job, at home, or at school)
..........................................................0 1 2 3 4
24. relationship with your husband, wife, boyfriend, girlfriend, or lover..............DNA 0 1 2 3 4
25. relationships with close family members..........................................................
0 1 2 3 4
26. relationships with your friends............................................................................0 1 2 3 4
27. participation and enjoyment in leisure and recreation activities.............................................0 1 2 3 4

28. Overall, how much have symptoms of depression interfered with or caused difficulties in your life?
   0) not at all
   1) a little bit
   2) a moderate amount
   3) quite a bit
   4) extremely

29. How many days during the past week were you completely unable to perform your usual daily responsibilities (at a paid job, at home, or at school) because you were feeling depressed? (circle one)

   0 days  1 day  2 days  3 days  4 days  5 days  6 days  7 days

----------------------------------------------------------------------------------------------------------

0=very satisfied 1=mostly satisfied 2=equally satisfied/dissatisfied 3=mostly dissatisfied 4=very dissatisfied

---------------------------------------------------------------------------------------------------------

INSTRUCTIONS
Indicate below your level of satisfaction with the following areas of your life (Circle DNA [Does Not Apply] if you are not married or have a boyfriend or girlfriend.)

During the PAST WEEK how satisfied have you been with your...

30. usual daily responsibilities (at a paid job, at home, or at school)........0 1 2 3 4

31. relationship with your husband, wife, boyfriend, girlfriend, or lover...........DNA 0 1 2 3 4

32. relationship with close family members.................................................................0 1 2 3 4
33. relationships with your friends..............................................................................0 1 2 3 4
34. participation and enjoyment in leisure and recreation activities......................0 1 2 3 4
35. mental health...................................................... ..........................................................0 1 2 3 4
36. physical health................................................................. ..................................................0 1 2 3 4

37. In general, how satisfied have you been with your life during the past week?

   0) very satisfied
   1) mostly satisfied
   2) equally satisfied & dissatisfied
   3) mostly dissatisfied
   4) very dissatisfied
38. In general, how would you rate your overall quality of life during the past week?

0) very good, my life could hardly be better
1) pretty good, most things are going well
2) the good and bad parts are about equal
3) pretty bad, most things are going poorly
4) very bad, my life could hardly be worse
CES-D  Please answer these questions about how you have felt in the past week.

<table>
<thead>
<tr>
<th></th>
<th>During the PAST WEEK, how often have you.....</th>
<th>Only rarely or Never</th>
<th>Little of the time</th>
<th>Occasionally</th>
<th>Most of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>felt bothered by things that usually don't bother you.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2.</td>
<td>not felt like eating, your appetite was poor.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3.</td>
<td>felt that you could not shake off the blues even with help from your family or friends.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4.</td>
<td>felt you are just as good as other people.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5.</td>
<td>had trouble keeping your mind on what you were doing.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6.</td>
<td>felt depressed.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7.</td>
<td>felt that everything you did was an effort.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8.</td>
<td>felt hopeful about the future.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>9.</td>
<td>thought your life has been a failure.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>10.</td>
<td>felt fearful.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>11.</td>
<td>slept restless.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>12.</td>
<td>felt happy.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>13.</td>
<td>talked less than usual.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>14.</td>
<td>felt lonely.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>15.</td>
<td>felt that people were unfriendly.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>16.</td>
<td>you enjoyed life.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>17.</td>
<td>had crying spells.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>18.</td>
<td>felt sad.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>19.</td>
<td>felt that people disliked you.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>20.</td>
<td>felt that you could not get &quot;going.&quot;</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Item Ruminative Response Scale (RRS) (Nolen-Hoeksema & Morrow, 1991). People think and do many different things when they feel depressed. Please read each of the items below and indicate whether you never, sometimes, often or always think or do each one when you feel down, sad, or depressed. Please indicate what you generally do, not what you think you should do.

1. Think about how alone you feel
   
2. Think “I won’t be able to do my job if I don’t snap out of this.”
   
3. Think about your feelings of fatigue and achiness
   
4. Think about how hard it is to concentrate
   
5. Think “What am I doing to deserve this?”
   
6. Think about how passive and unmotivated you feel
   
7. Analyze recent events to try to understand why you are depressed
   
8. Think about how you don’t seem to feel anything anymore
   
9. Think “Why can’t I get going?”
   
10. Think “Why do I always react this way”
   
11. Go away by yourself and think about why you feel this way
   
12. Write down what you are thinking and analyze it
   
13. Think about a recent situation, wishing it had gone better
   
14. Think “I won’t be able to concentrate if I keep feeling this way.”
   
15. Think “Why do I have problems other people don’t have
   
16. Think “Why can’t I handle things better?”
   
17. Think about how sad you feel
18. Think about all your shortcomings, failings, faults, mistakes

19. Think about how you don’t feel up to doing anything

20. Analyze your personality to try to understand why you are depressed

21. Go someplace alone to think about your feelings

22. Think about how angry you are with yourself
Dysfunctional Attitudes Scale (DAS; Weissman & Beck, 1978).

This inventory lists different attitudes or beliefs which people sometimes hold. Read EACH statement carefully and decide how much you agree or disagree with the statement. For each of the attitudes, show your answer by placing a checkmark under the column that BEST DESCRIBES HOW YOU THINK. Be sure to choose only one answer for each attitude. Because people are different, there is no right or wrong answer to these statements.

To decide whether a given attitude is typical of your way of looking at things, simply keep in mind what you are like MOST OF THE TIME.

EXAMPLE:

<table>
<thead>
<tr>
<th>ATTITUDES</th>
<th>TOTALLY AGREE</th>
<th>AGREE VERY MUCH</th>
<th>AGREE SLIGHTLY</th>
<th>NEUTRAL</th>
<th>DISAGREE SLIGHTLY</th>
<th>DISAGREE VERY MUCH</th>
<th>TOTALLY DISAGREE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Most people are O.K. once you get to know them</td>
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</table>

Look at the example above. To show how much a sentence describes your attitude, you can check any point from totally agree to totally disagree. In the above example, the checkmark at “agree slightly” indicates that this statement is somewhat typical of the attitudes held by the person completing the inventory.

Remember that your answer should describe the way you think MOST OF THE TIME.

NOW TURN THE PAGE AND BEGIN:
<table>
<thead>
<tr>
<th><strong>DSQ</strong></th>
<th><strong>Attitudes</strong></th>
<th><strong>Totally Agree</strong></th>
<th><strong>Agree Very Much</strong></th>
<th><strong>Agree Slightly</strong></th>
<th><strong>Neutral</strong></th>
<th><strong>Disagree Slightly</strong></th>
<th><strong>Disagree Very Much</strong></th>
<th><strong>Totally Disagree</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Remember, answer each statement according to the way you think most of the time</strong></td>
<td>1. You can be a happy person without going out of your way in order to please other people</td>
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<td></td>
<td>2. I have to impress new acquaintances with my charm, intelligence, or wit or they won’t like me</td>
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<td></td>
<td>3. If I put other people’s needs before my own, they should help me when I want them to do something for me.</td>
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<td>4. It is shameful for a person to display his/her weakness</td>
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<td>5. People will like me even if I am not successful</td>
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<td>6. People who have the marks of success (good looks, fame, wealth) are bound to be happier than people who do not.</td>
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<tr>
<td>Attitudes</td>
<td>Totally Agree</td>
<td>Agree Very Much</td>
<td>Agree Slightly</td>
<td>Neutral</td>
<td>Disagree Slightly</td>
<td>Disagree Very Much</td>
<td>Totally Disagree</td>
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<td>7. I should try to impress other people if I want them to like me.</td>
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<td>8. If a person I love does not love me, it means I am unloveable.</td>
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<td>9. I ought to be able to solve my problems quickly and without a great deal of effort</td>
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<td>10. If a person is indifferent to me, it means he/she does not like me.</td>
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<tr>
<td>11. I should be able to please everybody</td>
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<td>12. Others can care for me even if they know all my weaknesses.</td>
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<td>13. If people whom I care about do not care for me, it is awful.</td>
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<td>14. Criticism need not upset the person who receives the criticism.</td>
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<td>15. My life is wasted unless I am a success.</td>
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<td>16. People should prepare for the worst or they will be disappointed.</td>
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<td>17. I must be successful.</td>
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</tbody>
</table>
A productive, creative person or life has no purpose.

<table>
<thead>
<tr>
<th>Attitudes</th>
<th>Totally Agree</th>
<th>Agree Very Much</th>
<th>Agree Slightly</th>
<th>Neutral</th>
<th>Disagree Slightly</th>
<th>Disagree Very Much</th>
<th>Totally Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>18. A person should think less of himself/herself if other people do not accept him/her.</td>
<td></td>
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<td>19. I do not need other people's approval for me to be happy.</td>
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<tr>
<td>20. I can enjoy myself even when others do not like me.</td>
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<tr>
<td>21. My value as a person depends greatly on what others think of me.</td>
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<td>22. If I make a foolish statement it means I am a foolish person.</td>
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<tr>
<td>23. If a person has to be alone for a long period of time it follows that he/she has to feel lonely.</td>
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<td>24. A person should be able to control what happens to oneself.</td>
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<tr>
<td>25. If a person is not a success, then his/her life is meaningless.</td>
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<tr>
<td>26. A person doesn’t need to be well.</td>
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</tbody>
</table>
likel in order
to be happy.

<table>
<thead>
<tr>
<th>Attitudes</th>
<th>Totally Agree</th>
<th>Agree Very Much</th>
<th>Agree Slightly</th>
<th>Neutral</th>
<th>Disagree slightly</th>
<th>Disagree Very Much</th>
<th>Totally Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>27. If someone performs a selfish act, this means he/she is a selfish person.</td>
<td></td>
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<tr>
<td>28. I should always have complete control over my feelings.</td>
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<tr>
<td>29. I should be happy all the time.</td>
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<tr>
<td>30. If people consider me unattractive it need not upset me</td>
<td></td>
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<tr>
<td>31. Whenever I take a chance or risk I am only looking for trouble.</td>
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<tr>
<td>32. A person cannot change his/her emotional reactions even if a person knows they are harmful to him/her</td>
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<tr>
<td>33. I may be able to influence other people’s behaviour but I cannot control it.</td>
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<tr>
<td>34. People will reject you if they know your weaknesses.</td>
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<td>35. People should be criticized for their mistakes.</td>
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<td>36. One</td>
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</tbody>
</table>
should look for a practical solution to problems rather than a perfect solution.

<table>
<thead>
<tr>
<th>Attitudes</th>
<th>Totally Agree</th>
<th>Agree Very Much</th>
<th>Agree Slightly</th>
<th>Neutral</th>
<th>Disagree Slightly</th>
<th>Disagree Very Much</th>
<th>Totally Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>37. If I do well, it is probably due to chance; If I do badly, it is probably my own fault.</td>
<td></td>
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<tr>
<td>38. The way to get people to like you is to impress them with your personality.</td>
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<tr>
<td>39. Turning to someone else for advice or help is an admission of weakness.</td>
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<tr>
<td>40. A person should do well at everything he/she undertakes</td>
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Cognitive Styles Questionnaire (CSQ; Abramson & Metalsky; 1989).

Directions: Please try to vividly imagine yourself in each of the situations that follow. Picture each situation as clearly as you can and as if the events were happening to you right now. Place yourself in each situation and decide what you feel would have caused it if it actually happened to you. Although events may have many causes, we want you to choose only one -- the major cause if the situation actually happened to you. For each situation, you will write down this cause in the blank provided. Then you will answer some questions about the cause. After you have answered the questions about the cause of the situation, think about what the occurrence of the situation would mean to you. You also will answer some questions about what the occurrence of the situation would mean to you. It is important to remember that there are no right or wrong answers to the questions. The important thing is to answer the questions in a way that corresponds to what you would think and feel if the situations actually were occurring in your life.

2. Imagine that the following situation actually happens to you:

SITUATION: An important romantic relationship you are involved in breaks up because the other person no longer wants a relationship with you.

Questions A-D ask about the cause of the person not wanting a romantic relationship with you.

A) One the line below, write down the one major cause of the person not wanting a romantic relationship with you.

CAUSE: ____________________________________________________________

B) Think about the cause (i.e., what you wrote down on the line above) of the person not wanting a romantic relationship with you. Is it something about you or something about other people or circumstances that causes the person to want a romantic relationship with you? (Circle one number.)

Totally caused by other people or circumstances 1 2 3 4 5 6 7  

C) Think about the cause (i.e., what you wrote down on the line above) of the person not wanting a romantic relationship with you. Is this cause something that leads to problems just in your romantic relationship in that instance, or does this cause also lead to problems in other areas of your life? (Circle one number.)

This cause leads to problems just in my romantic relationship in that instance 1 2 3 4 5 6 7  

D) Think about the cause (i.e., what you wrote down on the line above) of the person not wanting
a romantic relationship with you. Now assume that in the future, you approach the same person on other occasions to find out how the person feels about having a romantic relationship with you. Will the cause of the person not wanting a romantic relationship with you now as described above again cause that person to not want a romantic relationship with you in the future? (Circle one number.)

Will never again cause that person to not want a romantic relationship 1 2 3 4 5 6 7 Will always cause that person to not want a romantic relationship with me

Questions E-F ask for your views about the meaning of the situation of the other person no longer wanting a romantic relationship with you rather than about the cause of this situation.

E) How likely is it that the other person no longer wanting a romantic relationship with you will lead to other negative things happening to you? (Circle one number.)

Not at all likely to lead to other negative things happening to me 1 2 3 4 5 6 7 Extremely likely to lead to other negative things happening to me

F) To what degree does the other person no longer wanting a romantic relationship with you mean to you that you are flawed in some way? (Circle one number.)

Definitely does not mean I am flawed in some way 1 2 3 4 5 6 7 Definitely does mean I am flawed in some way
4. Imagine that the following situation actually happens to you:
SITUATION: As an assignment, you give an important talk in class, and the class reacts negatively to your talk.

Questions A-D ask about the cause of the class reacting negatively to your talk.
A) One the line below, write down the one major cause of the class reacting negatively to your talk. CAUSE:
_______________________________________________________________________

B) Think about the cause (i.e., what you wrote down on the line above) of the class reacting negatively to your talk. Is it something about you or something about other people or circumstances that causes the class to react negatively to your talk? (Circle one number.)
Totally caused by
other people or
circumstances

C) Think about the cause (i.e., what you wrote down on the line above) of the class reacting negatively to your talk. Is this cause something that leads to failure just in the class reaction to that talk, or does this cause also lead to failure in other areas of your life? (Circle one number.)
This cause leads to
failure just in the
that talk
This cause leads to class reaction
failure in all areas of my life

D) Think about the cause (i.e., what you wrote down on the line above) of the class reacting negatively to your talk. Now assume that in the future, you give a talk to a class on other occasions. Will the cause of the class reacting negatively now as described above again cause a class to react negatively in the future? (Circle one number.)
Will never again cause
A class to react
Negatively to my talk

Will always cause a class
Negatively to my talk

Questions E-F ask for your views about the meaning of the situation of the class reacting negatively to your talk rather than about the cause of this situation.
E) How likely is it that the class reacting negatively to your talk with you will lead to other negative things happening to you? (Circle one number.)

F) To what degree does the class reacting negatively to your talk mean to you that you are flawed in some way? (Circle one number.)
6. Imagine that the following situation actually happens to you:
SITUATION: During the first year of working in the career of your choice, you receive a negative evaluation of your job performance.

Questions A-D ask about the cause of your receiving a negative evaluation of your job performance.

A) One the line below, write down the one major cause of your receiving a negative evaluation of your job performance.

CAUSE: ____________________________________________________________
________________________________________________________

B) Think about the cause (i.e., what you wrote down on the line above) of your receiving a negative evaluation of your job performance. Is it something about you or something about other people or circumstances that causes you to receive a negative evaluation of your job performance? (Circle one number.)

Totally caused by
other people or circumstances 1 2 3 4 5 6 7 Totally caused by me

C) Think about the cause (i.e., what you wrote down on the line above) of your receiving a negative evaluation of your job performance. Is this cause something that leads to failure just in that job evaluation, or does this cause also lead to failure in other areas of your life? (Circle one number.)

This cause leads to failure just in that 1 2 3 4 5 6 7 This cause leads to job evaluation failure in all areas of my life

D) Think about the cause (i.e., what you wrote down on the line above) of your receiving a negative evaluation of your job performance. Now assume that in the future, you receive evaluations of your job performance on other occasions. Will the cause of your receiving a negative evaluation of your job performance now as described above again cause you to receive negative evaluations of your job performance in the future? (Circle one number.)

Will never again cause me to receive negative evaluations of my job 1 2 3 4 5 6 7 Will always cause me to receive negative evaluations of my job performance

Questions E-F ask for your views about the meaning of the situation of your receiving a negative evaluation of your job performance rather than about the cause of this situation.

E) How likely is it that your receiving a negative evaluation of your job performance will lead to other negative things happening to you? (Circle one number.)

Not at all likely to lead to other negative things happening to me 1 2 3 4 5 6 7 Extremely likely to lead to other negative things happening to me

F) To what degree does your receiving a negative evaluation of your job performance mean to
you that you are flawed in some way? (Circle one number.)

Definitely does not mean I am flawed in some way 1 2 3 4 5 6 7

Definitely does mean I am flawed in some way

7. Imagine that the following situation actually happens to you:
SITUATION: You go to a party with some friends and throughout the whole party people don’t act interested in you.

Questions A-D ask about the cause of people not acting interested in you throughout the whole party.

A) One the line below, write down the one major cause of people not acting interested in you throughout the whole party.

CAUSE: ____________________________________________________________

B) Think about the cause (i.e., what you wrote down on the line above) of people not acting interested in you throughout the whole party. Is it something about you or something about other people or circumstances that causes people to not act interested in you throughout the whole party? (Circle one number.)

Totally caused by other people or circumstances 1 2 3 4 5 6 7

Totally caused by me

C) Think about the cause (i.e., what you wrote down on the line above) of people not acting interested in you throughout the whole party. Is this cause something that leads to problems just in people’s interest in you at that party, or does this cause also lead to problems in other areas of your life? (Circle one number.)

This cause leads to problems just in people’s interest in me at that party 1 2 3 4 5 6 7

This cause leads to failure in all areas of my life

D) Think about the cause (i.e., what you wrote down on the line above) of people not acting interested in you throughout the whole party. Now assume that in the future, you go to similar parties on other occasions. Will the cause of people not acting interested in you throughout the whole party now as described above again cause people to not act interested in you in the future? (Circle one number.)

Will never again cause people at similar parties to not act interested in me 1 2 3 4 5 6 7

Will always cause people at similar parties to not act interested in me

Questions E-F ask for your views about the meaning of the situation of people not acting interested in you throughout the whole party rather than about the cause of this situation.

E) How likely is it that people not acting interested in you throughout the whole party will lead to
other negative things happening to you? (Circle one number.)

Not at all likely to lead to other negative things happening to me 1 2 3 4 5 6 7

Extremely likely to lead to other negative things happening to me

F) To what degree does people not acting interested in you throughout the whole party mean to you that you are flawed in some way? (Circle one number.)

Definitely does not mean I am flawed in some way 1 2 3 4 5 6 7

Definitely does mean I am flawed in some way

9. Imagine that the following situation actually happens to you:

SITUATION: You don’t look as good as you would like in terms of physical appearance. Questions A-D ask about the cause of your not looking as good as you would like.

A) One the line below, write down the one major cause of your not looking as good as you would like.

CAUSE: __________________________________________________________

B) Think about the cause (i.e., what you wrote down on the line above) of your not looking as good as you would like. Is it something about you or something about other people or circumstances that causes you to not look as good as you would like? (Circle one number.)

Totally caused by other people or circumstances 1 2 3 4 5 6 7

Totally caused by me

C) Think about the cause (i.e., what you wrote down on the line above) of your not looking as good as you would like. Is this cause something that leads to problems just in your physical appearance in that instance, or does this cause also lead to problems in other areas of your life? (Circle one number.)

This cause leads to Problems just in My physical appearance 1 2 3 4 5 6 7

This cause leads to problems in all areas of my life

In that instance

D) Think about the cause (i.e., what you wrote down on the line above) of your not looking as good as you would like. Now assume that in the future, you want to look good in terms of physical appearance on other occasions. Will the cause of your not looking as good as you would like now as described above again cause you to not look as good as you would like in the future? (Circle one number.)

Will never again cause
Questions E-F ask for your views about the meaning of the situation of your not looking as good as you would like rather than about the cause of this situation.

E) How likely is it that your not looking as good as you would like will lead to other negative things happening to you? (Circle one number.)

Not at all likely to lead to other negative things happening to me 1 2 3 4 5 6 7 Extremely likely to lead to other negative things happening to me

F) To what degree does your not looking as good as you would like mean to you that you are flawed in some way? (Circle one number.)

Definitely does not mean I am flawed in some way 1 2 3 4 5 6 7 Definitely does mean I am flawed in some way

10. Imagine that the following situation actually happens to you:

SITUATION: You take an exam and receive a low grade on it.

Questions A-D ask about the cause of your low grade on the exam.

A) One the line below, write down the one major cause of your low grade on the exam.

CAUSE: _______________________________________________________________________

B) Think about the cause (i.e., what you wrote down on the line above) of your receiving a low grade on the exam. Is it something about you or something about other people or circumstances that causes you to receive a low grade on the exam? (Circle one number.)

Totally caused by other people or circumstances 1 2 3 4 5 6 7 Totally caused by me

C) Think about the cause (i.e., what you wrote down on the line above) of your receiving a low grade on the exam. Is this cause something that leads to failure just in your grade on that exam, or does this cause also lead to failure in other areas of your life? (Circle one number.)

This cause leads to failure just in my grade on that exam 1 2 3 4 5 6 7 This cause leads to failure in all areas of my life

D) Think about the cause (i.e., what you wrote down on the line above) of your receiving a low grade on the exam. Now assume that in the future, you take exams on other occasions and are
graded on them. Will the cause of your receiving a low grade on the exam as described above again cause you to receive a low grade on other exams in the future? (Circle one number.)

<table>
<thead>
<tr>
<th>Will never again cause</th>
<th>Will always cause me to receive a low grade on other exams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Me to receive a low grade on other exams</td>
<td>1 2 3 4 5 6 7</td>
</tr>
</tbody>
</table>

**Questions E-F ask for your views about the meaning of the situation of your receiving a low grade on the exam rather than about the cause of this situation.**

E) How likely is it that your receiving a low grade on the exam will lead to other negative things happening to you? (Circle one number.)

<table>
<thead>
<tr>
<th>Not at all likely to lead to other negative things happening to me</th>
<th>Extremely likely to lead to other negative things happening to me</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7</td>
<td>1 2 3 4 5 6 7</td>
</tr>
</tbody>
</table>

F) To what degree does your receiving a low grade on the exam mean to you that you are flawed in some way? (Circle one number.)

<table>
<thead>
<tr>
<th>Definitely does not mean I am flawed in some way</th>
<th>Definitely does mean I am flawed in some way</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7</td>
<td>1 2 3 4 5 6 7</td>
</tr>
</tbody>
</table>

14. Imagine that the following situation actually happens to you:

**SITUATION: In an important class, you can’t get all of the work done that your professor expects of you.**

**Questions A-D ask about the cause of your not getting all of the work done that your professor expects of you.**

A) One the line below, write down the one major cause of your not getting all of the work done that your professor expects of you.

**CAUSE:**

B) Think about the cause (i.e., what you wrote down on the line above) of your not getting all of the work done that your professor expects of you. Is it something about you or something about other people or circumstances that causes your not getting all of the work done that your professor expects of you? (Circle one number.)

<table>
<thead>
<tr>
<th>Totally caused by other people or circumstances</th>
<th>Totally caused by me</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7</td>
<td>1 2 3 4 5 6 7</td>
</tr>
</tbody>
</table>

C) Think about the cause (i.e., what you wrote down on the line above) of your not getting all of the work done that your professor expects of you. Is this cause something that leads to failure just in that instance of getting all of the work done that your professor expects of you, or does this
cause also lead to failure in other areas of your life? (Circle one number.)

This cause leads to failure just in work done
getting all of that work done

D) Think about the cause (i.e., what you wrote down on the line above) of your not getting all of the work done that your professor expects of you. Now assume that in the future, you are expected to get the same amount of work done in similar classes. Will the cause of your not getting all of the work done that your professor expects of you now as described above again cause you to not get all of the expected work done in the similar classes in the future? (Circle one number.)

Will never again cause Me to not get all of the Expected work done in Similar classes

Questions E-F ask for your views about the meaning of the situation of your not getting all of the expected work done that your professor expects of you rather than about the cause of this situation.

E) How likely is it that your not getting all of the work done that your professor expects of you will lead to other negative things happening to you? (Circle one number.)

Not at all likely to lead to other negative things happening to me

F) To what degree does your not getting all of the work done that your professor expects of you mean to you that you are flawed in some way? (Circle one number.)

Definitely does not mean I am flawed in some way

16. Imagine that the following situation actually happens to you:

SITUATION: You really want to be in an intimate, romantic relationship, but aren’t.

Questions A-D ask about the cause of your not being in an intimate, romantic relationship.

A) One the line below, write down the one major cause of your not being in an intimate, romantic relationship.

CAUSE:

________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________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B) Think about the cause (i.e., what you wrote down on the line above) of your not being in an intimate, romantic relationship. Is it something about you or something about other people or circumstances that causes your not being in an intimate, romantic relationship? (Circle one number.)

Totally caused by other people or circumstances

C) Think about the cause (i.e., what you wrote down on the line above) of your not being in an Intimate, romantic relationship. Is this cause something that leads to problems just in that instance of your wanting to be in an intimate, romantic relationship, or does this cause also lead to problems in other areas of your life? (Circle one number.)

This cause leads to Problems just in That instance of my Wanting to be in an Intimate romantic relationship

D) Think about the cause (i.e., what you wrote down on the line above) of your not being in an intimate, romantic relationship. Now assume that in the future, you really want to be in an intimate, romantic relationship on other occasions. Will the cause of your not being in an intimate, romantic relationship now as described above again cause you to not be in an intimate, romantic relationship in the future? (Circle one number.)

Will never again cause Me to not be in an Intimate, romantic relationship

Questions E-F ask for your views about the meaning of the situation of your not being in an intimate, romantic relationship rather than about the cause of this situation.

E) How likely is it that your not being in an intimate, romantic relationship will lead to other negative things happening to you? (Circle one number.)

Not at all likely to lead to other negative things happening to me

F) To what degree does your not being in an intimate, romantic relationship mean that you are flawed in some way? (Circle one number.)

Definitely does not mean I am flawed in some way
17. Imagine that the following situation actually happens to you:

**SITUATION:** Your grade point average (GPA) for the semester is low.

Questions A-D ask about the cause of your low grade point average for the semester.

A) One the line below, write down the one major cause of your receiving a low grade point average for the semester.

**CAUSE:**

__________________________

B) Think about the cause (i.e., what you wrote down on the line above) of your receiving a low grade point average for the semester. Is it something about you or something about other people or circumstances that causes you to receive a low grade point average for the semester? (Circle one number.)

Totally caused by other people or circumstances

1 2 3 4 5 6 7 Totally caused by me circumstances

C) Think about the cause (i.e., what you wrote down on the line above) of your receiving a low grade point average for the semester. Is this cause something that leads to failure just in your grade point average for that semester, or does this cause also lead to failure in other areas of your life? (Circle one number.)

This cause leads to failure just in my grade point average for that semester

1 2 3 4 5 6 7 This cause leads to problems in all areas of my life

D) Think about the cause (i.e., what you wrote down on the line above) of your receiving a low grade point average for the semester. Now assume that in the future, you receive your semester grade point average on other occasions. Will the cause of your receiving a low grade point average for the semester now as described above again cause you to receive a low semester grade point average in the future? (Circle one number.)

Will never again cause Me to receive a low Semester grade point average 1 2 3 4 5 6 7 Will always cause me to receive a low semester grade point average

Questions E-F ask for your views about the meaning of the situation of your receiving a low grade point average (GPA) for the semester rather than about the cause of this situation.

E) How likely is it that your receiving a low grade point average (GPA) for the semester will lead to other negative things happening to you? (Circle one number.)

Not at all likely to lead to other negative 1 2 3 4 5 6 7 Extremely likely to lead
things happening to me to other negative things happening to me

F) To what degree does your receiving a low grade point average (GPA) for the semester mean that you are flawed in some way? (Circle one number.)

Definitely does not mean I am flawed in some way 1 2 3 4 5 6 7 Definitely does mean I am flawed in some way

18. Imagine that the following situation actually happens to you:
SITUATION: A person you’d really like to develop a close friendship with does not want to be friends with you.

Questions A-D ask about the cause of the person not wanting to be friends with you.

A) One the line below, write down the one major cause of the person not wanting to be friends with you.

CAUSE: ____________________________________________________________

B) Think about the cause (i.e., what you wrote down on the line above) of the person not wanting to be friends with you. Is it something about you or something about other people or circumstances that causes the person to not want to be friends with you? (Circle one number.)

Totally caused by other people or circumstances 1 2 3 4 5 6 7 Totally caused by me

C) Think about the cause (i.e., what you wrote down on the line above) of the person not wanting to be friends with you. Is this cause something that leads to problems just in developing a close friendship with that person, or does this cause also lead to problems in other areas of your life? (Circle one number.)

This cause leads to problems just in developing a close friendship with that person 1 2 3 4 5 6 7 This cause leads to problems in all areas of my life

D) Think about the cause (i.e., what you wrote down on the line above) of the person not wanting to be friends with you. Now assume that in the future, you approach the same person on other occasions to be friends. Will the cause of the person not wanting to be friends with you now as described above again cause that person to not want to be friends with you in the future? (Circle one number.)

Will never again cause That person to not want to be friends with me average 1 2 3 4 5 6 7 Will always cause that person to not want to be friends with me
Questions E-F ask for your views about the meaning of the situation of the person not wanting to be friends with you rather than about the cause of this situation.

E) How likely is it that the other person not wanting to be friends with you will lead to other negative things happening to you? (Circle one number.)

Not at all likely to lead to other negative things happening to me 1 2 3 4 5 6 7
Extremely likely to lead to other negative things happening to me

F) To what degree does the other person not wanting to be friends with you mean that you are flawed in some way? (Circle one number.)

Definitely does not mean I am flawed in some way 1 2 3 4 5 6 7
Definitely does mean I am flawed in some way

21. Imagine that the following situation actually happens to you:

SITUATION: You are unhappy.

Questions A-D ask about the cause of your being unhappy.

A) One the line below, write down the one major cause of your being unhappy.

CAUSE:
____________________________________________________________________________

B) Think about the cause (i.e., what you wrote down on the line above) of your being unhappy. Is it something about you or something about other people or circumstances that causes you to be unhappy? (Circle one number.)

Totally caused by other people or circumstances 1 2 3 4 5 6 7
Totally caused by me

C) Think about the cause (i.e., what you wrote down on the line above) of your being unhappy. Is this cause something that leads to problems just in your mood in that instance, or does this cause also lead to problems in other areas of your life? (Circle one number.)

This cause leads to problems just in mood in that instance 1 2 3 4 5 6 7
This cause leads to problems in all areas of my life

D) Think about the cause (i.e., what you wrote down on the line above) of your being unhappy. Now assume that in the future, you check your mood on other occasions. Will the cause of your
being unhappy now as described above again cause you to be unhappy in the future? (Circle one number.)

Will never again cause me to be unhappy 1 2 3 4 5 6 7 Will always cause me to be unhappy

Questions E-F ask for your views about the meaning of the situation of your being unhappy rather than about the cause of this situation.

E) How likely is it that your being unhappy will lead to other negative things happening to you? (Circle one number.)

Not at all likely to lead to other negative things happening to me 1 2 3 4 5 6 7 Extremely likely to lead to other negative things happening to me

F) To what degree does your being unhappy mean that you are flawed in some way? (Circle one number.)

Definitely does not mean I am flawed in some way 1 2 3 4 5 6 7 Definitely does mean I am flawed in some way

23. Imagine that the following situation actually happens to you:

SITUATION: You write a paper for a course and get a low grade on it. Questions A-D ask about the cause of your getting a low grade on the paper.

A) One the line below, write down the one major cause of your getting a low grade on the paper.

CAUSE:____________________________________________________________________________

B) Think about the cause (i.e., what you wrote down on the line above) of your getting a low grade on the paper. Is it something about you or something about other people or circumstances that causes you to get a low grade on the paper? (Circle one number.)

Totally caused by other people or circumstances 1 2 3 4 5 6 7 Totally caused by me circumstances

C) Think about the cause (i.e., what you wrote down on the line above) of your getting a low grade on the paper. Is this cause something that leads to failure just in the grade on that paper, or does this cause also lead to failure in other areas of your life? (Circle one number.)

This cause leads to Failure just in the grade 1 2 3 4 5 6 7 This cause leads to problems in all

On that paper
D) Think about the cause (i.e., what you wrote down on the line above) of your getting a low grade on the paper. Now assume that in the future, you write papers on other occasions and are graded on them. Will the cause of your receiving a low grade as described above again cause you to receive low grades on other papers in the future? (Circle one number.)

Will never again cause
me to receive a low grade on a paper

1 2 3 4 5 6 7 Will always cause me to receive a low grade on a paper

Questions E-F ask for your views about the meaning of the situation of your getting a low grade on the paper rather than about the cause of this situation.

E) How likely is it that your getting a low grade on the paper will lead to other negative things happening to you? (Circle one number.)

Not at all likely to lead to other negative things happening to me

1 2 3 4 5 6 7 Extremely likely to lead to other negative things happening to me

F) To what degree does your getting a low grade on the paper mean that you are flawed in some way? (Circle one number.)

Definitely does not mean I am flawed in some way

1 2 3 4 5 6 7 Definitely does mean I am flawed in some way
Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004).

Please indicate how often the following statements apply to you by writing the appropriate number from the scale below on the line beside each item:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1) I am clear about my feelings.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2) I pay attention to how I feel.</td>
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<td></td>
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<tr>
<td></td>
<td>3) I experience my emotions as overwhelming and out of control.</td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td>4) I have no idea how I am feeling.</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>5) I have difficulty making sense out of my feelings.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6) I am attentive to my feelings.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7) I know exactly how I am feeling.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8) I care about what I am feeling.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9) I am confused about how I feel.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10) When I’m upset, I acknowledge my emotions.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11) When I’m upset, I become angry with myself for feeling that way.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12) When I’m upset, I become embarrassed for feeling that way.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>13) When I’m upset, I have difficulty getting work done.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>14) When I’m upset, I become out of control.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15) When I’m upset, I believe that I will remain that way for a long time.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>16) When I’m upset, I believe that I’ll end up feeling very depressed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>17) When I’m upset, I believe that my feelings are valid and important.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>18) When I’m upset, I have difficulty focusing on other things.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
19) When I’m upset, I feel out of control.

20) When I’m upset, I can still get things done.

21) When I’m upset, I feel ashamed with myself for feeling that way.

22) When I’m upset, I know that I can find a way to eventually feel better.

23) When I’m upset, I feel like I am weak.

24) When I’m upset, I feel like I can remain in control of my behaviors.

25) When I’m upset, I feel guilty for feeling that way.

26) When I’m upset, I have difficulty concentrating.

27) When I’m upset, I have difficulty controlling my behaviors.

28) When I’m upset, I believe that there is nothing I can do to make myself feel better.

29) When I’m upset, I become irritated with myself for feeling that way.

30) When I’m upset, I start to feel very bad about myself.

31) When I’m upset, I believe that wallowing in it is all I can do.

32) When I’m upset, I lose control over my behaviors.

33) When I’m upset, I have difficulty thinking about anything else.

34) When I’m upset, I take time to figure out what I’m really feeling.

35) When I’m upset, it takes me a long time to feel better.

36) When I’m upset, my emotions feel overwhelming.
Social Problem Solving Inventory-Revised; Short Form (D’Zurilla, Nezu, & Maydeu-Olivares, 1996). Below are some ways that you might think, feel, and act when faced with problems in everyday living. We are not talking about the ordinary hassles and pressures that you handle successfully every day. In this questionnaire, a problem is something important in your life that bothers you a lot, but you don’t immediately know how to make it better or stop it from bothering you so much. The problem could be something about yourself (such as your thoughts, feelings, behavior, health or appearance), your relationships with other people (such as your family, friends, teachers, or boss), or your environment and the things you own (such as your house, car, property, or money). Please read each statement carefully and choose one of the numbers below that best shows how much the statement is true of you. See yourself as you usually think, feel, and act when you are faced with important problems in your life these days. Circle the number that is the most true of you. Try to answer all of the questions. (0=Not at all true, 1 = Slightly True of me, 2 = Moderately true of me, 3 = Very true of me, 4 = Extremely true of me)

1. I feel threatened and afraid when I have an important problem to solve. 0 1 2 3 4
2. When making decisions, I do not evaluate all my Options carefully enough. 0 1 2 3 4
3. I feel nervous and unsure of myself when I have an important decision to make. 0 1 2 3 4
4. When my first efforts to solve a problem fail, I know if I persist and do not give up too easily, I will be able to eventually find a good solution. 0 1 2 3 4
5. When I have a problem, I try to see it as a challenge, or opportunity to benefit in some positive way from having the problem. 0 1 2 3 4
6. I wait to see if a problem will resolve itself first, before trying to solve it myself. 0 1 2 3 4
7. When my first efforts to solve a problem fail, I get very frustrated. 0 1 2 3 4
8. When I am faced with a difficult problem, I doubt that I will be able to solve it on my own no matter how hard I try. 0 1 2 3 4
9. Whenever I have a problem, I believe that it can be solved. 0 1 2 3 4
10. I go out of my way to avoid having got deal with problems in my life. 0 1 2 3 4
11. Difficult problems make me very upset. 0 1 2 3 4
12. When I have a decision to make, I try to predict the positive and negative consequences of each option. 0 1 2 3 4
13. When problems occur in my life, I like to deal with them as soon as possible. 0 1 2 3 4
14. When I am trying to solve a problem, I go with the first good idea that comes to mind. 0 1 2 3 4
<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Score</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>When I am faced with a difficult problem, I believe that I will be able to solve it on my own if I try hard enough.</td>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>16</td>
<td>When I have a problem to solve, one of the first things I do is get as many facts about the problem as possible.</td>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>17</td>
<td>When a problem occurs in my life, I put off trying to solve it for as long as possible.</td>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>18</td>
<td>I spend more time avoiding my problems than solving them.</td>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>19</td>
<td>Before I try to solve a problem, I set a specific goal so that I know exactly what I want to accomplish.</td>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>20</td>
<td>When I have a decision to make, I do not take the time to consider the pros and cons of each options.</td>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>21</td>
<td>After carrying out a solution to a problem, I try to evaluate as carefully as possible how much the situation has changed for the better.</td>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>22</td>
<td>I put off solving problems until it is too late to do anything about them.</td>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>23</td>
<td>When I am trying to solve a problem, I think of as many options as possible until I cannot come up with any more ideas.</td>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>24</td>
<td>When making decisions, I go with my “gut feeling” without thinking too much about the consequences of each option.</td>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>25</td>
<td>I am too impulsive when it comes to making decisions.</td>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
PES-Participants’ Subjective experience of the Study (1 month follow-up)

Please think back about this experience and what it has meant to you.

1. Since your participating in the writing experiment, how much have you thought about what you wrote?

   1 2 3 4 5 6 7

   not at all a great deal

2. Since the writing experiment, how much have you talked to other people about what you wrote?

   1 2 3 4 5 6 7

   not at all a great deal

3. Looking back on the experiment, to what degree do you feel that the experiment had a positive long-lasting effect on you?

   1 2 3 4 5 6 7

   not at all a great deal

4. Looking back on the experiment, to what degree do you feel that the experiment had a negative long-lasting effect on you?

   1 2 3 4 5 6 7

   not at all a great deal

5. Since the experiment, how happy have you felt?

   1 2 3 4 5 6 7

   not at all a great deal

6. Since the experiment, how sad or depressed have you felt?

   1 2 3 4 5 6 7
7. Looking back on the experiment, to what degree has this experiment been valuable or meaningful for you (not counting the potential raffle prize or the money you might receive)

1 2 3 4 5 6 7
not deal at all

8. If you had a chance to do it over again, would you participate in the study:

___ definitely yes  ___ probably yes  ___ don’t know  ___ probably no
___ definitely no

9. Now that the experiment is completed, could tell me how it may have influenced you in the long run? What have been the positive effects as well as the negative effects?

9. Any other comments you have about the experiment would be greatly appreciated.
DEMOGRAPHIC INFORMATION

Please fill out the following information about yourself.

*Name: 
Address: 

Age: 

Sex: M___________F__________

Phone number: 

*Email address: 

Ethnicity: 
   ____ African American
   ____ Asian
   ____ Pacific Islander
   ____ Caucasian
   ____ Hispanic
   ____ Other

Are you fluent in reading and writing in English?

Education: 
   ____ Some High School
   ____ High School Graduate
   ____ Some College
   ____ College Graduate
   ____ Some Graduate School
   ____ Graduate School
   ____ Other: Specify_____________________________________________________

Occupation_______________________________________________

Household Income: __Less than 20,000 ____20,000-35,000 ____35,000-50,000 ____50,000-100,000
   ____ Over 100,000

Relationship Status
   ____ Single (never married)  ____ Married  ____ Living with
someone  ____ Divorced  ____ Widowed
AVAILABLE TIMES

Please indicate which days and times in the next couple of weeks that you could be available to come to the Illinois Institute of Technology campus (31st and State) for the first session.

YES

Monday 9am-12pm
Monday 12pm-3pm
Monday 3pm-6pm
Monday 6pm-9pm
Tuesday 9am-12pm
Tuesday 12pm-3pm
Tuesday 3pm-6pm
Tuesday 6pm-9pm
Wednesday 9am-12pm
Wednesday 12pm-3pm
Wednesday 3pm-6pm
Wednesday 6pm-9pm
Thursday 9am-12pm
Thursday 12pm-3pm
Thursday 3pm-6pm
Thursday 6pm-9pm
Friday 9am-12pm
Friday 12pm-3pm
Friday 3pm-6pm
Friday 6pm-9pm
Saturday 9am-12pm
Saturday 12pm-3pm
Saturday 3pm-6pm
Saturday 6pm-9pm
APPENDIX E

WRITING INSTRUCTIONS ON THE WEB
EXPRESSIVE WRITING CONDITION

General Instructions on opening page for days 1, 2, and 3
This study looks at writing and how people think about things. On each of the three writing sessions, you will be asked to write for 20 minutes. Please read your instructions carefully. You will then begin writing. After 20 minutes, you will be alerted to stop, at which time you should stop writing.

Please write continuously for the entire time. If you run out of things to say, just repeat what you have already written. Do not worry about grammar, spelling, or sentence structure. Just write.

Please do not talk with anyone about the experiment. Because we are trying to make this a valid experiment, we can not tell you what other people are writing about or anything about the specific nature or the predictions of the study. Once the study is complete, however, we will tell you everything if you want. We expect the study to be complete in about six to eight months.

Another thing is that sometimes people feel a little sad or depressed after writing. If that happens, it is completely normal. Most people say that these feelings go away in an hour or so. If at any time over the course of the study you feel upset or distressed, please contact a psychologist, medical doctor, or other mental health professional. Several resources are listed on your consent form. You can also email me at weincyn@iit.edu if you need the list of resources again.

PLEASE CLICK ON THE APPROPRIATE DAY HERE (for example, if this is your first day, click on Day 1)

[Links]
Day 1
Day 2
Day 3

Screen 1 is the same for days 1, 2, and 3
Your writing is completely confidential. You are identified by the Code ID provided to you at the beginning of the study. Please do not write your name anywhere in your writing so that none of your writing is linked to your name.

1. What is your ID code? [text box]
2. What is your email address? [text box]

* Your email will not be distributed to anyone. It will only be used to contact you for a follow-up.

Screen 2 is the same for days 1, 2, and 3
I would like you to write for 20 minutes about your very deepest thoughts and feelings about any difficult or emotionally disturbing events you are experiencing in your life right now. You may also tie your topic in with any past stressful or traumatic experiences you have had. In your writing, I would like you to really let go and explore your very
deepest emotions and thoughts. You might link your topic to your relationships with others, including your parents, people you love, friends, or relatives. You may also want to link your experience to your past, your present, or your future, or to who you have been, who you would like to be or who you are now. You should write about the same general issues or experiences in all 3 days of writing. Don’t worry about grammar or spelling—that is not important. All of your writing will be completely confidential. Remember in your writing examine your deepest emotions and thoughts.

Screen 3:
Day 1
You are now finished with your first writing session! Please log on tomorrow and click on Day 2 to do your second day of writing.

THANK YOU FOR YOUR PARTICIPATION!

Day 2
You are now finished with your second writing session! Please log on tomorrow and click on Day 3 to do your final day of writing.

THANK YOU FOR YOUR PARTICIPATION!

Day 3
YOU HAVE NOW COMPLETED THE WRITING PORTION OF THE STUDY!

TOMORROW: Please complete the post-writing survey. Log on to http://www.surveymonkey.com/s/J7XQWSH to take the survey. Simply copy this link and save it on your computer.

The link should take you right to the Post-Writing survey!

If you do not remember to save the link, please email Cynthia at cynw111@aol.com to get another copy of the link.

THANK YOU FOR YOUR PARTICIPATION!

SELF-REGULATION/PROBLEM-SOLVING (SR/PS) CONDITION

General Instructions on the opening page is the same for days 1, 2 and 3
This study looks at writing. On each of the three writing sessions, you will be asked to write for 20 minutes altogether. Please read your instructions carefully. You will then begin writing. After 15 minutes, you will be alerted to stop, at which time you should stop writing. You will then be given new instructions and you will have an additional five minutes to write. When your time is up, you will be alerted to stop, at which time you should stop writing.
Please write continuously for the entire time. If you run out of things to say, just repeat what you have already written. Don’t worry about grammar, spelling, or sentence structure. Just write.

Please do not talk with anyone about the experiment. Because we are trying to make this a valid experiment, we can’t tell you what other people are writing about or anything about the specific nature or the predictions of the study. Once the study is complete, however, we will tell you everything if you want. We expect the study to be complete in about six to eight months.

Another thing is that sometimes people feel a little sad or depressed after writing. If that happens, it is completely normal. Most people say that these feelings go away in an hour or so. If at any time over the course of the study you feel upset or distressed, please contact a psychologist, medical doctor, or other mental health professional. Several resources are listed on your consent form. You can also email me at weincyn@iit.edu if you need the list of resources again.

PLEASE CLICK ON THE APPROPRIATE DAY HERE (for example if this is your first day, click on Day 1)

Day 1
Day 2
Day 3

Screen 1 is the same for days 1, 2, and 3.
Your writing is completely confidential. You will be identified by the ID Code you were provided at the beginning of the study. Please do not write your name anywhere in your writing so that none of your writing is linked to your name.

1. What is your ID code? [text box]
2. What is your email address? [text box]
* Your email will not be distributed to anyone. It will only be used to contact you for a follow-up.

Beginning with Screen 2, the instructions change for each day

Screen 2
Day 1
I would like you to spend fifteen minutes writing about your very deepest thoughts and feelings about a difficult or emotionally disturbing event you are experiencing in your life right now. In your writing, I would like you to really let go and explore your very deepest emotions and thoughts.

I would like you to tie your topic directly with how you may be feeling about your future plans. Feel free to discuss any stresses, concerns or challenges you are facing and/or how you imagine your next experiences to be.

I am particularly interested in understanding how you have tried to make sense of your fears or concerns regarding this issue and what you tell yourself about it to help
you deal with it. For example, what kinds of problems or challenges have you had in
dealing with your experience and how is it affecting your life now? How might it
affect future plans?

If the situation you are describing does not yet make sense to you or it is difficult to
deal with, describe how you are trying to understand it, make sense of it, and deal
with it, and how your feelings may change about it.

You should write about the same general issue or experience in all 3 days of writing.
Do not worry about grammar or spelling—that is not important.

[A time alert pops up after 15 minutes and states, “Your time is up for writing.
Please press the finish button below to get to the next set of instructions.”]

Screen 2: Day 2
Welcome Back! Before you begin, did you bring your list of three things that you wrote
about to help deal with your particular situation? Please make sure to have that list with
you before you begin.

Just like yesterday, I would like you to write for 15 minutes about your very deepest
thoughts and feelings about a difficult or emotionally disturbing event you are
experiencing in your life right now. You should write about the same general issue
(s) as yesterday. In your writing, I would like you to really let go and explore your
very deepest emotions and thoughts.

I would like you to tie your topic directly with how you may be feeling about your
future plans. Feel free to discuss any stresses, concerns or challenges you are facing
and/or how you imagine your next experience to be. I am particularly interested in
understanding how you have tried to make sense of your fears or concerns regarding
this issue and what you tell yourself about it to help you deal with it. For example,
what kinds of problems or challenges have you had in dealing with your experience
and how is it affecting your life now? How might it affect future plans?

If the situation you’re describing does not yet make sense to you or it is difficult to
deal with, describe how you’re trying to understand it, make sense of it, and deal
with it and how your feelings may change about it.”

Don’t worry about grammar or spelling—that is not important.

[A time alert pops up after 15 minutes and states, “Your time is up for writing.
Please press the finish button below to get to the next set of instructions.”]

Screen 2: Day 3
Welcome Back! Before you begin, did you bring with you your sheet of paper with the
most recent list of actions you would take to deal with problems (from Day 2)? Please
make sure to have that list with you before you begin.
Just like the first two days, I would like you to spend fifteen minutes writing about your very deepest thoughts and feelings about a difficult or emotionally disturbing event you are experiencing in your life right now. You should write about the same general issue(s) as you wrote about in the past two writing sessions. In your writing, I would like you to really let go and explore your very deepest emotions and thoughts.

I would again like you to tie your topic directly with how you may be feeling about your future plans. Feel free to discuss any stresses, concerns or challenges you are facing and/or how you imagine your next experience(s) to be.

I am particularly interested in understanding how you have tried to make sense of your fears or concerns regarding this issue and what you tell yourself about it to help you deal with it. For example, what kinds of problems or challenges have you had in dealing with it and how is it affecting your life now? How might it affect future plans?

If the situation you are describing does not yet make sense to you or it is difficult to deal with, describe how you are trying to understand it, make sense of it, and deal with it and how your feelings may change about it.

Do not worry about grammar or spelling—that is not important

[A time alert pops up after 15 minutes and states, “Your time is up for writing. Please press the finish button below to get to the next set of instructions.”]

Screen 3 changes for days 1, 2 and 3.

Screen 3: Day 1
For the next five minutes list three things that you can do that will help you to deal with one or more of the problems or challenges you just wrote about. REMEMBER THREE THINGS.

[*A time alert pops up at the end of five minutes and states, "Your time is up. Please write on a piece of paper the three things you listed here so you can remember what you wrote when you come back tomorrow. Bring the paper with you for your writing session tomorrow. Press the finish button below when you have finished.”]*

Screen 3: Day 2
For the last five minutes, list the ACTIONS you identified to deal with problems and challenges in the previous session. If you do not remember what they were, these should be written on the sheet of paper you brought with you. Indicate for each one:

a) Whether you tried them
b) If you have tried any of them, to what extent it was helpful and
c) If you had not tried them, why not.
After you finished answering the above three questions, again list three actions you plan to use in the future for dealing with these problems. The actions could be the SAME OR DIFFERENT from those you listed in the prior session.

[A time alert pops up at the end of five minutes and states, “Your time is up. Please write on a piece of paper the three things that you listed here so you can remember what you wrote when you come back tomorrow. Bring the paper with you for your final writing session tomorrow. Press the finish button below when you have finished.”]

Screen 3: Day 3
For the next five minutes, list the ACTIONS you identified in the previous session (in Day 2) to deal with problems and challenges. If you do not remember what they were, these should be written down on the sheet of paper you brought with you. Indicate for each one:

a) Whether you tried any of them
b) If you have tried them, to what extent they were helpful and
c) If you have not tried them, why not.

After, again list three actions you plan to use in the future for dealing with these problems. The actions could be the same or different from those you listed in the prior sessions.

[A time alert pops up at the end of five minutes and states, “Your time is up. Please write on a piece of paper the three things that you listed here so you can remember what you wrote when you come back tomorrow. Bring the paper with you for your final writing session tomorrow. Press the finish button below when you have finished.”]

Screen 4 changes for days 1, 2, and 3.

Screen 4: Day 1
YOU ARE FINISHED WITH YOUR FIRST WRITING SESSION!
Please log on tomorrow and click on Day 2 to do your second day of writing.
Remember to write down on a sheet of paper the list of 3 things that you wrote about that you think will help you deal with your situation. Bring that list with you tomorrow for your next writing session!

THANK YOU FOR YOUR PARTICIPATION!

Screen 4: Day 2
YOU ARE FINISHED WITH YOUR SECOND WRITING SESSION!
Please log on tomorrow and click on Day 3 to do your final day of writing.
Remember to write down on a sheet of paper the list of 3 things that you wrote about that you think will help you deal with your situation. Bring that list with you tomorrow for your last writing session!
THANK YOU FOR YOUR PARTICIPATION!

Screen 4: Day 3
YOU HAVE NOW COMPLETED THE WRITING PORTION OF THE STUDY!
TOMORROW: Please complete the post-writing survey. Log on to http://www.surveymonkey.com/s/J7XQWSH to take the survey. Simply copy this link and save it on your computer. The link should take you right to the Post-Writing survey! If you do not remember the to save the link, please email Cynthia at cynw111@aol.com to get another copy of the link.

THANK YOU FOR YOUR PARTICIPATION!

CONTROL GROUP

General Instructions on the opening page is the same for days 1, 2 and 3

Screen 1 is the same for days 1,2, and 3
This study looks at writing and how people think about things. On each of the three writing sessions, you will be asked to write for 20 minutes. Please read your instructions carefully. You will then begin writing. After 20 minutes, you will be alerted to stop, at which time you should stop writing.

Please write continuously for the entire time. If you run out of things to say, just repeat what you have already written. Do not worry about grammar, spelling, or sentence structure. Just write.

Please do not talk with anyone about the experiment. Because we are trying to make this a valid experiment, we can not tell you what other people are writing about or anything about the specific nature or the predictions of the study. Once the study is complete, however, we will tell you everything if you want. We expect the study to be complete in about six to eight months.

Another thing is that sometimes people feel a little sad or depressed after writing. If that happens, it is completely normal. Most people say that these feelings go away in an hour or so. If at any time over the course of the study you feel upset or distressed, please contact a contact a psychologist, medical doctor, or other mental health professional. Several resources are listed on your consent form. You can also email me at weincyn@iit.edu if you need the list of resources again.

PLEASE CLICK ON THE APPROPRIATE DAY HERE (for example, if this is your first day, click on Day 1)

[Links]
Day 1
Day 2
Day 3
Your writing is completely confidential. You are identified by the ID number provided to you at the beginning of the study. Please do not write your name anywhere in your writing so that none of your writing is linked to your name.

1. What is your ID Code? [text box]
2. What is your email address? [text box]

* Your email will not be distributed to anyone. It will only be used to contact you for a follow-up.

**Screen 2 changes for days 1, 2, and 3**

**Screen 2: Day 1**

For the next 20 minutes, I would like for you to write about how you have used your time over the past week. In your writing, please go into as much detail as possible in how you have spent your days and managed your time. In your account of your activities, please be as objective as possible. You should describe your activities in detail without discussing any of your own thoughts or feelings related to the topic.

[A time alert pops up to alert participants to stop after 20 minutes.]

**Screen 2: Day 2**

For the next 20 minutes, I would like for you to write about how you have used your time over the past 24 hours. In your writing, please go into as much detail as possible in how you have spent your day and managed your time. In your account of your activities, please be as objective as possible. You should describe your activities in detail without discussing any of your own thoughts or feelings related to the topic.

[A time alert pops up to alert participants to stop after 20 minutes.]

**Screen 2: Day 3**

For the next 20 minutes, I would like for you to write about how you plan to use your time during the next two weeks. In your writing, please go into as much detail as possible in how you plan to spend your days and manage your time. In your account of your activities, please be as objective as possible. You should describe your activities in detail without discussing any of your own thoughts or feelings related to the topic.

[A time alert pops up to alert participants to stop after 20 minutes.]

**Screen 3 changes for days 1, 2, and 3.**

**Screen 3: Day 1**

You are now finished with your first writing session! Please log on tomorrow and click on Day 2 to do your next writing session. THANK YOU FOR YOUR PARTICIPATION!

**Screen 3: Day 2**
You are now finished with your second writing session! Please log on tomorrow to do your final writing session. THANK YOU FOR YOUR PARTICIPATION!

Screen 3: Day 3
YOU HAVE NOW COMPLETED THE WRITING PORTION OF THE STUDY!

TOMORROW: Please complete the post-writing survey. Log on to http://www.surveymonkey.com/s/J7XQWSH to take the survey. Simply copy this link and save it on your computer. The link should take you right to the Post-Writing survey! If you do not remember to save the link, please email Cynthia at cynw111@aol.com to get another copy of the link.

THANK YOU FOR YOUR PARTICIPATION!
APPENDIX F

WEBSITES AND URLS
Survey Monkey Surveys

SCREEN SURVEY
http://www.surveymonkey.com/s/XCX76GY

PRE-TEST SURVEY
http://www.surveymonkey.com/s/XCFLMS5

POST-TEST SURVEY
http://www.surveymonkey.com/s/J7XQWSH

FOLLOW-UP SURVEY
http://www.surveymonkey.com/s/J98P22S

WRITING URL’S

EXPRESSIVE WRITING (EW) CONDITION-WRITE 1
Erlab.psyc.iit.edu/write 1

SELF-REGULATION/ PROBLEM SOLVING (SR/PS) CONDITION-WRITE 2
Erlab.psyc.iit.edu/write 2

CONTROL CONDITION-WRITE 3
Erlab.psyc.iit.edu/write3
BIBLIOGRAPHY


